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**REPORT OF THE MEETING OF  
THE OIE ANIMAL PRODUCTION FOOD SAFETY WORKING GROUP  
Paris, 13–15 December 2016**

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The OIE Working Group on Animal Production Food Safety (the Working Group) held its 16<sup>th</sup> meeting at the OIE Headquarters from 13 to 15 December 2016.

The members of the Working Group and other participants are listed at [Annex 1](#). The adopted agenda is provided at [Annex 2](#).

Dr Monique Eloit, OIE Director General, welcomed the Working Group members and thanked them for their support and commitment to achieving OIE objectives related to animal production food safety.

Dr Eloit introduced Dr Matthew Stone, who has recently joined the OIE as the new Deputy Director General International Standards and Science and Ms Ann Backhouse, new Head of the Standards Department. Dr Eloit informed the Commission that the Standards Department will be dedicated to strengthening collaboration and coordination across the four Specialist Commissions and reinforcing the role of the Secretariat to better support the work of the Commissions.

Dr Eloit reiterated the commitment of the OIE to the implementation of the key objectives of the Sixth Strategic Plan. She explained that improved processes for selection of OIE experts will be developed, including for membership of the Specialist Commissions. Dr Eloit noted that the forthcoming session of the Council will consider a paper on the proposed draft procedure for the selection of experts.

Dr Eloit also informed the Working Group that the OIE Council had reviewed the mandate of the three OIE permanent Working Groups, as part of the work to ensure that the organisation's roadmap is in line with the 6<sup>th</sup> Strategic Plan. She informed the Working Group that the Council had emphasized that since the establishment of the Working Group, in 2002, it has provided significant advice to the OIE Director General and to its Specialist Commissions, in particular, through the development and updating of relevant chapters in the *Terrestrial Animal Health Code (Terrestrial Code)*. They also acknowledged that the establishment of the Working Group and the commitment of its members has contributed to the development of a strong working relationship with Codex and the development of standards by the two organisations that, when implemented, ensure the production of safe food of animal origin. Dr Eloit reported that the Council considered that the OIE's work in animal production food safety was now well integrated into the work of the OIE and that they would propose that the mandate for this Working Group does not need to be renewed. Dr Eloit assured the Working Group that this decision in no way indicates a lesser commitment by the OIE to this important area of work and she indicated that this work would continue to be addressed in other OIE fora, for example as part of the annual Tripartite meeting where strategic issues relevant to animal production food safety could be addressed by the WHO, FAO and OIE; through the work of *ad hoc* Group meetings; by the establishment of a contacts points in FAO, WHO, Codex and OIE who could meet regularly to exchange relevant information and ensure the timing of new work in OIE and Codex is done in parallel, for relevant standards. She finished by noting that the Council would further discuss this matter at their February 2017 meeting and at the General Session in May 2017.

Annex 38 (contd)**1. Update on Codex Alimentarius Commission/WHO/FAO activities****1.1. Codex Alimentarius Commission (CAC)**

Dr Annamaria Bruno, representing the Codex Secretary, provided an update on relevant work of CAC. Detailed information is provided in Annex 5.

**1.2. World Health Organization (WHO)**

Dr Kazuaki Miyagishima, representing the WHO, provided an update on relevant work of WHO. Detailed information is provided in Annex 6.

**1.3. Food and Agriculture Organization of the United Nations (FAO)**

Dr Sarah Cahill, representing the FAO, provided an update on relevant work of FAO. Detailed information is provided in Annex 7.

The Working Group was very positive about the excellent ongoing collaboration between the OIE and Codex, FAO and WHO, in the area of animal production food safety. The Working Group recognised the benefits that have resulted from the strong relationships forged between the OIE and Codex, and the relevant units at the FAO and WHO, which ensure continued close coordination of the relevant work of these organisations. Recent work on several standards developed by the OIE and Codex attest to the high level of integration and complementarity between relevant standards of both organisations in food safety.

**1.4. World Organisation for Animal Health**

Dr Gillian Mylrea, Deputy Head, Standards Department, informed the Working Group that the Terrestrial Animal Health Standards Commission (Code Commission), at its September 2016 meeting, reviewed Member Countries' comments on the two new draft chapters on the 'Prevention and control of *Salmonella* in commercial cattle production systems (Chapter 6.X.)' and 'Prevention and control of *Salmonella* in commercial pig production systems (Chapter 6.Y.)' and made relevant amendments. The two revised draft chapters were annexed to the Code Commission's September 2016 report (Annexes 10 and 11 respectively) for Member Country comments and are to be proposed for adoption at the 85th General Session in May 2017.

Dr Mylrea also informed the Working Group that the Code Commission agreed with the suggestion made by the Working Group to develop an introductory chapter for Section 6 Veterinary Public Health to provide an overview of this section. The Code Commission agreed to include this in their work programme.

The Working Group applauded the parallel development of OIE and Codex guidelines on the control of *Salmonella* in pigs and cattle, and pork and beef, respectively.

**2. OIE Terrestrial Animal Health Code chapters****2.1. Chapter 6.1. The role of the Veterinary Services in food safety**

The Code Commission, at its September 2016 meeting, considered Member Country comments received on the revised draft Chapter 6.1. The role of the Veterinary Services in food safety that had been circulated for Member Country comments in the Code Commission's February 2016 report.

Given the extensive number of Member Countries' comments received, the Code Commission requested that all comments be referred to the Animal Production Food Safety Working Group for its consideration at its December 2016 meeting. The Code Commission requested that the revised chapter, be provided to them for their review at its February 2017 meeting.

The Working Group reviewed comments received from Japan, Malaysia, New Zealand, Norway, Switzerland, USA, the Member States of the European Union (EU) and the African Union Interafrican Bureau for Animal Resources (AU-IBAR) on behalf of African Member Countries of the OIE.

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In considering the comments, the Working Group made a number of changes to articles to improve the readability and refocus the text on the role of Veterinary Services, as opposed to the function of a food safety system, and to better distinguish between the role of the Competent Authority and Veterinary Services to address the concern that in some countries the role and responsibilities of the Veterinary Service along the food chain will differ depending on the role of the Competent Authority.

The Working Group agreed to use the term food chain throughout the document for consistency as the term was well understood.

Title: Role of the Veterinary Services in Food Safety Systems

The Working Group agreed with the Code Commission proposal to delete 'the' in the title as it was inappropriate. They also reviewed the use of this use throughout the chapter.

Article 6.1.1. Introduction

Considering that the chapter had been adopted many years ago, and in order to address Member Country comments, the Working Group made several amendments to the introductory paragraph in order to make it clearer and more concise and to emphasise the increased role and greater responsibilities of Veterinary Services and the need for greater collaboration with other Competent Authorities in line with the One Health approach. The Working Group deleted the reference to 'assurance of non-food safety requirements' as they agreed with a Member Country comment that it was not clear what this meant in the context of the chapter, which is related to animal health and food safety.

The reference to risk-based food safety systems was deleted as the Working Group considered that this was covered adequately in Article 6.1.3. and did not need to be included in the introduction section.

The Working Group moved the section on 'Animal and public health roles of the Veterinary Services' (previously point 5 in Article 6.1.3.) to the introduction and amended the text to highlight the need for closer collaboration and in recognition of the role that Veterinary Services play in food safety.

Article 6.1.2. Purpose and Scope

The Working Group updated the list of Codex texts to include reference to the recently adopted Codex Principles and Guidelines for National Food Control Systems (CAC/GL 82-2013) and it was noted, that even though this was a long list, it was important to list the most relevant Codex documents, also noting that it was not an exhaustive list. They also deleted the first sentence agreeing this was unnecessary text.

Article 6.1.3. Characteristics of a food safety system

## 1. Food chain approach

The Working Group discussed the use of a variety of terms 'farm to plate', 'farm to fork' 'food continuum' and decided that the sub-title should be 'Food chain approach' as it was more consistent with the terminology used in the paragraph, and more easily understood by all Member Countries. They also amended the text to make it clearer and more concise.

## 2. Risk-based food safety systems

In response to Member Country comments, the Working Group included reference to food business operators, noting that they can also be a useful source of technical and scientific information to support a risk-based approach.

In response to a Member Country comment regarding the reference to a risk-based-approach contributing to the determination of equivalence between trading partners (in the last paragraph), the Working Group considered that determination of equivalence was covered in Chapter 5.3 and it was therefore unnecessary to refer to it in this Chapter.

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## 3. Primary responsibilities of food business operators for food safety

No changes

## 4. Responsibilities of the relevant Competent Authority

The Working Group deleted the first sentence as they considered that the reference to animal health policies did not fit in this document, which is about the role of Veterinary Services in food safety. They added 'relevant' to the title to clarify that there can be different Competent Authorities involved in food safety at the national level.

In response to a Member Country comment to delete reference to 'national legislation and policies', the Working Group deleted reference to 'national' and included 'regulations' for consistency with other chapters and included reference to 'policies'.

In the second paragraph, they replaced 'ensure' with 'verify' and amended the second sentence to provide clarity on how verification can be achieved as examples for developing countries.

## 5. Animal and public health roles of the Veterinary Services

This text was moved to introduction with some amendments.

Article 6.1.4. The role of the Veterinary Services in a food safety system

The sub-title of this section was amended to include 'responsibilities' for clarity.

## 1. Roles and responsibility of Veterinary Services in a food safety system

The sub-title was amended to include 'roles' as this section addresses both roles and responsibilities.

The Working Group agreed with Member Country comments to amend text in this point to further clarify those activities in primary processing that may be under the delegated responsibility of the Veterinary Service but are delivered by accredited third parties and that the Veterinary Service retains overall responsibility.

The Working Group also amended the text to clarify that the roles and responsibilities beyond the Veterinary Services should be clearly defined and can include involvement in investigation and response to foodborne disease outbreaks.

The Working Group did not agree with a Member Country comment to include specific reference to training on GAP and HACCP noting that this point was addressed in earlier sections where training is mentioned and in any case it is implicit that training for Veterinary Services should cover these types of activities.

## 2. Veterinary Services activities throughout the food chain

The sub-title was amended to include reference to Veterinary Services.

## a) Primary production

The Working Group made amendments in this point in order to strengthen the advice in relation to the role that Veterinary Service can play in providing guidance to farmers to minimize chemical and physical hazards at the farm level of the food chain. They deleted and replaced the reference to use of biological products and veterinary drugs with veterinary medicinal products which is a defined term in the Glossary of the *Terrestrial Code* and covers both of these. They also added the word 'sanitary' for clarity to cover the need for animals to be kept in both 'sanitary' and hygienic conditions.

The Working Group added appropriate references to Chapter 6.2. Recommendations for the control of biological hazards for animal health and public health importance through ante-and post-mortem meat inspection and Chapters 4.1. and 4.2. in regards to traceability.

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## b) Slaughter, processing and distribution

The Working Group changed the sub-title of this point to include the word 'Slaughter' to reflect what is addressed in this section.

They made amendments to the text to clarify that the processing activities to minimise foodborne risks to public health relates specifically to activities at the slaughterhouse/abattoir including meat inspection. The Working Group deleted text on risk-based food safety systems as they considered this is adequately covered in Article 6.1.3.

## c) Assurance schemes and certification of foods of animal origin for international trade

The Working Group amended the text to reflect food of animal origin rather than animal products (which could include non-food items such as hides and skins) and better identify that in some situations other Competent Authorities may also be involved in providing assurances and certification.

The Working Group considered that the point on certification of animal products was unclear and therefore made some amendments to clarify the role of Veterinary Services in issuing international veterinary certificates for animal products in relation to both animal health and food safety.

## 3. Foodborne disease outbreaks

The Working Group clarified the importance of the role of Veterinary Services in investigation and response and in implementation of control measures in foodborne disease outbreaks and deleted the reference to epidemiological diagnostic tools as it was seen as unnecessary text.

## 4. Animal and public health roles of the veterinary services.

The Working Group considered that the first sentence was adequately covered in the other sections and moved the point on surveillance and control programmes related to foodborne pathogens to Article 6.1.4. under Point 1 Roles and responsibilities of Veterinary Services.

The revised draft Chapter 6.1. is presented as Annex 3A (as clean text) and Annex 3B (showing track changes).

**Recommendations**

1. The Working Group noted that 'food-borne' as used throughout the *Terrestrial Code* appears internationally as one word 'foodborne' and that for consistency consideration should be given to amending the *Terrestrial Code* for consistency. The Working Group used the format 'foodborne' throughout the draft chapter.
2. The Working Group recommended that the Code Commission consider reviewing the definitions for Competent Authority and Veterinary Services used in the Glossary of the *Terrestrial Code* to better reflect the role that these entities play in food safety.

The Working Group noted that although the current definition for 'Veterinary Services' does not exclude a role in food safety, they requested that the Code Commission consider whether a specific reference to food safety should be included.

The Working Group proposed the following amendment to the definition for Competent Authority:

Competent Authority means the *Veterinary Authority* or other Governmental Authority of a Member Country having the responsibility and competence for ensuring or supervising the implementation of animal health and *welfare* measures, food safety measures, international veterinary certification and other standards and recommendations in the *Terrestrial Code* and in the *OIE Aquatic Animal Health Code* in the whole territory.

Annex 38 (contd)**2.2. Chapter 6.2. Control of biological hazards of animal health and public health importance through ante- and post-mortem meat inspection**

The Working Group noted that the Code Commission, at its February 2016 meeting, had requested that the Working Group undertake work to revise Chapter 6.2. Control of biological hazards of animal health and public health importance through ante- and post-mortem meat inspection given that this is an important chapter that includes recommendations on veterinary involvement in ante- and post-mortem meat inspection and which has not been reviewed since its adoption in 2006.

The Working Group agreed that this chapter should be reviewed and updated, noting that all food safety aspects of a meat inspection system must operate as an integrated risk-based system, and the primary responsibility of industry for food safety. Additionally, implementation of food integrity aspects in a cost-effective and efficient manner needs to be considered.

The Working Group developed the Terms of Reference for the development of a revised draft Chapter 6.2.

**3. Discussion paper on the approach taken in improving meat hygiene programmes around the world**

At their 2014 meeting, the Working Group had agreed to develop a discussion paper on the approach taken in improving meat hygiene programmes around the world that focuses on the ‘why/what/how /where’ of meat hygiene activities, but not the ‘who’, i.e. competencies of people involved.

The Working Group are close to finalising this paper and agreed that when finalised, the document be uploaded onto the Animal Production Food Safety pages of the OIE website, and that the document be published in the OIE *Scientific and Technical Review* as well in a short article for the OIE *Bulletin*.

**4. Potential standard development in the area of animal production food safety****4.1. Control of Shiga toxin-producing *Escherichia coli* (STEC) in food-producing animals**

The Working Group noted that, at the request of the Codex Committee on Food Hygiene, the FAO and WHO had established an expert group, who met in July 2016, to develop a report on foodborne STEC, including identification and characterization of STEC and current monitoring and assurance programs. A report of the meeting can be found at <http://www.fao.org/3/a-bq529e.pdf> A second FAO/WHO expert group meeting is scheduled for September 2017 (refer to the Annexes 5 and 6).

The Working Group reiterated that STEC is an important pathogen in cattle and potentially other species for both public health and trade reasons, and recommended that the OIE should maintain this item on its work programme and follow the outcomes of the FAO/WHO expert group, and undertake relevant work when Codex undertakes new work.

**5. OIE work on Antimicrobial resistance**

The Working Group was updated on activities of the OIE in antimicrobial resistance and noted the adoption of Resolution No. 36 ‘Combating Antimicrobial Resistance through a One Health Approach: Actions and OIE Strategy’ at the OIE General Session in May 2016. The Resolution is available at:

[https://web.oie.int/download/SG/2016/A\\_RESO\\_2016.pdf](https://web.oie.int/download/SG/2016/A_RESO_2016.pdf)

They were also informed that the OIE published (in November 2016) its Strategy on Antimicrobial Resistance and the Prudent Use of Antimicrobials to tackle the antimicrobial resistance threat. This is available at:

[http://www.oie.int/fileadmin/Home/eng/Media\\_Center/docs/pdf/PortailAMR/EN\\_OIE-AMRstrategy.pdf](http://www.oie.int/fileadmin/Home/eng/Media_Center/docs/pdf/PortailAMR/EN_OIE-AMRstrategy.pdf)

The Working Group appreciated this update and encouraged the OIE to continue this important work in collaboration with FAO and WHO in a holistic approach involving all relevant parties.

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**6. Work programme for 2017**

The Working Group reviewed and revised its work programme. OIE Headquarters noted that if the mandate of the Working Group was not renewed by the World Assembly during the 85<sup>th</sup> OIE General Session, this work programme would be overseen by the Code Commission.

The work programme for 2017 is presented at Annex 4.

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...Annexes



Annex 38 (contd)Annex 1**OIE ANIMAL PRODUCTION FOOD SAFETY WORKING GROUP****Paris, 13–15 December 2016****List of participants****MEMBERS OF THE WORKING GROUP****Dr Stuart Slorach (Chair)**

Stubbängsvägen 9A  
SE-12553  
ÄLVSJÖ  
SWEDEN  
Tel.: (46) 8646.9597  
stuart.slorach@gmail.com

**Dr Carlos A. Correa Messuti**

OIE Delegate for Uruguay  
Ministerio de Ganadería  
Agricultura y Pesca  
Constituyente 1476  
Montevideo  
URUGUAY  
Tel.: (598-2) 412 63 58  
Fax: (598-2) 413 63 31  
ccorream@multi.com.uy  
corream@ng.com.uy

**Dr Jessey A. Kamwi**

Deputy CVO  
Veterinary Public Health  
Ministry of Agriculture Water  
and Forestry  
P/Bag 12022, Ausspanplatz  
Windhoek  
NAMIBIA  
Tel.: +264 61 208 7509/13  
kamwij@mawf.gov.na  
Jessey.kamwi@gmail.com

**Dr Koen Van Dyck (absent)**

Head of Unit -  
European Commission  
Health & Food Safety Directorate -  
General  
Directorate G – Veterinary and  
International Affairs  
G4 - Food, alert system and training  
B - 1049 Brussels  
BELGIUM  
Tel. : +(32) 2 29 84 334  
koen.van-dyck@ec.europa.eu

**Dr Tom Heilandt (represented by Annamaria Bruno)**

Secretary Codex Alimentarius  
Commission  
Joint FAO/WHO Food  
Standards Programme  
Viale delle Terme di Caracalla  
00153 Rome  
ITALY  
Tel.: + 39 06 5705 6254  
tom.heilandt@fao.org

**Dr Martine Dubuc**

OIE Delegate for Canada  
Chief Food Safety Officer  
Vice-President, Science Branch  
Canadian Food Inspection Agency  
Ministry of Agriculture and Agri-Food  
Floor 3, Room 349  
1400 Merivale Road, Tower 2  
Ottawa, Ontario K1A 0Y9  
CANADA  
martine.dubuc@inspection.gc.ca

**Dr Kazuaki Miyagishima (attended the first day and represented by Dr Rei Nakagawa)**

World Health Organization  
Department of Food Safety and  
Zoonoses  
20, Avenue Appia  
1211 Geneva 27  
SWITZERLAND  
Tel: +41 22 791 36 40  
Fax: +41 22 791 48 07  
miyagishimak@who.int

**Dr Sarah Cahill**

Food Safety Officer  
Food Safety and Quality Unit  
Food and Agriculture Organization of  
the United Nations (FAO)  
Viale delle Terme di Caracalla, 00153  
Rome, ITALY  
Sarah.Cahill@fao.org

**Prof Steve Hathaway (participated electronically)**

Director  
Biosecurity Science  
Food Science and Risk Assessment  
Regulation and Assurance Branch  
Ministry of Primary Industries  
Pastoral House 25 The Terrace  
PO Box 2526 - Wellington  
NEW ZEALAND  
Steve.Hathaway@mpi.govt.nz

**Dr Alexander Panin**

Moscow State Academy of Veterinary  
Medicine and Biotechnology  
RUSSIA  
Tel.: + 791 5421 8823  
alexanderpanin1983@gmail.com

Annex 38 (contd)

Annex 1 (contd)

## **OIE HEADQUARTERS**

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**Mrs Ann Backhouse**  
Head  
Standards Department  
OIE  
a.backhouse@oie.int

**Dr Gillian Mylrea**  
Deputy Head  
Standards Department  
OIE  
g.mylrea@oie.int

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Annex 2

**OIE ANIMAL PRODUCTION FOOD SAFETY WORKING GROUP**

**Paris 13-15 December 2016**

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**Adopted agenda**

Welcome by the OIE Director General

1. Update on Codex Alimentarius Commission / WHO / FAO activities
  - 1.1. Codex Alimentarius Commission (CAC)
  - 1.2. World Health Organization (WHO)
  - 1.3. Food and Agriculture Organization of the United Nations (FAO)
  - 1.4. World Organisation for Animal Health
2. OIE *Terrestrial Animal Health Code* chapters
  - 2.1. Chapter 6.1. The role of the Veterinary Services in food safety
  - 2.2. Chapter 6.2. Control of biological hazards of animal health and public health importance through ante- and post-mortem meat inspection
3. Discussion paper on the approach taken in improving meat hygiene programmes around the world
4. Potential standard development in the area of animal production food safety
  - 4.1. Control of Shiga toxin-producing *Escherichia coli* (STEC) in food-producing animals
5. OIE work on antimicrobial resistance
6. Work programme for 2017



Annex 38 (contd)Annex 3A

## CHAPTER 6.1.

# THE ROLE OF VETERINARY SERVICES IN FOOD SAFETY SYSTEMS

Article 6.1.1.

### Introduction

*Veterinarians* are trained in both *animal* health (including *zoonoses*) and food safety, which makes them uniquely equipped to play a central role in ensuring food safety, especially the safety of foods of *animal* origin. Close cooperation and effective communication between all actors, including *veterinarians*, other relevant professionals and stakeholders, is critical for the effective operation of the food safety system.

The global, regional, national and local implications of food safety systems, especially in relation to the globalisation of the food supply, demands a high level of engagement and collaboration, between *Competent Authorities* responsible for animal health, food safety and public health, in line with the One Health approach. This provides a wider role and greater responsibilities for *Veterinary Services*.

Food safety activities performed by *Veterinary Services* should be integrated to the greatest extent possible with the activities of all other relevant agencies throughout the food chain.

Article 6.1.2.

### Purpose and scope

The purpose of this chapter is to provide guidance to Member Countries on the role and responsibilities of *Veterinary Services* in food safety systems.

This chapter should be read in conjunction with Chapters 4.1., 4.2., and relevant chapters of Sections 6 and 7.

This chapter should also be read in conjunction with the Codex Alimentarius Principles and Guidelines for National Food Control Systems (CAC/GL 82-2013), General Principles of Food Hygiene (CAC/RCP 1-1969), Code of Hygienic Practice for Meat (CAC/RCP 58-2005), Code of Practice on Good Animal Feeding (CAC/RCP 54-2004), and Guidelines for the Design and Implementation of National Regulatory Food Safety Assurance Programmes Associated with the Use of Veterinary Drugs in Food Producing Animals (CAC/GL 71-2009), and other relevant Codex texts.

Article 6.1.3.

### Characteristics of a food safety system

#### 1. Food chain approach

Food safety is best assured by an integrated, multidisciplinary approach that considers the entire food chain. A modern food safety system should take into account the complexity of food production and the increased globalisation of the food supply, and should be risk-based. It should consider potential risks associated with each stage of the food chain, i.e. primary production, transport, processing and distribution, and integrate risk management responses to such risks at the most appropriate points along the food chain. The application of traceability systems and sharing food chain information enhances the effectiveness of a food safety system. Everyone involved in the food chain, including food business operators, *Veterinary Services* and consumers, has a responsibility to ensure that food is safe.

Annex 38 (contd)Annex 3A (contd)2. Risk-based food safety systems

Risk-based food safety systems include measures based on good practices (such as good agricultural practice, good hygienic practice), hazard analysis and critical control points (HACCP) principles and risk assessment. The design and application of a risk-based food safety system depends on the availability of adequate scientific information and effective utilisation of the technical resources of food business operators and *Competent Authorities*. Monitoring food safety outcomes and reviewing control measures are essential to ensure the effective performance of a risk-based food safety system.

3. Responsibilities of food business operators for food safety

Food business operators, including feed producers, farmers, processors, wholesalers, distributors, importers, exporters and retailers, have primary responsibility for ensuring the safety of their products and should be able to demonstrate that they comply with relevant food safety regulatory requirements. Food business operators have a responsibility to inform the *Competent Authority* in their country of any non-compliance associated with their product and take action to manage the *risk* e.g. the withdrawal of the product.

4. Responsibilities of the relevant *Competent Authorities*

*Competent Authorities* are responsible for developing policies, legislation and regulations relevant to food safety. They should also take steps to communicate these within their country and with trading partners.

*Competent Authorities* should collaborate with other responsible agencies to ensure that roles and responsibilities for food safety systems, including foodborne disease outbreak response, are addressed in a coordinated manner.

The relevant *Competent Authorities* should verify that the control systems used by food business operators are appropriate, validated, and effective, and operated in such a way that the regulatory requirements are met. This can be achieved through activities such as inspection and audit. In the event of non-compliance, appropriate corrective actions and sanctions should be applied.

Article 6.1.4.

**The roles and responsibilities of Veterinary Services in a food safety system**1. Roles and responsibilities of Veterinary Services

*Veterinary Authorities* or other *Competent Authorities* should provide an appropriate institutional environment to allow *Veterinary Services* to implement the necessary policies and standards, and ensure adequate resources for them to carry out their tasks in a sustainable manner. *Veterinary Services* should have a clear chain of command and roles and responsibilities clearly defined and well documented.

*Veterinary Services* should be fully involved in the design and implementation of a risk-based food safety system appropriate to their mandate and organisational structure at the national level. In the implementation of food safety systems for foods of animal origin, *Veterinary Services* should retain responsibility for verification and audit and facilitate a flexible approach to operational activities.

*Veterinary Services* should retain overall responsibility for the delivery and performance of any activities that they delegate to third party providers.

Where relevant, *Veterinary Services* should contribute to other food safety related activities, such as investigations of foodborne disease outbreaks, food defence, disaster management, and identifying emerging risks. In addition, *Veterinary Services* should contribute to the development and management of coordinated *surveillance* and control programmes related to foodborne pathogens of public health importance, such as *Salmonella* and *Trichinella*.

In order for *Veterinary Services* to make the best possible contribution to ensuring food safety, the education and training of *veterinarians* and *veterinary paraprofessionals* should include training in food safety systems and ongoing professional development.

Annex 38 (contd)

Annex 3A (contd)

## 2. Activities of Veterinary Services throughout the food chain

Depending on the responsibilities of the *Competent Authority*, the responsibilities of the *Veterinary Services* may be limited to the first part of the food chain (from farm to *slaughterhouse/abattoir* and associated premises for further processing) while in other cases the *Veterinary Services* may be responsible for the whole food chain.

### a) Primary production

Through their presence on farms and collaboration with farmers, *Veterinary Services* play a key role in ensuring that *animals* are kept under sanitary and hygienic conditions, and in the early detection, *surveillance* and treatment of animal diseases, including conditions of public health significance.

In regard to food safety, *Veterinary Services* provide guidance to farmers on practices that minimise physical and chemical hazards (for example, mycotoxins, environmental contaminants and pesticide residues) in primary production, including animal feed.

*Veterinary Services* play a central role in ensuring the responsible and prudent use of *veterinary medicinal products*, including *antimicrobial agents* (in accordance with Chapter 6.9.), in animal husbandry. This helps to minimise the risk of non-compliant levels of veterinary drug residues in foods of animal origin and the development of antimicrobial resistance.

*Veterinary Services* also play an important role in ensuring traceability throughout the food chain by verifying *animal identification* (in accordance with Chapters 4.1. and 4.2.).

### b) Slaughter, processing and distribution

Activities at the *slaughterhouse/abattoir* should be designed and implemented according to an integrated, risk-based approach (refer to Chapter 6.2.). *Veterinary Services* have an essential role in ensuring that these activities, including meat inspection, minimise foodborne risks to public health. This may be provided by supervision and verification of process control and direct involvement in operational activities such as ante-mortem and post-mortem inspection. *Slaughterhouse/abattoir* inspection of live *animals* (ante-mortem) and their carcasses (post-mortem) plays a key role in both the *surveillance* network for animal diseases and *zoonoses* and in ensuring the safety and suitability of meat and by-products for their intended uses. Control or reduction of biological hazards of public health and animal health importance by ante- and post-mortem meat inspection is a core responsibility of *Veterinary Services*.

*Veterinary Services* may be responsible for the oversight of the control measures during processing and distribution of foods of animal origin. They also play an important role in raising the awareness of food producers, processors and distributors regarding measures required to assure food safety.

### c) Assurance schemes and certification of foods of animal origin for *international trade*

*Veterinary Services* have an essential role in the oversight of assurance schemes, and in the provision of *international veterinary certificates*, certifying that food of animal origin complies with animal health and food safety standards.

Other *Competent Authorities* may also be involved in providing assurances and certification of foods of animal origin (for example, pasteurisation of *milk products*) for *international trade*.

## 3. Foodborne disease outbreaks

*Veterinary Services* play a key role in the investigation of, and response to, foodborne disease outbreaks, including the implementation of control measures. This work should be carried out in close collaboration with public health professionals, analysts, epidemiologists, food producers, processors and traders and any others involved.

Annex 38 (contd)Annex 3A (contd)

In view of the global nature of the food trade, *Veterinary Services* should work with other national agencies in reporting to international emergency foodborne disease networks, such as the International Network of Food Safety Authorities (INFOSAN), and in utilising such information for preparedness.

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Annex 38 (contd)

Annex 3B

## CHAPTER 6.1.

# THE ROLE OF THE VETERINARY SERVICES IN FOOD SAFETY SYSTEMS

### Article 6.1.1.

#### Introduction

Veterinarians are trained in both animal health (including zoonoses) and food safety, which makes them uniquely equipped to play a central role in ensuring food safety, especially the safety of foods of animal origin. Close cooperation and effective communication between all actors, including veterinarians, other relevant professionals and stakeholders, is critical for the effective operation of the food safety system.

~~Food safety systems are now considerably different from those of earlier years and this provides a wider role for the Veterinary Services. The characteristics of these systems are global. The global, regional, national and local implications of food safety systems, in reach, especially in relation to the globalisation of the food supply, which requires a greater demands a high level of engagement and collaboration, between Competent Authorities responsible for animal health, food safety and public health, in line with the One Health approach. This provides a wider role and greater responsibilities for Veterinary Services. There is a particular emphasis on risk-based food safety systems where implementation is a responsibility shared with a wide range of actors along with assurance of non-food safety requirements that are of high importance to consumers.~~

Food safety activities performed by Veterinary Services should be integrated to the greatest extent possible with the activities of all other relevant agencies throughout the food chain.

~~The education and training of veterinarians, which includes both animal health (including zoonoses) and food safety components, makes them uniquely equipped to play a central role in ensuring food safety, especially the safety of foods of animal origin. In addition to veterinarians, other professionals are involved in ensuring an integrated food safety system throughout the food chain.~~

### Article 6.1.2.

#### Purpose and scope

The purpose of this chapter is to provide guidance to Member Countries on the role and responsibilities of the Veterinary Services in food safety systems.

This chapter should be read in conjunction with Chapters 4.1., 4.2., and relevant chapters of Sections 6 and 7.

~~The OIE and Codex Alimentarius Commission, through the development and implementation of standards and guidelines, contribute to improving food safety and human health by reducing risks that may arise at the farm and any subsequent stages in the food production continuum. Therefore, this This chapter should also be read in conjunction with the Codex Alimentarius Principles and Guidelines for National Food Control Systems (CAC/GL 82-2013), General Principles of Food Hygiene (CAC/RCP 1-1969), Code of Hygienic Practice for Meat (CAC/RCP 58-2005), Code of Practice on Good Animal Feeding (CAC/RCP 54-2004), and Guidelines for the Design and Implementation of National Regulatory Food Safety Assurance Programmes Associated with the Use of Veterinary Drugs in Food Producing Animals (CAC/GL 71-2009), and other relevant Codex texts on hygienic practices, food import and export certification systems and antimicrobial resistance.~~

Annex 38 (contd)Annex 3B (contd)

## Article 6.1.3.

**Characteristics of a food safety system**1. Farm to plate approach Food chain approach

Food safety is best assured by an integrated, multidisciplinary approach, ~~considering that considers~~ the whole entire food chain. ~~Everyone in the food chain, such as food business operators, the Veterinary Services and consumers, has a responsibility to ensure that food is safe.~~ A modern food safety system should take into account the complexity of food production and the increased globalisation of the food supply, and should be risk-based. ~~The application of traceability systems and sharing of food chain information will enhance the effectiveness of a food safety system. The food safety system~~ It should include consideration of consider potential risks associated with each component stage of the food chain, namely i.e. primary production, transport, processing and distribution, and integrate risk management responses to such risks at the most appropriate points along these throughout the food chain continuum. ~~The prevention, detection, and control of foodborne hazards throughout the food chain is generally more effective in reducing or eliminating the risk of unwanted health effects than relying on controls of the final product. The application of traceability systems and sharing food chain information enhances the effectiveness of a food safety system. Everyone involved in the food chain, including food business operators, Veterinary Services and consumers, has a responsibility to ensure that food is safe.~~

2. Risk-based food safety systems

Risk-based food safety systems include measures based on good practices (such as good agricultural practice ~~Good Agricultural Practice~~, good hygienic practice ~~Good Hygienic Practice~~), hazard analysis and critical control points (HACCP) principles and risk assessment. The design and application of a risk-based food safety system depends this risk-based approach depend on the availability of adequate scientific information and effective utilisation of the technical resources of food business operators and Competent Authorities and technical resources of the Competent Authority. ~~Monitoring and review are essential to evaluate the performance of a risk-based food safety system. Monitoring food safety outcomes and reviewing control measures are essential to ensure the effective performance of a risk-based food safety system.~~

~~For international trade, a risk-based approach to food safety systems contributes to the determination of equivalence between trading partners.~~

3. Primary rResponsibilities of food business operators for food safety

Food business operators, including feed producers, farmers, processors, wholesalers, distributors, importers, exporters and retailers, have primary responsibility for ensuring the safety of their products and should be able to demonstrate that they comply with relevant food safety regulatory requirements. ~~The food~~ Food business operators have a responsibility to inform the Competent Authority in their country of any non-compliance associated with their product and take action to manage the *risk* e.g. the withdrawal of the product.

4. Responsibilities of the relevant Competent Authorities Competent Authority

~~Each Member Country should establish its objectives for animal health and public health protection, through consultation with stakeholders (especially livestock producers, processors and consumers) in accordance with the social, economic, cultural, religious and political contexts of the country. Based on these objectives and the analysis of scientific information, the Competent Authority Authorities has are responsible for developing the responsibility to develop national legislation and policies, legislation and regulations relevant to food safety. The Competent Authority They should also take steps to raise awareness of these both communicate these within the their country and to with trading partners.~~

Competent Authorities should collaborate with other responsible agencies to ensure that roles and responsibilities for food safety systems, including foodborne disease outbreak response, are addressed in a coordinated manner.

~~The Competent Authority should ensure~~ The relevant Competent Authorities should verify that the control systems used by food business operators are appropriate, validated, and effective, and operated in such a way that the regulatory requirements standards are met. ~~This should be verified can be achieved~~ through activities such as inspection and audit. In the event of non-compliance, appropriate corrective actions and sanctions should be applied.

Annex 38 (contd)Annex 3B (contd)5- Animal and public health roles of the Veterinary Services

~~At the national level the activities of the Competent Authority serve both public and animal health objectives. In the case of food safety, this duality of roles provides an opportunity for the Veterinary Services to perform complementary activities throughout the food chain in coordination with other relevant agencies. It is important that this duality of functions is recognised, and relevant public health and animal health activities are integrated.~~

Article 6.1.4.

**The role roles and responsibilities of the Veterinary Services in a food safety system**1. Roles and responsibilities ~~Responsibilities~~ of the Veterinary Services

~~The Veterinary Authorities Authority or other Competent Authorities Authority should provide an appropriate institutional environment to allow the Veterinary Services to implement the necessary policies and standards, and ensure adequate resources for them to carry out their tasks in a sustainable manner. Within the Veterinary Services there should be have a clear chain of command and well documented assignment of roles and responsibilities clearly defined and well documented and chain of command. In developing policies and national standards for food safety, the Veterinary Authority or other Competent Authority should collaborate with other responsible agencies to ensure that food safety risks are addressed in a coordinated manner.~~

~~In order for Veterinary Services to make the best possible contribution to food safety, it is important that the education and training of veterinarians and veterinary paraprofessionals meet appropriate levels of competence and that there are national programmes for ongoing professional development.~~

~~The Veterinary Services should be responsible for, or involved in, be fully involved in the design and implementation of national control programmes of a risk-based food safety system appropriate to their mandate and organisational structure at the national level. Implementation includes verification, audit, assurance and certification. In the implementation of food safety systems for foods of animal origin, the Veterinary Services should retain responsibility for verification and audit and facilitate a flexible approach to operational activities.~~

~~Where food safety activities are delegated outside of the Veterinary Services, the Veterinary Services should retain overall responsibility for the delivery and performance of any activities that they delegate to third party providers. competency standards and performance of the delegated activities.~~

~~In addition to veterinarians, several other professional groups are involved in ensuring food safety throughout the food chain, including analysts, epidemiologists, food technologists, human and environmental health professionals, microbiologists and toxicologists. Irrespective of the roles assigned to the different professional groups and stakeholders by the administrative system in the country, close cooperation and effective communication between all involved is imperative to achieve the best results from the combined resources.~~

~~In view of the competencies within the Veterinary Services, they Where relevant, the Veterinary Services should contribute to other food safety related activities, such as investigations of foodborne disease outbreaks, food defence, disaster management, and identifying emerging risks. In addition, Veterinary Services should contribute to the development and management of coordinated surveillance and control programmes related to foodborne pathogens of public health importance, such as Salmonella and Trichinella.~~

~~In order for Veterinary Services to make the best possible contribution to ensuring food safety, the education and training of veterinarians and veterinary paraprofessionals should include training in food safety systems and ongoing professional development.~~

2. Activities of Veterinary Services throughout the food chain

~~The Veterinary Services have a significant role to play throughout the food safety system. Depending on the role and responsibilities of the Competent Authority, the responsibilities of the Veterinary Services may be limited to the first part of the food chain (from farm to slaughterhouse/abattoir and associated premises for further processing) while in other cases the Veterinary Services may be responsible for the whole food chain.~~

Annex 38 (contd)Annex 3B (contd)

## a) Primary production

Through their presence on farms and appropriate collaboration with farmers, *Veterinary Services* play a key role in ensuring that *animals* are kept under sanitary and hygienic conditions, and in the early detection, *surveillance* and treatment of animal diseases, including conditions of public health significance. ~~The *Veterinary Services* advise on animal husbandry practices, biosecurity and interventions that limit the transmission of animal diseases, including foodborne zoonoses.~~

~~Because of the importance of traceability throughout the food chain, the verification by the *Veterinary Services* of *animal identification* is an important function.~~

In regard to food safety, The *Veterinary Services* assist provide guidance to farmers on practices that how to minimise physical and chemical hazards (e.g. for example, mycotoxins, environmental contaminants drug and pesticide residues, mycotoxins and environmental contaminants) in primary production, including through animal feed.

~~Producers' organisations, particularly those with veterinary advisers, are in a good position to provide awareness and training as they are regularly in contact with farmers and are well placed to understand their priorities. Technical support from the *Veterinary Services* is important and both private veterinarians and employees of the *Veterinary Authority* can assist. The *Veterinary Services* play a central role in ensuring the responsible and prudent use of biological products and *veterinary medicinal products* drugs, including antimicrobial agents (in accordance with Chapter 6.9.), in animal husbandry. This helps to minimise the risk of non-compliant levels of veterinary drug residues developing antimicrobial resistance and unsafe levels of veterinary drug residues in foods of animal origin and the development of antimicrobial resistance.~~

*Veterinary Services* also play is an important role in ensuring traceability throughout the food chain by verifying *animal identification* (in accordance with Chapters 4.1. and 4.2.).

b) Processing Slaughter, processing and distribution

Activities at the slaughterhouse/abattoir should be designed and implemented according to an integrated, risk-based approach (refer to Chapter 6.2.). The *Veterinary Services* have an essential role in ensuring that these activities, including meat inspection, minimise processing (including meat inspection) and distribution minimises foodborne risks to public health. This may be provided by supervision and verification of process control and direct involvement in operational activities such as ante-mortem and post-mortem inspection. Slaughterhouse/abattoir inspection of live *animals* (ante-mortem) and their carcasses (post-mortem) plays a key role in both the *surveillance* network for animal diseases and zoonoses and in ensuring the safety and suitability of meat and by-products for their intended uses. Control or reduction of biological hazards of public health and animal health importance by ante- and post-mortem meat inspection is a core responsibility of the *Veterinary Services* and they should have primary responsibility for the development and effective implementation of relevant inspection programmes. Chapter 6.2. provides recommendations for the control of biological hazards of *animal* health and public health importance through ante- and post mortem meat inspection.

The *Veterinary Services* may be responsible for the oversight of the control measures during processing and distribution of foods of animal origin. The *Veterinary Services* also They also play an important role in raising the awareness of food producers, processors and distributors regarding other stakeholders of the measures required to assure food safety.

~~*Veterinarians* provide essential inputs in terms of scientific information, risk assessment, validation of control measures, and monitoring and review of public health outcomes, in the design and implementation of a risk based food safety system.~~

~~*Veterinarians* have an important role in ensuring food safety in various parts of the food chain, for example through the application of HACCP based controls and other quality assurance systems during food processing and distribution.~~

Annex 38 (contd)Annex 3B (contd)c) Assurance schemes and certification of foods of animal origin animal products for *international trade*

~~The Veterinary Services have an important role in providing public health assurance for products of animal origin. When assurance is required for animal products international trade assurance may take the form of certification of consignments. In which case, the Veterinary Services ensure that international veterinary certificates comply with animal health and food safety standards. Certification of animal products in relation to animal diseases, including foodborne zoonoses, and meat hygiene should be the responsibility of the Veterinary Services. Certification may be provided by other professionals in connection with food processing and hygiene (e.g. pasteurisation of milk products).~~

Veterinary Services have an essential role in the oversight of assurance schemes, and in the provision of international veterinary certificates, certifying that food of animal origin complies with animal health and food safety standards.

Other Competent Authorities may also be involved in providing assurances and certification of foods of animal origin (for example, pasteurisation of milk products) for international trade.

3. Foodborne disease outbreaks

~~Most reported outbreaks of foodborne disease in humans are due to contamination of foods with zoonotic agents during primary production or processing. The Veterinary Services play a key role in the investigation of, and response to, such foodborne disease outbreaks, throughout the food chain and in formulating and including the implementation of implementing control measures as appropriate once the source of the outbreak has been identified. This work should be carried out in close collaboration with human and environmental public health professionals, analysts, epidemiologists, food producers, processors and traders and any others involved.~~

~~The Veterinary Services can play a leading role in development and application of new epidemiological and diagnostic tools to better attribute outbreaks of foodborne diseases to specific animal reservoirs.~~

~~In the view of the global nature of the food trade, the Veterinary Services should work with other national agencies in reporting to international emergency foodborne disease networks, such as the International Network of Food Safety Authorities (INFOSAN), and in utilising such information for preparedness.~~

4. Animal and public health roles of the Veterinary Services

~~This complementary role of the Veterinary Services is clearly illustrated in relation to inspection and monitoring at the slaughterhouse, for both animal health and public health hazards.~~

~~The Veterinary Services contribute to the development and management of coordinated surveillance and control programmes related to foodborne pathogens of public health importance, such as Salmonella and Trichinella.~~

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— Text deleted.



Annex 38 (contd)Annex 4

## WORK PROGRAMME FOR 2017

The Working Group agreed that its work programme for 2017 would include:

1. Support current work:

- a) Revisions of Chapters 6.1. and 6.2. of the *Terrestrial Code*
- b) OIE standard developments for *Salmonella* in pigs and cattle
- c) Drafting a paper for the OIE *Scientific and Technical Review* on ‘Approaches taken in improving meat hygiene programmes around the world’
- d) Drafting an article for the OIE *Bulletin* on “Approaches taken in improving meat hygiene programmes around the world”
- e) Review the OIE web document “Control of hazards of public health and animal health importance through ante- and post-mortem meat inspection” once revisions of Chapters 6.1. and 6.2. are completed.

2. Support potential future work:

- a) Development of guidance for STEC in relevant species
- b) Development of a new introductory chapter on for Section 6 of the *Terrestrial Code*
- c) Discussions on simplifying food safety risk assessment for international standard setting.

3. Monitoring and advice in relation to animal production food safety:

- a) Antimicrobial resistance
- b) The role of whole genome sequencing of micro-organisms relevant to animal production food safety
- c) Veterinary education
- d) Veterinary legislation
- e) Zoonoses at the human-animal-ecosystem interface (‘One Health’)
- f) Food safety aspects of the PVS Pathway
- g) Generic aspects of food safety control systems including microbiological target setting and linkages to Codex work
- h) Linkage between food safety and animal welfare
- i) Potential food safety implications of biotechnology vaccines
- j) Developments in nanotechnology
- k) Emerging food safety hazards

Annex 38 (contd)Annex 4 (contd)

- l) Food integrity and food defence
  - m) Insects for food and feed
  - n) Feed safety
4. Relationship between OIE and Codex
- a) Strengthen and promote continued close collaboration between the Codex Secretariat and the OIE Headquarters.
  - b) Promote and encourage enhanced OIE input into Codex texts and vice versa, including the involvement of relevant experts.
  - c) Promote and encourage coordination between OIE National Delegates and national delegations to Codex to facilitate alignment of relevant standards of both bodies and their effective implementation.
  - d) Identify areas of potential collaboration between OIE and Codex on the development of standards.
5. Communication
- a) Support to the OIE regarding communication on animal production food safety.
  - b) Review and propose updates for the OIE webpages on animal production food safety.

Annex 38 (contd)Annex 5


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## INFORMATION ON ACTIVITIES OF THE CODEX ALIMENTARIUS COMMISSION

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### CODEX SESSIONS SINCE THE LAST MEETING OF THE OIE WORKING GROUP (2-4 NOVEMBER 2015)

#### Overview of Codex Sessions

From 25 October 2015-30 November 2016, the Codex Alimentarius Commission and its subsidiary bodies held 19 sessions. The following are relevant to the work of the OIE Working Group:

- 47<sup>th</sup> Session of the Committee on Food Hygiene (CCFH47), Boston, USA, 9-13 November 2015
- 22<sup>nd</sup> Session of the Committee on Food Import and Export Inspection and Certification Systems (CCFICS22), Melbourne, Australia, 6-12 February 2016
- 10<sup>th</sup> Session of the Committee on Contaminants in Foods (CCCF10), Rotterdam, the Netherlands, 4-8 April 2016
- 39<sup>th</sup> Session of the Codex Alimentarius Commission (CAC39), Rome, Italy, 27 June-1 July 2016
- 23<sup>rd</sup> Session of the Committee on Residues of Veterinary Drugs in Foods (CCRVDF23), Houston, USA, 16-20 October 2016
- 48<sup>th</sup> Session of the Committee on Food Hygiene (CCFH48), Los Angeles, USA, 5-11 November 2016

Other sessions held: FAO/WHO Coordinating Committees for North America and the South West Pacific (CCNASWP14), Port Vila, 19-22 September 2016; for Asia (CCASIA20), New Delhi, India, 26-30 September 2016, for Europe (CCEURO30) Astana, Kazakhstan, 3-10 October 2016; and for Latin America and the Caribbean (CCLAC20), Viña del Mar, Chile, 21-25 November 2016.

A Physical Working Group on AMR was held in London, UK, from 29 November to 2 December 2016.

#### CAC39

- Was attended by 123 Member countries, 1 Member Organization (European Union), and 38 international organizations.
- Adopted new and revised food quality and safety texts for application by Governments and inclusion in the Procedural Manual; and approved items for new work, including priority list of pesticides for evaluation or re-evaluation by JMPR.
- Agreed to establish:
  - The *Ad Hoc* Intergovernmental Task Force on Antimicrobial Resistance (TFAMR) to be hosted by the Republic of Korea (Terms of Reference are presented in ANNEX1).
  - A Physical Working Group (PWG), hosted by the United Kingdom and co-chaired by Australia and the United States of America, to revise the two project documents on new work on AMR<sup>1</sup>, prepared by the Codex Secretariat in collaboration with FAO and WHO, and the Terms of Reference for scientific advice to be provided by FAO and WHO in collaboration with OIE, to support the work of the TFAMR.

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<sup>1</sup> Revision of the *Code of Practice to Minimise and Contain Antimicrobial Resistance* (CAC/RCP 61-2005) and Guidance on Integrated Surveillance of Antimicrobial Resistance.

Annex 38 (contd)Annex 5 (contd)

- Expressed appreciation to FAO and WHO for the scientific advice provided and reaffirmed its trust in the scientific rigor and independence of the FAO/WHO scientific advice as the preeminent scientific support to the work of Codex.
- Reiterated appreciation to FAO/WHO and the CTF Secretariat for the effective management of CTF1 during 2004-2015, and noted the report received regarding CTF2 initial activities and acknowledged the work being undertaken.
- Re-elected as Chairperson Mrs Awilo Ochieng Pernet (Switzerland), and as Vice-Chairpersons: Mr Guilherme Antonio da Costa Jr. (Brazil), Ms Yayoi Tsujiyama (Japan) and Mr Mahamadou Sako (Mali).
- Adjourned *sine die* the Committee on Fish and Fishery Products expressing its gratitude to Norway.
- Was informed of the activities of international standard-setting organisations.

Full report: REP16/CAC

For a list of Codex texts and new work proposals relevant to OIE work that were adopted/approved by the CAC39 see ANNEX 2.

**CCFH47**

- Concluded work on (*texts adopted by CAC39*):
  - Guidelines for the Control of Nontyphoidal *Salmonella* spp. in Beef and Pork.
  - Guidelines on the Application of General Principles of Food Hygiene to the Control of Foodborne Parasites.
  - Annex I “Examples of Microbiological Criteria for Low-Moisture Foods when Deemed Appropriate in Accordance with the *Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods (CAC/GL 21-1997)*” and Annex II “Guidance for the Establishment of Environmental Monitoring Programmes for *Salmonella* spp. and other Enterobacteriaceae in Low-Moisture Food Processing Areas” to the *Code of Hygienic Practice for Low-Moisture Foods (CAC/RCP 75-2015)*.
- Agreed to start new work on revision of the *General Principles of Food Hygiene (CAC/RCP 1-1969)* and its HACCP Annex.

Full report: REP16/FH

**CCFH48**

- Agreed to continue work on:
  - The Revision of the *General Principles of Food Hygiene (CAC/RCP 1-1969)* and its HACCP Annex
  - Guidance on histamine control
- Noted that no new information was available to justify new work on the revision of the *Code of Hygienic Practice for Meat (CAC/RCP 58-2005)*.
- CCFH49 (2017) will also consider a discussion paper on future work on Shiga toxin-producing *Escherichia coli* (STEC) based on the outcome of the FAO/WHO JEMRA meeting on STEC (2017).
- Requested FAO/WHO to provide guidance for the use of clean water (for the scenarios indicated in Codex texts).

Full report: REP17/FH

Annex 38 (contd)

Annex 5 (contd)

## CCFICS22

- Concluded work on (*texts adopted by CAC39*):
  - Principles and Guidelines for the Exchange of Information Between Importing and Exporting Countries to Support the Trade in Food
  - Revision of the *Principles and Guidelines for the Exchange of Information in Food Safety Emergency Situations* (CAC/GL 19-1995)
  - Revision of the *Guidelines for the Exchange of Information between Countries on Rejections of Imported Food* (CAC/GL 25-1997)
- Agreed to continue work on Guidance for monitoring the performance of national food control systems.
- CCFICS23 (2017) will also consider proposals for new work on: System comparability/equivalence; Use of electronic certificates by competent authorities and migration to paperless certification; and Third party certification (with broad parameters)

Full report: REP16/FICS

## CCCF10

- Completed work on revision of the *Code of Practice for the Prevention and Reduction of Mycotoxin Contamination in Cereals* (CAC/RCP 51-2003) (general provisions) and the proposed draft Annexes on zearalenone, fumonisins, ochratoxin A, trichothecenes and aflatoxins (specific provisions) (*texts adopted by CAC39*):
- Agreed to continue work on the Annex on ergot and ergot alkaloids in cereal grains to the *Code of Practice for the Prevention and Reduction of Mycotoxin Contamination in Cereals* (CAC/RCP 51-2003).
- CCCF11 (2017) will also consider discussion papers on: methylmercury in fish; and non-dioxin like PCBs in the code of practice for the prevention and reduction of dioxins and dioxin-like PCB.

Full report: REP16/CF

## CCRVDF23

- Finalized maximum residue limits (MRL) for: lasalocid sodium (chicken, turkey, quail and pheasant kidney, liver, muscle, skin+fat); ivermectin (cattle fat, kidney, liver, muscle); and teflubenzuron (salmon fillet, muscle).
- Agreed to continue work on risk management recommendation (RMR) for gentian violet.
- Updated the priority list of veterinary drugs to be evaluated by JECFA.
- Agreed to continue the development and maintenance of the database on countries' needs for MRLs and to consider the complete results of the global survey in order to identify priority veterinary drugs and identify information gaps for a successful and comprehensive assessment by JECFA.
- CCRVDF24 (2018) will also consider discussion papers on: MRLs for groups of fish species; edible offal tissues (possible definition and edible offal tissues of interest in international trade); and, new work on revision of the criteria for the use of multi residue analytical methods for the determination and identification of veterinary drugs in foods in *Guidelines for the Design and Implementation of National Regulatory Food Safety Assurance Programmes Associated with the Use of Veterinary Drugs in Food Producing Animals* (CAC/GL 71-2009).

Full report: REP17/RVDF

Annex 38 (contd)

Annex 5 (contd)

### **PWG on AMR**

- Completed the task given by CAC39 and prepared:
  - revised project documents for new work for the TFAMR which will be submitted to CAC40 for approval
  - revised terms of reference for the Provision of Scientific Advice on Antimicrobial Resistance, to be provided by FAO and WHO in collaboration with OIE to inform the work of the TFAMR

The report of the PWG will be available as a working document for CAC40.

### **FORTHCOMING CODEX MEETINGS OF RELEVANCE TO OIE WORKING GROUP**

- **CCCCF11** will be held in Rio de Janeiro, Brazil, from 3 to 7 April 2017
- **CCFICS23**: TBA, from 1 to 5 May 2017
- **CAC40** will be held in Geneva, Switzerland, from 17 to 22 July 2017.

The provisional agendas of the above meetings will be posted on the Codex website: [www.codexalimentarius.org](http://www.codexalimentarius.org) as soon as available.

Annex 38 (contd)

Annex 5 (contd)

**Annex 1**

**TERMS OF REFERENCE OF THE AD HOC CODEX INTERGOVERNMENTAL TASK FORCE ON  
ANTIMICROBIAL RESISTANCE**

**Objectives**

To develop science-based guidance on the management of foodborne antimicrobial resistance, taking full account of the WHO Global Action Plan on Antimicrobial Resistance, in particular objectives 3 and 4, the work and standards of relevant international organizations, such as FAO, WHO and OIE, and the One-Health approach, to ensure that Members have the necessary guidance to enable coherent management of antimicrobial resistance along the food chain.

**Terms of reference**

- (i) To review and revise as appropriate the *Code of Practice to Minimise and Contain Antimicrobial Resistance* (CAC/RCP 61-2005) to address the entire food chain, in line with the mandate of Codex.
- (ii) To consider the development of Guidance on Integrated Surveillance of Antimicrobial Resistance, taking into account the guidance developed by the WHO Advisory Group on Integrated Surveillance of Antimicrobial Resistance (AGISAR) and relevant OIE documents.

**Time frame**

The Task Force shall complete its work within three (max four sessions), starting in 2017 (Annex 2).

Annex 38 (contd)

Annex 5 (contd)

## Annex 2

### PART 1 - LIST OF RELEVANT STANDARDS AND RELATED TEXTS ADOPTED BY CAC39

Standards and Related Texts	Reference
<b>Codex Committee on Fish and Fishery Products (CCFFP)</b>	
<i>Code of Practice for Fish and Fishery Products</i>	
- Section on Sturgeon Caviar	CAC/RCP 52-2003
- Amendment to Section 11 – Processing of salted and dried salted fish of the	
<b>Codex Committee on Food Hygiene (CCFH)</b>	
Guidelines for the Control of Non-typhoidal <i>Salmonella</i> spp. in Beef and Pork Meat	CAC/GL 87-2016
Guidelines on the Application of General Principles of Food Hygiene to the Control of Foodborne Parasites	CAC/GL 88-2016
<i>Code of Hygienic Practice for Low-Moisture Foods</i>	
- <b>Annex I</b> “Examples of Microbiological Criteria for Low-Moisture Foods when Deemed Appropriate in Accordance with the <i>Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods</i> (CAC/GL 21-1997)”	CAC/RCP 75-2015
- <b>Annex II</b> “Guidance for the Establishment of Environmental Monitoring Programmes for <i>Salmonella</i> spp. and other Enterobacteriaceae in Low-Moisture Food Processing Areas”	
<b>Codex Committee on Food Import and Export Inspection and Certification Systems (CCFICS)</b>	
Principles and Guidelines for the Exchange of Information between Importing and Exporting Countries to support the Trade in Food	CAC/GL 89-2016
Revision of the <i>Principles and Guidelines for the Exchange of Information in Food Safety Emergency Situations</i>	CAC/GL 19-1995
Revision of the Guidelines for the Exchange of Information Between Countries on Rejections of Imported Food	CAC/GL 25-1997
<b>Codex Committee on Contaminants in Foods (CCCF)</b>	
<i>Code of Practice for the Prevention and Reduction of Mycotoxin Contamination in Cereals</i> (CAC/RCP 51-2003) (general provisions) and Annexes on zearalenone, fumonisins, ochratoxin A, trichothecenes and aflatoxins (specific provisions)	CAC/RCP 51-2003

[Annex 38](#) (contd)[Annex 5](#) (contd)**Annex 2** (contd)**PART 2 - LIST OF RELEVANT NEW WORK APPROVED BY CAC39**

<b>Codex Committee on Food Hygiene (CCFH)</b>	
Guidance for histamine control in the <i>Code of Practice for Fish and Fishery Products</i> (CAC/RCP 52-2003) and sampling plans for histamine in standards for fish and fishery products	Annex II CX/CAC 16/39/7
Revision of the <i>General Principles of Food Hygiene</i> (CAC/RCP 1-1969) and its HACCP Annex	REP 16/FH, Appendix V
<b>FAO/WHO Coordinating Committee for Africa (CAFRICA)</b>	
Regional Standard for dried meat	Annex 1 CX/CAC 16/39/7 Add.1



Annex 38 (contd)Annex 6

## ACTIVITIES OF THE WORLD HEALTH ORGANISATION RELEVANT TO ANIMAL PRODUCTION FOOD SAFETY

(as of November 2016)

### Capacity building activities for surveillance of and response to foodborne diseases

#### 1) Strengthening foodborne disease surveillance and response workshops

For the purpose of rolling out the WHO Practical Manual for Strengthening Surveillance of and Response to Foodborne Diseases, WHO Regional Office for South-East Asia (SEARO) in collaboration with headquarters organized, a “strengthening foodborne disease surveillance and response workshop”. The workshops were held in Jakarta, Indonesia on 19-22 July 2016, convening 44 workshop participants from the national and state government levels and a workshop in Thimphu, Bhutan on 23-25 August 2016, convening 20 participants, overall with staff from the Royal Centre for Disease Control (RCDC), the laboratories of the main referral hospitals in Bhutan, Bhutan Agriculture and Food Regulatory Authority, National Centre for Animal Health and Khesar Gyalpo University of Medical Sciences of Bhutan. As part of both workshops preparation, a country self-assessment was completed by representatives from the Ministry of Health in Indonesia and by the Royal Centre of Disease Control (RCDC) in Bhutan. The facilitators used the information provided in the self-assessment to guide the discussion during the workshop and to ensure that the structure and content of the workshop was relevant for the participants. From 9-11 August 2016, the national workshop on strengthening the surveillance of and response to foodborne diseases in Vietnam was held. The workshop was organised by Vietnam Food Administration (VFA) in close collaboration with General Department of Preventive Medicine (GDPM) under Ministry of Health. The workshop was attended by approximately 42 participants from VFA and national and sub-national level, GDPM, regional institutes and laboratory staff.

#### 2) Whole Genome Sequencing (WGS)

WHO and PAHO will convene a meeting in 2017 on the application of WGS as a tool to strengthen foodborne disease surveillance in developing countries. During the meeting practical guidance for ministries of health, aimed at supporting countries plan for the implementation of WGS, will be developed. In addition a Landscaping paper looking at the evidence base for the effective use of WGS in public health surveillance, the options for implementation, challenges and benefits of the technology and the future applications within the context of public health surveillance and outbreak response, will be published in early 2017.

#### 3) FAO/WHO Food Control System Assessment Tool

WHO and FAO have started the process of combining the WHO food safety needs assessment tool with the food control assessment tool that is being developed by FAO. The approaches are complementary with the FAO tool taking a much broader view of the food control system and WHO tool highlighting the public health aspects. The ultimate aim is to have a robust and comprehensive tool that countries can use either with external support or as a self-assessment which identifies gaps and helps direct planning, also providing indicators allowing to measure progress over time. Practical application of the tool is being assessed through field-testing in different country situations to allow the finalization and validation of the tool. The process for the FAO/WHO joint assessment using the tool is launched in Iran. An introductory workshop will be held in Teheran, on 3-8 December 2016. The workshop gathers over 50 participants from Ministry of Health and Medical Education (MOHME) and its subsidiaries, Minister of Jihad and Agriculture (MOJA) and its subsidiaries, as well as Institute of Standard and Industrial Research of Iran (ISIRI). The workshop will provide guidance on the application of the tool and it is expected that by the end of the week the participants will gain knowledge on 1) the methodology and approach for the assessment, its purpose, the timelines and the use and confidentiality of data and 2) how to collect data to be used in preparation and during the next steps.

Annex 38 (contd)Annex 6 (contd)**4) IHR Annual Reporting Questionnaire**

All WHO State Parties are required to have or to develop minimum core public health capacities to implement the International Health Regulations (IHR) (2005) effectively. From 2014, the discussion of monitoring the 'functioning' of IHR (2005) started, and the IHR Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation also recommended to consider a variety of approaches for the shorter- and longer-term assessment and development of IHR core capacities. The IHR post-2015 monitoring and evaluation framework has four components: Self-administered annual reporting tool, After-action reviews, Exercises, and External evaluations. IHR annual reporting questionnaire are being renewed by developing a new set of indicators to assess core public health capacities of a country including Antimicrobial Resistance (AMR), Zoonotic Disease, and Food Safety (finalization expected in 2017). For the external evaluation, WHO, in collaboration with partners and initiatives such as the Global Health Security Agenda (GHSA), developed the Joint External Evaluation (JEE) process to conduct more comprehensive assessment of country IHR capacity so to help them identify the most urgent needs within their health system.

Regarding the new IHR monitoring and evaluation framework:

Regarding JEE tool: [http://www.who.int/ihr/publications/WHO\\_HSE\\_GCR\\_2016\\_2/en/](http://www.who.int/ihr/publications/WHO_HSE_GCR_2016_2/en/)

**5) The FAO/WHO Codex Trust Fund**

Following the success of the first Codex Trust Fund that ran from 2004-2015, FAO/WHO launched the new Codex Trust Fund in January 2016 with the aim of ensuring that all developing and transition economy countries are sustainably engaged in Codex. The new Codex Trust Fund will run for 12 years (2016-2027) and 103 countries are currently eligible for support to help them build strong, solid and sustainable national capacity to engage in Codex. Applications from eligible countries or groups of countries are assessed through a fair and transparent process and successful applications receive support for up to three years.

The first round of applications was held in 2016 and 38 applications were received covering all Codex regions. Of these four applications were considered robust enough to be supported. The first countries being supported by the new Codex Trust Fund are Ghana, Kyrgyzstan, Madagascar and Senegal.

More information on the Codex Trust Fund can be found at:

[http://www.who.int/foodsafety/areas\\_work/food-standard/codextrustfund/en/](http://www.who.int/foodsafety/areas_work/food-standard/codextrustfund/en/)

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**Antimicrobial Resistance (AMR) and WHO Advisory Group on Integrated Surveillance of Antimicrobial Resistance (AGISAR)****1) 7<sup>th</sup> AGISAR Meeting**

The 7th meeting of the AGISAR took place on 17-20 October 2016 in Raleigh, North Carolina, United States of America, with the hosting support by the North Carolina State University. The specific objectives of the meeting were: 1) to present the Key Finding of the Global Report of AGISAR country and focused projects since 2010, 2) to update and finalize the AGISAR Guidance on Integrated Surveillance of AMR, 3) to develop the ESBL Ec Tricycle project protocol, 4) to update the Critically Important Antimicrobial List (CIA) and 5) to develop the recommendations for a WHO Guideline on the use of antimicrobial in food producing animals based on the CIA list. The publication of the new version of the AGISAR Guidance on Integrated Surveillance on AMR and the WHO CIA list 5th revision is planned in early 2017, and the guidance in later 2017. The ESBL Ec Tricycle project will start its pilot phase in June 2017. The Global Report of AGISAR country and focused projects will also be published early 2017.

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## 2) **Global Action Plan (GAP) on AMR**

Following the adoption of the GAP on antimicrobial resistance by the World Health Assembly in May 2015, an AMR Steering Group, a Global Technical coordination group for AMR, and the AMR secretariat were newly established within WHO so as to facilitate the implementation of the GAP. The AMR Steering Group was formed to make high-level recommendations and decisions to implement AMR policy, including direction setting, approval of the Organization-wide AMR work plan, and associated budget and fund allocation. Global Technical Coordination Group for AMR brings together HQ technical leads together with regional focal points, implementing action under the GAP. The Strategic and Technical Advisory Group on AMR (STAG-AMR) will continue to meet and provide expert strategic direction to its implementation including how the impact of interventions will be monitored. The AMR secretariat provides support to each of the above groups and will serve as a central point of reference on the global action plan initiatives in country offices, at regional level and at headquarters.

## 3) **World Antibiotic Awareness Week (WAAW): “Antibiotics: Handle with Care”**

The WAAW was held from 14-20 November 2016. The campaign aims to increase awareness of global antibiotic resistance and to encourage best practices among the general public, health workers and policy makers to avoid the further emergence and spread of antibiotic resistance. This is an implementation of one of the key GAP objectives, “improve awareness and understanding of antimicrobial resistance through effective communication, education and training”. WHO is encouraging its Member States and partners to join this campaign and help raise awareness of this issue. Web link: <http://www.who.int/antimicrobial-resistance/events/world-antibiotic-awareness-week-2016/en/>

## 4) **Global Antimicrobial Resistance Surveillance System (GLASS)**

The manual for the GLASS early implementation is available <http://www.who.int/antimicrobial-resistance/publications/surveillance-system-manual/en/>. Member States are joining in this Global surveillance on AMR and it is expected to have the first GLASS report on 2017. A technical consultation on 13-16 December 2016 with the WHO Collaborating Centres and other technical partners and networks will be held to develop tools to improve and promote the Surveillance on AMR.

## 5) **Tripartite Meeting**

6th meeting of FAO-OIE-WHO technical focal points on collaborative activities related to AMR was held on 11-12 February 2016 in FAO HQ, Rome, Italy. Tripartite focal points reviewed and shared information on ongoing and planned AMR activities, reviewed the recommendations FAO/OIE/WHO tripartite annual executive and coordination meeting, and discussed tripartite contribution to the implementation of the Global Action Plan.

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## **Joint FAO/WHO Expert Meetings on Microbiological Risk Assessment (JEMRA)**

### **Shiga toxin-producing *E. coli* (STEC)**

In response to the request from 47<sup>th</sup> Session of Codex Committee on Food Hygiene, FAO and WHO convened a Core Expert Group Meeting on VTEC/STEC held in Geneva, Switzerland, from 19-22 July, 2016. The objective of the meeting was to decide on the scope of the work and the approaches and the methodologies, and to develop a forward work plan. The meeting discussed three aspects of STEC: 1) the global burden of foodborne STEC disease and source attribution, 2) hazard identification and characterization, and 3) current monitoring and assurance programs.

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Meeting report: [http://www.who.int/foodsafety/areas\\_work/microbiological-risks/JEMRA-report.pdf?ua=1](http://www.who.int/foodsafety/areas_work/microbiological-risks/JEMRA-report.pdf?ua=1)

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**Developing country needs for Maximum Residue Limits of veterinary drug residues in food**

The 23<sup>rd</sup> session of the Codex Committee on Residues of Veterinary Drugs in Foods (CCRVDF) agreed to include the following new compounds in the Priority List for evaluation by JECFA.

- bismuth sub-nitrate, flumethrin, halquinol, lufenuron, and monepantel (for evaluation by JECFA in 2017)
- ethion, fosfomicin, and triamcinolone (triamcinolone) (for evaluation by a future JECFA)

The 85<sup>th</sup> meeting of JECFA will be convened in Geneva from 24 October to 2 November 2017 to assess a number of veterinary drugs, which includes two antimicrobials that are classified as critically important antimicrobial in human medicine, amoxicillan and ampicillan. The list of substances scheduled for assessment is available from the calls for data from the JECFA website: [http://www.who.int/foodsafety/JECFA85-Call4data\\_Corrigendum.pdf?ua=1](http://www.who.int/foodsafety/JECFA85-Call4data_Corrigendum.pdf?ua=1).

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**The global burden of foodborne disease**

Following the publication by WHO of the first global estimates of foodborne disease, work continued to estimate the disease-burden from the heavy metals arsenic, cadmium, lead and mercury. The work is currently being finalized and will be published in 2017. Furthermore countries are encouraged and supported to use the FERG toolkit to support countries in developing national burden of disease estimates.

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**The International Food Safety Authorities Network (INFOSAN)**

INFOSAN is a joint FAO/WHO initiative which includes the participation of national authorities in 186 Member States (including veterinary authorities). The aim of the network is to promote the rapid exchange of information during food safety related events, share information on important food safety related issues of global interest, promote partnership and collaboration between countries, and help countries strengthen their capacity to manage food safety emergencies. To accomplish this, INFOSAN works with a number of partners at the international and regional level. INFOSAN receives information from its members and monitors for food safety related events of potential international concern to alert to its network members. Network members collaborate and exchange information using the INFOSAN Community Website, a secure, online platform. The INFOSAN Secretariat has continued to encourage the designation of additional Focal Point from national veterinary services to ensure the full range of expertise is represented along the food chain.

2016 has seen the revitalization of the INFOSAN Advisory Group with new membership including one representative from the OIE. The Advisory Group will contribute to the development of a new strategic plan for INFOSAN. This year, the INFOSAN Secretariat has also partnered with national authorities in Canada to deliver an 8-part webinar series on topics covering food safety and foodborne illness. Other new initiatives this year included the co-sponsorship of an international meeting (along with FAO) titled, New science for food safety: Supporting food chain transparency for improved health, which focused on regional perspectives of food science development in Asia. The meeting was organized by the Nanyang Technological University in Singapore and was attended by a representative from the OIE Regional Representation for Asia and the Pacific. The purpose of this meeting was to facilitate discussion between food safety regulators, academics and laboratory scientists in order to exchange information on recent scientific advancements related to food science and risk assessment

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including the utilization of foodborne disease burden estimates, the application of next generation sequencing (NGS) in food safety, risk assessment and sustainability and food fraud. The third regional meeting of INFOSAN members in the Americas was also organized this year in Costa Rica, as well as a sub-regional meeting of INFOSAN members from southern African countries was also organized in South Africa. All of these initiatives have contributed to strengthening INFOSAN members' abilities to respond effectively during food safety emergencies. During 2016, the INFOSAN Secretariat has been involved in the coordination of information between network members during approximately 40 food safety events with potential international implications.

More information about INFOSAN can be found at:

[http://www.who.int/foodsafety/fs\\_management/infosan/en/index.html](http://www.who.int/foodsafety/fs_management/infosan/en/index.html)



Annex 38 (contd)Annex 7**OIE ANIMAL PRODUCTION FOOD SAFETY WORKING GROUP****Paris, 13–15 December 2016****Update on relevant FAO Activities****Scientific advice activities relevant to foods of animal origin**JEMRA: Shiga toxin-producing *Escherichia coli* (STEC)

In response to the request of 47th session of the Codex Committee on Food Hygiene, FAO and WHO established an expert group to develop a report on foodborne STEC, including identification and characterization of STEC and current monitoring and assurance programs. As a first expert meeting, convened in Geneva, Switzerland on 19-22 July 2016, the work on STEC was progressed in four areas: 1) the burden of disease, for which all the STEC related information generated under the WHO project on the Global burden of foodborne diseases will be collated; 2) the approach to source attribution to food categories was agreed and is now being developed based on case-control studies and outbreak data; 3) the development of a set of criteria to support a harmonized approach to hazard identification and characterization was initiated, and 4) the preparation of an overview on monitoring and assurance programs, including a review of available methodologies. A report of the meeting can be found at <http://www.fao.org/3/a-bq529e.pdf>. A second meeting to review the papers under development and conclude where feasible is scheduled for September 2017.

JEMRA: New publications

Recent publications in the Microbiological Risk Assessment (MRA) Series that are relevant to animal production food safety include the following:

Selection and application of methods for the detection and enumeration of human pathogenic halophilic *Vibrio* spp. in seafood: Guidance, Microbiological Risk Assessment Series No. 22. 2016. Available at: <http://www.fao.org/3/a-i5982e.pdf> and <http://apps.who.int/iris/bitstream/10665/249530/1/9789241565288eng.pdf?ua=1>

Statistical aspects of microbiological criteria Related to Foods: A risk managers guide, Microbiological Risk Assessment Series No. 24. 2016. Available at: <http://www.fao.org/3/a-i3996e.pdf> and <http://apps.who.int/iris/bitstream/10665/249531/1/9789241565318-eng.pdf?ua=1>

Interventions for the Control of Non-typhoidal *Salmonella* spp. in Beef and Pork: Meeting Report and Systematic Review, Microbiological Risk Assessment Series No. 30. 2016. Available at: <http://www.fao.org/3/ai5317e.pdf> and <http://apps.who.int/iris/bitstream/10665/249529/1/9789241565240-eng.pdf?ua=1>. A peer-reviewed paper on the systematic review has also been published in the Journal of Food Protection (Vol 79. No 12. Pages 2196-2210).

Annex 38 (contd)Annex 7 (contd)JEMRA Water safety and quality work.

In response to a request from the CCFH, FAO and WHO developed an overview of the available WHO and FAO guidance on water quality and safety and highlighted the key concepts underlying the WHO Water Quality Guidelines, including the evidence based approach, risk assessment, multiple barriers for risk management, and incremental improvement. While the existing documents extensively address risk assessment and management of water safety, they had not been explicitly developed for food safety management. Although clean water was not a concept that had been addressed in these guidelines, they did provide the flexibility to establish targets that were relevant to the local context. In moving forward FAO and WHO will work towards the development of illustrative examples on applying the existing water quality guidelines for specific food-related water uses as a means of bridging the existing guidance and the needs for the food safety management community.

JECFA – residues of veterinary drugs in foods

The next session of JECFA dedicated to residues of veterinary drugs in food will take place in Geneva – Switzerland, 17-26 October 2017. A call for data relating to the following substances has been issued: Amoxicillin, Ampicillin, Bismuth subnitrate, Ethion, Flumethrin, Halquinol, Lufenuron, Monepantol, Diflubenzuron, Sisapronil, and Zilpaterol. This is available at <http://www.fao.org/3/a-bq780e.pdf>.

Residue Evaluation of Certain Veterinary Drugs by the 81st meeting of JECFA was published this year and is available as JECFA Monographs 18 at <http://www.fao.org/3/a-i5590e.pdf>

JECFA is developing an approach to assess more accurately the chronic dietary exposure to veterinary drug residues (i.e. GECDE). JECFA is using this approach in parallel with the EDI model in order to gain experience and to continue improving the methodology. In addition, work is underway on harmonizing/combining exposure from veterinary drug and pesticide use. An expert working group has been established to address this issue and a call for expression of interest for national institutions to contribute to this work including through provision of data on residues and food consumption was launched and is open until 31<sup>st</sup> December 2016. For more information please see <http://www.fao.org/3/a-bl814e.pdf>

FAO has updated its database on residues of veterinary drugs in foods, which facilitates updating of the database as well as improved interconnectivity with other databases, such as the Codex database of adopted MRLs of residues of veterinary drugs and the WHO summaries of JECFA evaluations. The new databases are available on the FAO JECFA web site - <http://www.fao.org/food/food-safetyquality/scientific-advice/jecfa/en/>

Scientific advice related to Fish

Following the request of Codex Committee on Fish and Fishery Products (CCFFP), FAO/WHO have developed a technical document of Toxicity Equivalency Factors (TEFs) for marine biotoxins. The report is available at <http://www.fao.org/3/a-i5970e.pdf>

FAO/WHO have undertaken a risk assessment on biogenic amines, in particular histamine, in fish and fishery products (<http://www.fao.org/3/a-i3390e.pdf>) and developed a sampling tool to support the development of sampling plans for histamine (<http://www.fstools.org/histamine/>). In response to a request from the CCFH, work is now underway to review available data on histamine and Salmonidae to further inform the ongoing Codex work to develop a Code of practice for the control of histamine in fish and fishery products.

Work is ongoing to review new data on pathogenic *Vibrio* spp. in shellfish and in particular bivalve molluscs with a view to updating existing risk assessments.

Guidance on the development of shellfish sanitation programmes in line with Codex standards has been developed and is currently being pilot tested in several African countries. The guidance will be revised based on the feedback from the pilot testing and published together with resources to support its implementation.

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In response to a recommendation of the GLOBAL OCEANS ACTION SUMMIT FOR FOOD SECURITY AND BLUE GROWTH, 2014 (<http://www.globaloceansactionsummit.com/>) FAO is working together with the IMO, UNEP and the Group of Experts on Scientific Aspects Marine Environmental Protection (GESAMP) to improve the knowledge base on microplastics in the marine environment and provide policy advice on this topic. In this context FAO convened a workshop on “Microplastics in fisheries and aquaculture: occurrence and impacts” in December 2016 to complete a review of the scientific knowledge available on microplastics in fisheries and aquaculture (sources, transport and distribution) considering the potential impact of microplastics on consumers’ health and perception; to provide recommendations and best practices to reduce the possible impact of microplastics on fish populations and stocks and to provide recommendations and best practices to reduce the possible impact of microplastics in seafood and on human health. The technical report is currently under finalization and should be available in early 2017

### **Food safety capacity development**

#### Good Hygiene Practices and HACCP

FAO continues to develop resources to support countries in the application of good hygiene practices and HACCP. Based on its work at country level, FAO is developing an online resource “FAO Good Hygiene Practices (GHP) Toolbox”, a practical resource on good hygiene practices along the food chain for food safety trainers of small and medium sized businesses. The full resource will be published in January 2017. An example of some of the materials to be provided therein can be currently accessed at <http://www.slideshare.net/FAOoftheUN/tag/ghp>. FAO have recently published “Guidance on hygiene and safety in the food retail sector” which can be accessed at <http://www.fao.org/documents/card/en/c/0bd89d7b-a1c942d3-9d20-6d36683353ad>

#### FAO/WHO Food Control System Assessment tool

FAO and WHO have combined efforts to further the development of the food control system assessment tool. A technical meeting of experts with extensive experience in food control system assessment peer reviewed the tool’s assessment criteria and approach to measure performance. This tool was subsequently reviewed to better reflect considerations related to public health and food borne diseases surveillance systems. The tool has this year been field tested in Zimbabwe and the Islamic Republic of Iran. The experiences and feedback from field testing will be incorporated in an updated version which is expected for release in 2017, supported by a package allowing meaningful use for self-assessment.

#### Risk-based meat inspection

FAO is developing guidance aimed at those responsible for designing meat inspection programmes, particularly in developing countries, and support them in using scarce resources to develop risk based inspection programmes. A draft of the guidance will be pilot tested in southern Africa in the first half of 2017. Feedback and lessons learned from that will be used to revise and finalize the guidance.

#### Imported food control guidance

FAO recently published a guidance document in Risk based imported food control. This is available at <http://www.fao.org/3/a-i5381e.pdf>

#### Support to Risk analysis

FAO continues to support countries to apply risk analysis in the context of their national food control systems. In addition FAO continues to develop resources to support the uptake of risk analysis. Some recent and/or ongoing activities include the following:

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### *Ranking of food safety issues*

Work is ongoing to finalize guidance to support risk ranking of food safety issues particularly in low resource settings. It also provides some examples of how to apply the guidance to ranking of chemical and microbiological hazards, including how to use the WHO global burden of diseases data for this purpose. This draft guidance will be reviewed in early 2017, with a view to finalization before the end of the year.

### *Risk management decision making using multiple criteria*

Guidance materials are being developed to support food safety policy makers and risk managers to make evidence-informed food safety decisions considering relevant multiple factors. This will enable more systematic, transparent and evidence based approaches to decision making to inform food safety programmes. An integral part of this work is that food safety decision makers need to consider a range of factors when establishing food safety priorities or determining the most suitable intervention to address a food safety issue. The actual criteria will be country-specific, but may include health, market access, economic gain/risks, consumer perception, food security, and livelihoods. To assess the feasibility of a multi-criteria approach, FAO work was undertaken in two pilot countries – Uganda and Thailand, and two peer review meetings with global experts were held. The guidance is currently being finalized based on the input from these activities.

### *Global Food Consumption Databases*

To address the issue of insufficient access to consumption data for risk analysis purposes, FAO and WHO have continued the work on two tools to develop global food consumption databases.

- CIFOcOs (FAO/WHO Chronic Individual Food Consumption Data summary statistics) has been further implemented with data from additional countries and available summary statistics are now published at <http://www.who.int/foodsafety/databases/en/>
- FAO/WHO GIFT (FAO/WHO Global Individual Food consumption data Tool) is a comprehensive database collating micronutrient data for the production of indicators in the field of nutrition, dietary exposure and environmental impact. The pilot version is under development based on four datasets. The food categorization system is the one developed by the European Food Safety Authority (EFSA), which was implemented for use at global level. More information is available at <http://www.fao.org/food/nutrition-assessment/foodconsumptiondatabase/en/>

### *Risk communication*

An FAO/WHO Handbook on Risk Communication Applied to Food Safety has recently been published and is available at <http://www.fao.org/3/a-i5863e.pdf>

### Whole Genome sequencing and food safety

FAO organized a Technical Meeting on the impact of Whole Genome Sequencing (WGS) on food safety management in conjunction with the ninth meeting of Global Microbial Identifier (GMI9), at FAO headquarters, Rome on 23–25 May 2016. The meeting, which targeted food safety managers and assessors around the world, provided an opportunity to exchange information on the potential use and impact of WGS on food safety management, and discuss the opportunities, challenges, concerns and solutions it may present in the context of consumer protection, trade facilitation and food security. Specific considerations were given to the benefits and potential drawbacks of WGS for developing countries, with burgeoning food safety systems and limited resources. The background paper for the meeting is available at <http://www.fao.org/documents/card/en/c/61e44b34-b328-4239-b59c-a9e926e327b4/> and the meeting report has now been published (<http://www.fao.org/3/a-i6582e.pdf>).

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## **Antimicrobial Resistance**

### FAO Resolution on AMR and the Global Action Plan

As follow up to the adoption of a resolution on AMR, FAO developed its action plan on AMR to support the food and agriculture sectors in implementing the Global Action Plan on AMR. The FAO action plan is available at <http://www.fao.org/3/a-i5996e.pdf>.

On 21st September the Director-Generals of FAO together with the Director Generals of WHO and OIE participated in a high level meeting of the UN General Assembly which addressed the issue of AMR, where Member States agreed upon a strong Political declaration that provides a good basis for the international community to move forward in addressing the issue of AMR.

### Capacity development

FAO is providing direct support to the food and agriculture sectors at country level, currently working directly with countries in Africa and south and south east Asia and new work in Eastern Europe and Latin America due to begin in the coming months. Support is being provided on awareness raising and engaging the food and agriculture sectors in the national action plan development and implementation, review and revision of legislation, surveillance and changing practices to reduce use and minimize the need for antimicrobials.

### Resources on AMR

FAO has developed a number of awareness raising products which are available on the website (<http://www.fao.org/antimicrobial-resistance/en/> ). FAO has also recently published a review on Drivers, dynamics and epidemiology of antimicrobial resistance in animal production (available at <http://www.fao.org/3/a-i6209e.pdf>).

## **Feed Safety**

### Feed Safety Multi Stakeholder partnership

The Feed Safety Multistakeholder Partnership has the objective to develop the capacities of all relevant stakeholders along the feed and food chain to ensure safe feed. Ongoing activities, supported by the Partnership, include the annual International Feed Regulators Meeting (IFRM). The next meeting will take place in Atlanta, USA in January 2017 and will include a meeting of feed regulators and industry to discuss the role of the feed industry in providing solutions and taking actions to minimize antimicrobial resistance and the challenges they are facing in this regard. A report of this meeting will be published after the event. More information on the Feed Safety Multi-Stakeholder Partnership is available on video in 7 languages (see [ENGLISH](#), [SPANISH](#), [FRENCH](#), [CHINESE](#), [RUSSIAN](#), [ARABIC](#), [ITALIAN](#)). More information on the partnership, including joining the partnership, proposing activities or receiving additional information, please contact us at [feed-safety@fao.org](mailto:feed-safety@fao.org).

### Survey on application of Good Practices for the Feed Industry

FAO, the International Feed Industry Federation (IFIF) and the Standard Trade and Development Facility (STDF) are undertaking a survey on knowledge and use of the FAO/IFIF Manual of Good Practice for the Feed Industry. This 2010 manual, a guide for managers of feed mills and the feed industry as a whole, provides comprehensive information and practical guidelines for compliance with regulatory frameworks in response to the Codex Alimentarius Code of Practice on Good Animal Feeding. The application of this Code was an important step for the expansion of international trade in feed products as well as in products of animal origin. Both food exporting and importing countries could benefit from a more level playing field to support the trade of safe food products. The feedback from this survey will be used to evaluate the impact of this manual on changing practices in the feed industry and will be used to direct future work on feed safety. The survey is accessible at [https://docs.google.com/forms/d/e/1FAIpQLSfbs6Zi96Hdi\\_yGJPJyAXiTyRJGtj3FFMFlrOixq58u7VCyfg/viewform?c=0&w=1](https://docs.google.com/forms/d/e/1FAIpQLSfbs6Zi96Hdi_yGJPJyAXiTyRJGtj3FFMFlrOixq58u7VCyfg/viewform?c=0&w=1) and deadline for comments is 18<sup>th</sup> December 2016.





Organisation  
Mondiale  
de la Santé  
Animale

World  
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for Animal  
Health

Organización  
Mundial  
de Sanidad  
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## REPORT OF THE OIE *AD HOC* GROUP ON ANIMAL WELFARE AND PIG PRODUCTION SYSTEMS

Paris, 24–26 January 2017

### 1. Welcome and introduction

The OIE *ad hoc* Group on Animal Welfare and Pig Production Systems (the *ad hoc* Group) met at the OIE Headquarters on 24–26 January 2017.

The members of the *ad hoc* Group and other participants at the meeting are listed at [Annex I](#). The adopted agenda is at [Annex II](#).

Dr Leopoldo Stuardo, Chargé de mission in the Standards Department of the OIE, welcomed and thanked the *ad hoc* Group on behalf of the Director General for their agreement to work with the OIE on this topic.

Dr Stuardo asked Members to carefully consider all comments provided by OIE Members and partner organisations in the working document provided by the OIE Secretariat and to provide a clear rationale, particularly when not accepting a comment. References should be provided where appropriate. These would not be included in the text adopted by Delegates but should be provided in the working document produced by the *ad hoc* Group to help Delegates understand the reasons for modifying or maintaining the text.

Dr Stuardo indicated that the report of the meeting will be presented to the Terrestrial Animal Health Standards Commission (Code Commission) in February 2017, to be provided to OIE Members as an annex to the Code Commission report (normally in March).

The draft agenda was adopted without modifications.

Dr Birte Broberg, Chair of the *ad hoc* Group thanked the members of the *ad hoc* Group for their dedicated work, and also the Member Countries and organisations in sending their constructive comments.

### 2. Review of Member Countries comments on the draft chapter on Animal Welfare and Pig Production Systems

The *ad hoc* Group developed a revised draft standard document, which is included as [Annex III](#) for consideration by the Code Commission at its February 2017 meeting.

Some OIE Members and partner organisations made recommendations without providing a (scientific) rationale, making it difficult to take these comments into account.

Comments were received from Australia, Canada, Chile, Costa Rica, Guatemala, Japan, New Zealand, Norway, Switzerland, Thailand, United States of America (USA), African Union – Interafrican Bureau for Animal Resources (AU-IBAR), European Union (EU) and International Coalition for Animal Welfare (ICFAW).

During the revision of this chapter and in response to a number of Member Countries comments, the *ad hoc* Group made various changes throughout the text to improve grammar, syntax, and clarity.

Annex 39 (contd)**Article 7.X.1.**

In response to two Member Countries comments to insert the wording “behavioural well-being” into the last sentence of a paragraph, the *ad hoc* Group considered that behavioural well-being has been addressed in a previous sentence of the same paragraph, and thus agreed that the insertion as unnecessary.

In response to a Member Country request to insert the wording “apathetic behaviour” in Article 7.X10., the *ad hoc* Group considered it appropriate and accepted the request to provide a definition in this article. The *ad hoc* Group also considered it appropriate to provide a definition for “agonistic behaviour”. The *ad hoc* Group also considered it appropriate to move the definition of “stereotypy” from Article 7.X.4 to this article.

**Article 7.X.2.**

A Member Country commented that captive wild pigs should be included in the scope. The *ad hoc* Group felt that there is not enough scientific research on captive wild pigs farming systems to include captive wild pigs in this chapter. A Member Country suggested that the word “domestic” should be included in order to qualify “pig production systems” in the scope. The *ad hoc* Group considered it unnecessary to make the proposed modification in the scope, but to provide clarity, Article 7.X.1. has been modified to include the scientific name *Sus scrofa domesticus* for domestic pigs.

**Article 7.X.3.**

The article has incorporated several Member Countries’ suggestions on grammar and wording to improve clarity, and to harmonise them with other OIE animal welfare chapters. The inclusion of “Pastures” to the last sentence under the subheading and a reference to ‘outdoors’ was to reflect the need for flexibility in systems and to acknowledge that pigs are kept in pasture in some outdoors production systems.

**Article 7.X.4.**

A Member Country suggested that “measurables” should be added in bracket following “criteria”. The *ad hoc* Group acknowledged the Member Country suggestion as they are interchangeable terms, and would draw the Code Commission’s attention to the need to ensure that the use of the wording “criteria” and “measurables” is harmonised in other *Code* chapters. A Member Country commented that “parameters” should substitute “thresholds” as “parameters” more appropriately refers to the measurements taken and allows for a range of acceptable outcomes. The *ad hoc* Group considered this substitution as unnecessary because flexibility has been given in the text where it states “appropriate thresholds should be adapted to the different situations in which pigs are managed”.

**1. Behaviour**

In response to a Member Country comment on substituting the wording “agonistic” and “apathetic” with “aggressive” and “depressed” respectively, the *ad hoc* Group agreed the former suggestion provides clarity, and added “(including aggression)” to the text, but the *ad hoc* Group did not consider that the wording “depressed” improves the text. The *ad hoc* Group agreed to add a definition for “apathetic behaviour” in the chapter to provide clarity.

A Member Country suggested that further examples of other relevant behavioural signs indicating welfare problems should be included in the text. The *ad hoc* Group felt that the chapter should be kept concise and thus considered the inclusion of further examples as unnecessary. The same Member Country proposed “certain vocalisations” to be added, which has been accepted by the *ad hoc* Group. The *ad hoc* Group accepted a Member Country comment to add “stone chewing” as a stereotypy in outdoor systems.

Annex 39 (contd)

In response to two Member Countries comments to add new text relating to signs of positive behaviours, the *ad hoc* Group acknowledged in principle that the addition is reasonable, but it is premature to list signs of positive behaviours because research to validate behaviour indicative of positive affective state is currently underway.

The *ad hoc* Group accepted a Member Country comment to further elaborate on the definition of stereotypy, which has been moved to Article 7.X.1.

## 2. Morbidity rates

In response to a Member Country request to add more diseases that contribute to morbidity rates, the *ad hoc* Group considered the request reasonable and inserted a modified text to include shoulder ulcers in sows, skin lesions and respiratory and digestive diseases.

The *ad hoc* Group did not accept a Member Country comment to elaborate on a list of animal health problems as it is unnecessary, although the list of animal health problems has been reviewed and modified as a result of another Member Country comment. The *ad hoc* Group accepted the insertion of “information gathered at the slaughterhouse” as suggested.

The *ad hoc* Group accepted a Member Country comment to use the term “animal welfare risks” in place of “animal welfare status”.

The *ad hoc* Group considered a Member Country comment to use the term “post-mortem pathologic” as more appropriate than “pathology” and made the modification in the text.

## 3. Changes in body weight and body condition

The *ad hoc* Group did not accept a Member Country comment to insert “quantity of livestock products” as a measurable because it is not a conventional measure of pig welfare.

The *ad hoc* Group accepted a comment from two Member Countries to delete “in mature animals” from the beginning of the second paragraph and insert a text on individual variation to indicate that the text could also apply to weaners and finishing pigs.

## 4. Reproductive efficiency

Two Member Countries suggested deleting animal welfare but the *ad hoc* Group expressed that reproductive efficiency is considered as an indicator for both animal welfare and health status, and therefore did not accept the suggestion.

A Member Country suggested the insertion of the wording “presence of any disease” into the sentence “Future performance of sows or gilts can be affected by under- or over-nutrition at different stages of rearing”. The *ad hoc* Group took the opportunity to review this sentence, but considered that specifying one factor affecting reproductive efficiency is unnecessary to the general intent of the text, and agreed to delete this entire sentence.

## 5. Physical appearance

The *ad hoc* Group accepted a Member Country comment to insert new text as an assessment tool, modified the suggested text, and inserted “body condition”.

The *ad hoc* Group considered the insertion of diarrhea, as suggested by a Member Country, as unnecessary.

The *ad hoc* Group agreed to accept two Member Countries comment to insert tear staining as an example of discharges, supported by scientific literature provided by the two Member Countries.

Annex 39 (contd)

In response to two Member Country comment to insert an additional point “number (and nature) of interventions or mutilations (such as tail-docking)” as a physical appearance criteria (or measurables), the *ad hoc* Group carefully discussed and considered that tail-docking is not a direct measure of animal welfare. The *ad hoc* Group recognised that it could be an indicator of potential animal welfare problems and agreed not to insert the additional point.

6. Handling response

In relation to handling response, a Member Country proposed to insert the wording “poor handling facilities” into a sentence. The *ad hoc* Group agreed in principle that well-designed and well-maintained handling facilities assist proper handling. A text that reflects this has been inserted at the end of Point 7 “Handling response” in such a way that it does not negate the intent of emphasising the importance of proper handling.

A Member Country suggested the insertion of the wording “lack of desensitisation”. The *ad hoc* Group agreed with the suggestion in principle, refined the suggested wording, and inserted the wording “lack of human contact”. The *ad hoc* Group agreed with the same Member Country suggestion to replace the wording “enter a pen” with “interact with pigs” as the latter is more appropriate.

In response to a Member Country comment to insert the wording “panic reactions and apathetic behaviour” as examples of disturbed behaviour, the *ad hoc* Group agreed with the suggestion in principle and considered it more appropriate to be explicit and inserted the measures “marked avoidance of handlers and vocalisation”.

Consistent with Point 7 “Handling response” and considering the rationale provided, the *ad hoc* Group agreed to accept a Member Country’s comment to delete “restraint” from a sentence.

7. Lameness

The *ad hoc* Group agreed to insert “distress” in response to a Member Country comment as lameness may also cause distress.

8. Complications from common procedures

The *ad hoc* Group did not accept a Member Country comment to replace common procedures with painful procedures as Point 9 ‘Complications from common procedures’ does not address painful procedures only.

The *ad hoc* Group did not accept a Member Country comment to add examples for when procedures are not performed properly as there are many possibilities, and is not possible to include a sufficient number of them.

In response to a Member Country comment the *ad hoc* Group agreed to add the word “unnecessarily” to the second paragraph, as animal welfare will be compromised by most of the procedures.

**A note on the numbering of articles**

Following a Member Country comment on the close linkage between housing and space allowance, recommendations relating to housing have become Article 7.X.12.

The numbering of the Articles between 7.X.6. and 7.X.12. will decrease by one in the new draft. The following content of this report applies the new sequential arrangement.

Annex 39 (contd)**Article 7.X.6.**

In response to a Member Country comment and considering that complications following a procedure or intervention can be a relevant indicator of a lack of skill or competence with regard to those procedures or interventions, the *ad hoc* Group agreed to insert the wording “complications from common procedures” as an outcome-based criterion or measurable.

**Article 7.X.7.**

In response to a Member Country comment, the *ad hoc* Group did not agree to add the word “injury” to welfare and health problem as welfare and health problem is inclusive of injury problems.

In response to two Member Countries’ comments to insert “sick or injured animals and animals that exhibit abnormal behaviours”, the *ad hoc* Group agreed to insert a modified text and included an example.

In response to a Member Country suggestion to insert new text relating to training of competence of personnel handling pigs, the *ad hoc* Group acknowledged the suggestion but, did not agree to insert it as training of personnel has been addressed in a previous article.

In response to a Member Country to replace “extreme circumstances” with “when other methods fail”, the *ad hoc* Group agreed to make the replacement. In response to the same Member Country, the term “electric goads” is now used throughout the article for consistency.

In answering a Member Country request to seek clarifications on what “extreme circumstances” means, the *ad hoc* Group responded that “extreme circumstances” has been replaced by the wording “when other methods fail” to provide more clarity.

In response to three Member Countries comments concerning the use of electric goads, the *ad hoc* Group modified the text relating to the use of electric goads, and thus accepted in part some of the Member Countries comments.

The *ad hoc* Group did not accept two Member Countries’ proposal to insert “if used should only be applied to the muscles of the hindquarters”, but modified the text to emphasise the importance of avoiding the use of electric goads repeatedly and in sensitive areas.

The *ad hoc* Group accepted several Member Countries and organisation comments to insert a new text “piglets should not be thrown”, revised the suggested text, and inserted the wording “improperly or aggressively”, “thrown” and “dropped” to safeguard welfare of piglets.

The *ad hoc* Group did not accept a Member Country comment to delete the text “be attended to” and insert the text “be allowed to settle down and become calm” as such modification would otherwise limit welfare considerations for other situations.

The *ad hoc* Group did not accept a Member Country proposal to insert the wording “body temperature” as an outcome-based criterion because body temperature has been addressed in other part of the chapter and is not in the list of criteria (or measurables) defined in Article 7.X.4.

**Article 7.X.8.**

In response to a Member Country suggestion to add examples of animal identification systems (ear tagging, notching, or tattooing), the *ad hoc* Group did not accept the suggestion as a list of them could be exhaustive.

The *ad hoc* Group accepted a Member Country comment to add the word “environmental” in relation to nose ringing, which is typically done to maintain ground cover for environmental reasons.

Annex 39 (contd)

The *ad hoc* Group decided to modify the second paragraph of this article taking into account the comments of some Member Countries in relation to the need to clearly state that the procedures mentioned in the first paragraph are painful.

The *ad hoc* Group did not accept several Member Countries comments on inserting the word “local” in relation to anaesthesia because such a change would restrict the use of other modes of delivery of anaesthesia, e.g. general anaesthesia.

The *ad hoc* Group did not accept an organisation suggestion to insert two new texts to the third paragraph as the suggested texts duplicates areas that have been addressed elsewhere in this article.

The *ad hoc* Group did not accept two Member Countries and an organisation comments to insert three new texts to the third paragraph as matters in the suggested texts have been addressed elsewhere in the chapter.

The *ad hoc* Group did not accept two Member Countries comments to add “number (and nature) of interventions/mutilations (such as tail-docking) as an outcome-based criteria as it is not in the list of criteria (or measurables) defined in Article 7.X.4. for the reason mentioned under Point 6 of Article 7.X.4.

**Article 7.X.9.**

The *ad hoc* Group considered the rationale provided reasonable and accepted four Member Countries and an organisation comments to add “genetics” to the list of factors affecting the amount of feed and nutrients. In addition, the *ad hoc* Group did not add ‘breed’ to the list as the *ad hoc* Group considered the newly added word “genetics” sufficiently covers “breed”.

The *ad hoc* Group considered the rationale provided reasonable and accepted a Member Country comment to add “growth” as an example of physiological state of pigs.

The *ad hoc* Group did not accept a Member Country request to insert a phrase relating to pasture-based diet as it is addressed in the first paragraph of the article.

The *ad hoc* Group agreed to replace the word “quantities” with “quantity and quality” as the rationale provided by a Member Country is reasonable.

In response to a Member Country proposal to insert the word “behavioural” in relation to demands that need to be met, the *ad hoc* Group agreed to insert the word, however, considered the word “requirements” more appropriate than “demands”.

In response to two Member Countries and an organisation request to add “behavioural” disorders in addition to metabolic and nutritional disorders, the *ad hoc* Group revised this clause, considered that recommendations relating to avoiding behavioural, metabolic and nutritional disorders have been addressed by a preceding clause “meet its physiological and behavioural requirements”, and decided not to accept the request and deleted the clause “avoid metabolic and nutritional disorders”.

In response to two Member Countries and an organisation comment to insert a new clause “meet” or “fulfil” their feeding motivation”, the *ad hoc* Group considered the insertion unnecessary.

The *ad hoc* Group did not accept a Member Country and an organisation comment to insert a new text relating to feeding sows bulky or high-fibre feed as the *ad hoc* Group considered it addressed by the addition of behavioural requirements.

The *ad hoc* Group accepted two Member Countries comments to delete a text relating to feeding of pigs and the occurrence of gastric ulcers on the basis of the rationale provided. The *ad hoc* Group expressed that new scientific evidence relating to feeding and gastric ulcers should be considered during the next review of this chapter. As this text has been deleted, the *ad hoc* Group did not consider further two Member Countries comments relating to this text.

Annex 39 (contd)

In response to a Member Country comment to replace the descriptive word “palatable” with “drinkable” in relation to water in a sentence, the *ad hoc* Group deliberated on an appropriate descriptive word, and considered it unnecessary to have any descriptive word for water as a later clause in the sentence has conveyed what is intended. The *ad hoc* Group also took the opportunity to delete the wording “at a temperature” in the same sentence as it does not add value to the intent.

In response to a Member Country comment to insert the word “dehydration” as an outcome-based criterion, the *ad hoc* Group considered it especially relevant to piglets, and in line with the use of the term “physical appearance” elsewhere in the chapter, the *ad hoc* Group decided to insert the wording “physical appearance (dehydration in piglets)”.

Consistent with a modification that has been introduced, the *ad hoc* Group deleted the wording “gastric ulcers” in this article.

**Article 7.X.10.**

The *ad hoc* Group accepted a Member Country comment to add the word “manipulability.”

The *ad hoc* Group accepted a Member Country comment to add examples of normal behaviour and abnormal behaviour. In line with previous modifications in the chapter, the *ad hoc* Group took the opportunity to replace “apathy” with “apathetic behaviour”, and also considered it appropriate to provide a definition for apathetic behaviour in Article 7.X.1.

In response to a Member Country comment to provide examples of environmental enrichment in this article, the *ad hoc* Group did not agree that it would improve the text.

In response to a Member Country comment to elaborate further on the provision of enrichment materials, the *ad hoc* Group revised the text to insert “explore” and to include the aspect of novelty but considered other suggestions from the same Member Country as unnecessary.

The justification and associated scientific references used by the *ad hoc* Group to support their opinion are the following: Research and several well-studied principles from the field of experimental analysis of behaviour indicate that novelty of an object is an important property involved in initiating and maintaining exploration (Trickett *et al.*, 2009; Tarou and Bashaw, 2007; Abou-Ismaïla and Mendl, 2016). In response to a Member Country comment to remove “pats, rubs and talking”, the *ad hoc* Group considered that examples of positive human contact should be given in the text as “pats, rubs and talking” is feasible in commercial farming. The *ad hoc* Group inserted the text “when the opportunity arises” to put their use in perspective.

**Article 7.X.11.**

The *ad hoc* Group did not accept a Member Country comment to add the wording “avoiding unnecessary stressors that agitate the animals” as this is not the only way to reduce tail biting.

In response to a Member Country comment to insert the text “Vulva biting may also be reduced by implementing similar strategies for the avoidance of tail biting such as providing an adequate environmental enrichment”, the *ad hoc* Group did not accept the suggestion as no scientific evidence was provided to support the proposal.

The *ad hoc* Group did not accept a Member country comment to refer to common stereotypes, but took the opportunity to amend the text to partially take the comment into account.

In response to one Member Country comment the *ad hoc* Group agreed to insert “general health, thermal comfort and air quality”.

Annex 39 (contd)**Article 7.X.12.**

This article corresponds to the previously Article 7.X.6., in the first draft of the chapter. The modification was done in response to a Member Country comment that housing is closely linked to the article relating to space allowance and should therefore be placed closely together in the text.

The *ad hoc* Group accepted a Member Country comment to add new text relating to outdoor housing. The *ad hoc* Group also modified the suggested text, and added the wording “outdoor production systems” to the title “Housing”.

In response to a Member Country comment to insert the phrase “they should also provide for the thermal, social and behavioural needs of the pigs”, the *ad hoc* Group did not include it because it has been addressed in the comment above.

The *ad hoc* Group did not accept a Member Country comment to replace “risk” with “likelihood” as likelihood forms part of the definition of risk in the *Code* glossary. The same Member Country also suggested the insertion of a text relating to the provision of space and water but it was considered that this has been addressed elsewhere in the chapter.

In response to a Member Country comment, the *ad hoc* Group considered it reasonable to insert the text “and water and feed should be within reach”.

In response to a Member Country comment to insert the text “animals that exhibit abnormal behaviour” and “certain animals may need to be kept individually”, the *ad hoc* Group considered the justification reasonable.

In response to a Member Country comment to delete the text “pigs are social animals and prefer living in groups”, the *ad hoc* Group did not agree as there is sufficient scientific evidence to support the inclusion of the text.

Considering the common comments from several Member Countries that mixing early after breeding is viable, the *ad hoc* Group carefully considered the scientific literature relating to group housing and the timing of mixing relative to breeding of sows and gilts. The *ad hoc* Group agreed to insert a new text stating that mixing of sows and gilts early after breeding is a successful option from a welfare and reproductive performance perspective.

In response to a Member Country’s comment, the *ad hoc* Group did not agree to delete the recommendation to keep pregnant sows and gilts in groups. The rationale and some scientific reference are included in the discussion of Article 7.X.13.

In relation to stall housing, there is a substantial amount of literature that well-managed group housing systems provide a number of welfare benefits. References supporting the *ad hoc* Group’s considerations can be found in the draft chapter.

The *ad hoc* Group did not accept a Member Country comment to add the requirement of increased husbandry skills as it is addressed in the Article 7.X.6.

The *ad hoc* Group did not accept comments from three Member Countries on sufficient space, as this topic is addressed in Article 7.X.13. Space allowance.

The *ad hoc* Group did not accept a Member Country comment to add “number (and nature) of interventions/mutilations (such as tail-docking)” as it is outside the scope of this article and it is not as an outcome-based criteria included in the list of criteria (or measurables) defined in Article 7.X.4.

Annex 39 (contd)**Article 7.X.13.**

The *ad hoc* Group accepted a Member Country comment to replace “crowding” with “stocking density” as the latter is a more appropriate term.

The *ad hoc* Group accepted several Member Countries comments to add “elimination behaviour” as the justification provided is reasonable. The *ad hoc* Group did not accept a Member Country comment that a separate elimination area is unnecessary when pigs are in pens with slatted floors.

In response to a Member Country comment, the *ad hoc* Group replaced “rest” with “lie down” and revised the text to provide clarity.

The *ad hoc* Group did not accept an organisation suggestion to insert a new text to outline the minimum requirements for group-housed sows as there are already enough details in the first paragraph relating to group housing.

In response to two Member Countries comments to insert further examples of corrective measures for abnormal behaviour, the *ad hoc* Group considered that the existing examples of “space allowance” and “providing barriers” are sufficient. The *ad hoc* Group revised the text, and took the opportunity to replace “abnormal behaviour” with “high level of aggressive behaviour” to improve clarity.

The *ad hoc* Group agreed to accept a Member Country comment to insert the word “excessive” before “presence of faeces on the skin”.

Consistent with the insertion of “elimination” elsewhere in the same article, the *ad hoc* Group replaced “dunging” with “elimination”.

In response to a comment from a Member Country the *ad hoc* Group agreed to amend the text to indicate that individual pens should only be used, if necessary.

The *ad hoc* Group agreed that stalls and crates are not synonymous and to reflect this. The *ad hoc* Group modified the title from “Stalls (crates)” to “Stalls and crates”. The rest of the article has been revised to ensure the consistent use of the terms stalls and crates.

The *ad hoc* Group reviewed the use of the term stalls and further defined it by inserting the wording “feeding, gestation and insemination stalls and farrowing crates”.

An organisation proposed a new text to add an example to conditions of lying comfortably. The *ad hoc* Group considered the addition of the example as unnecessary.

The *ad hoc* Group did not accept a Member Country proposal to insert new text in relation to “toleration of confinement in a stall” as it is difficult to assess when an individual pig does not tolerate confinement in a stall. Further, no rationale has been provided to support the insertion.

Several Member Countries suggested the insertion of a new text relating to group housing system. This has previously been addressed in another article and thus the *ad hoc* Group considered the insertion as unnecessary.

To address several Member Countries comments on group housing versus stall housing, the *ad hoc* Group provided the following scientific evidence:

Several scientific reviews have compared the welfare of sows in group and stall housing (von Borell *et al.*, 1997; Barnett *et al.*, 2001; McGlone *et al.*, 2004). These reviews of the published literature clearly indicate that there are advantages and disadvantages of these two housing systems. Furthermore, the reviews emphasize the importance of the design of the housing system, rather than just the housing system *per se*, as well as the importance of good management and the need for competent stockpeople, regardless of the housing system.

Annex 39 (contd)

The main concerns with stall housing are the general lack of social contact, inability to exercise and restricted choice of stimuli to interact with (Barnett *et al.*, 2001). Unfortunately there are no measures which can be implemented to avoid these basic problems in stall gestation. Known consequences of stalls as compared to group housing for gestating sows and gilts include increased abrasions (Boyle *et al.*, 2002; Karlen *et al.*, 2007), reduced bone strength (Marchant and Broom, 1996), increased lameness (Karlen *et al.*, 2007), increased stereotypies (Broom *et al.*, 1995), reduced body weight (Broom *et al.*, 1995) and prolonged farrowing time (Anil *et al.*, 2002 et 2005). However, the stall environment can be improved by providing sufficient space and fibre.

The main concern regarding group housing of sows and gilts is aggression, both at mixing and when sows compete for feed. A variety of measures are known and as indicated in the chapter to reduce and manage mixing aggression (Article 7.X.21. and review by Verdon *et al.*, 2015) including increased pen space, use of a mixing pen, use of barriers, high fibre diets and mixing sows that were housed together in the previous gestation. In addition, in comparison to stall housing, gilts and sows housed in groups have increased scratches (Boyle *et al.*, 2002; Karlen *et al.*, 2007), presumably as a consequence of increased aggression.

Because group housing has some clear benefits related to sow health and provides animals with greater opportunity to exercise, socially interact and interact with more stimuli, and because there are known environmental and management methods to address problems associated with group housing, the chapter recommends keeping gilts and sows during gestation in group housing systems.

**Article 7.X.14.**

The *ad hoc* Group did not accept a Member Country proposal to insert “and to prevent feet from becoming trapped” as it has already been addressed in the text.

In response to several Member Countries and an organisation comments to insert a new text relating to a recommendation to phase out fully slatted floor, the *ad hoc* Group did not agree to insert such a text. The *ad hoc* Group did not consider the scientific references provide sufficient evidence to differ between partially and fully slatted floors. The *ad hoc* Group could not find other references that could support a phasing out of fully slatted floors as such.

The *ad hoc* Group accepted two Member Countries and an organisation’s comment to insert the wording “rubber matting”.

In response to a Member Country comment to better qualify the word “suitable” by replacing “hygienic non-toxic” with “uncontaminated and safe”, the *ad hoc* Group considered that the term “suitable” did not add value to the text and decided to remove the wording “suitable (e.g. hygienic, non-toxic)”.

**Article 7.X.15.**

In response to a Member Country proposal to insert behavioural abnormalities and toxins, the *ad hoc* Group agreed to the suggestion but altered the wording “behavioural abnormalities” to “abnormal behaviour”.

In response to a Member Country comment relating to air quality, the word “level” has been replaced with “concentration”.

A Member Country proposed to insert the wording “excessive soiling”. To ensure consistency throughout the chapter, the *ad hoc* Group considered the use of the wording “physical appearance” more appropriate, followed by excessive soiling and tear staining as examples of physical appearance. Other parts of the same paragraph were revised to ensure consistency.

**Article 7.X.16.**

The *ad hoc* Group agreed to accept a Member Country comment to insert the wording “discomfort”.

In response to a Member Country proposal to add a recommendation on using simple monitoring devices, the *ad hoc* Group considered it too prescriptive for the purpose of the chapter.

Annex 39 (contd)

The *ad hoc* Group accepted a Member Country proposal to insert the wording “ventilation rates” as an important factor affecting heat stress.

In response to a Member Country request to replace “wallow availability in outdoor systems” by “water-based cooling systems”, the *ad hoc* Group decided to retain wallow availability in outdoor systems but addressed this request by inserting water-based cooling systems. The *ad hoc* Group also agreed to insert dripping and misting in response to several Member Countries and an organisation’s comments.

The *ad hoc* Group accepted a Member Country comment to insert the word “insulation” as one of the ways to protect pigs from cold stress.

**Article 7.X.17.**

In relation to noise, the *ad hoc* Group did not accept a Member Country proposal to use the word “averse” in place of “sudden and loud” as averse would not improve the text.

The *ad hoc* Group did not accept a Member Country proposal to insert “fear reaction or restlessness” as the word “fleeing” is more explicit than fear reaction.

**Article 7.X.18.**

In relation the lighting regime, the *ad hoc* Group did not agree with some Member Countries comments to increase the recommendation relating to hours from 6 to 8 hours, taking into account that implementation of an eight-hour recommendation could be difficult in varying geographical situations that Member Countries are in. The *ad hoc* Group also agreed not to accept a Member Country proposal to delete the recommendation relating to a minimum of 40 lux of lighting. Although it is a management-based measure, a minimum of 40 lux of lighting is well-documented in scientific literature in terms of welfare outcomes.

**Article 7.X.19.**

The *ad hoc* Group did not accept a Member Country comment to add the wording “appropriately trained” as training of personnel is addressed in Article 7.X.6.

In response to a Member Country request to delete a text relating to the provision of nesting material, the *ad hoc* Group did not accept the proposal as the provision of nesting material is supported by scientific literature. The insertion of gilts in the paragraph was considered appropriate by the *ad hoc* Group.

In response to a Member Country request to insert a new text relating to housing of sows, the *ad hoc* Group considered it necessary to insert part of the suggested text that relates to a recommendation on loose housing systems for farrowing sows and gilts.

The *ad hoc* Group did not accept a Member Country comment to elaborate on nesting material as the suggested elaboration relates more to enrichment material, rather than nesting material.

In response to a Member Country request to insert the word “agitation”, the *ad hoc* Group considered it more appropriate to insert “restlessness and savaging”.

**Article 7.X.20.**

Relating to a Member Country comment to elaborate on early weaning systems, the *ad hoc* Group considered it unnecessary.

In response to several Member Countries and an organisation comments to replace the wording “an average” with “a minimum”, and several Member Countries requests to insert a new text, the *ad hoc* Group considered it more appropriate to remove reference to average or minimum all together, and did not accept the new text as *Code* recommendations intend to provide guidance rather than prescriptive requirements.

Annex 39 (contd)

The *ad hoc* Group considered it necessary to insert a new text relating to the benefits of delaying weaning, which is supported by scientific literature provided by several Member Countries.

The *ad hoc* Group accepted a Member Country comment to insert the word “warm”. The *ad hoc* Group also agreed in principle that the article could provide a recommendation on dietary provisions for newly weaned piglets, and inserted such a recommendation in the article.

**Article 7.X.21.**

The *ad hoc* Group accepted a Member Country comment to delete the term “supervised”, and modified the suggested text to provide clarity concerning situations in which pigs should be observed around mixing.

The *ad hoc* Group did not accept an organisation’s comment to replace “feed on the floor in the mixing area” with “providing *ad libitum* feed”.

The *ad hoc* Group accepted a Member Country comment to include “other suitable enrichment materials”.

The *ad hoc* Group discussed a Member Country comment on mixing previously familiarised animals, and concluded that it is possible for this to occur (e.g. mixing sows that have previously been housed together in the previous gestation).

The *ad hoc* Group did not accept a Member Country comment to insert “avoiding significant body size differences in the group” because it only applies to some situations.

**Article 7.X.22.**

In response to two Member Countries request to insert a new text and an organisation request to insert three new texts, the *ad hoc* Group did not accept the request because they considered the issues had already been addressed in the second paragraph of this article.

In response to two Member Countries request to insert a new text and to insert examples of behaviours, the *ad hoc* Group accepted the request, modified the suggested text to ensure consistency throughout the chapter, and inserted “maternal behaviour and agonistic behaviour” to provide clarity.

**Article 7.X.23.**

In response to a Member Country comment, the title under this article has been modified to include pests, and new text has been inserted to include recommendations to address protection of pigs from pests.

**Article 7.X.24.**

In response to a Member Country comment, the *ad hoc* Group revised the points that biosecurity plans should address and made some alterations for clarification. The *ad hoc* Group agreed to insert more points as suggested by a Member Country. The insertion of “acquisition” was considered unnecessary.

A Member Country proposed to subdivide the text but the *ad hoc* Group considered it as unnecessary.

A Member Country proposed to add new text relating to acclimatisation, etc. The *ad hoc* Group considered it as unnecessary because these items have been addressed elsewhere in the text.

In response to a Member Country comment to delete the word “behavioural” in relation to optimising health and welfare, the *ad hoc* Group agreed and considered it appropriate to delete the word “physical” as well.

Annex 39 (contd)

The *ad hoc* Group agreed to add the wording “fly control” in response to a Member Country comment.

The *ad hoc* Group agreed to add the wording “pain and suffering” in response to two Member Countries comments, and add the wording “recovery” in response to a Member Country comment.

**Article 7.X.25.**

The *ad hoc* Group agreed to alter the title from “emergency plans” to “contingency plans” as the latter is more appropriate.

**Article 7.X.26.**

The *ad hoc* Group did not accept a Member Country comment to replace humane killing with depopulation as the wording “humane killing” is more consistent with other *Code* chapters.

**Article 7.X.27.**

The *ad hoc* Group agreed to accept a Member Country comment to replace “euthanasia” with “humane killing” to ensure consistency with other *Code* chapters.

The *ad hoc* Group agreed to accept a Member Country comment to insert a recommendation on documented procedures and training of staff to make these two points explicit in the article.

The *ad hoc* Group agreed to accept a Member Country comment to insert the wording “severely injured” as a pig may be severely injured but still be ambulatory. In response to the same Member Country comment, the *ad hoc* Group agreed to delete the following points: “severe, debilitating pain”, “compound fracture”, “spinal injury”, and “central nervous system diseases”, as these points would now be covered by “severely injured”.

**3. Programme for further work after this meeting**

The *ad hoc* Group discussed their future work. Their report, including the amended draft chapter, will be discussed during the February 2017 meeting of the Code Commission, the draft revised chapter will be annexed to the report of the meeting and circulated for Member Country comments. Depending on the number and the content of these comments that have to be addressed, OIE Headquarters will decide if another physical meeting is necessary. The possible date of the next meeting was tentatively scheduled for 29–31 August 2017.

**4. Draft a report of the *ad hoc* Group meeting**

After a 3-day discussion the *ad hoc* Group developed and finalised the report, and modified the draft chapter (Annex III). The *ad hoc* Group noted that the scientific references contained in the draft chapter will be deleted after the adoption of this chapter.

**5. Other business**

No other new issues were proposed for discussion.

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...Annexes



Annex 39 (contd)Annex I**OIE AD HOC GROUP ON ANIMAL WELFARE AND PIG PRODUCTION SYSTEMS****Paris, 24–26 January 2017**

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**List of participants****MEMBERS OF THE AD HOC GROUP**

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**Dr Birte Broberg** (Chair)

Senior Veterinary Officer  
 Animal Welfare and Veterinary Medicine  
 Ministry of Environment and Food  
 The Danish Veterinary and Food  
 Administration  
 Stationsparken 31-33 | DK-2600  
 Glostrup Tlf.  
 DENMARK  
 Tel.: +45 72 27 69 00  
 bb@fvst.dk

**Dr Jennifer A. Brown**

Research scientist – Etology  
 Prairie Swine Centre  
 Box 21057  
 2105 – 8th Street East  
 Saskatoon, Saskatchewan  
 S7J 5N9  
 CANADA  
 jennifer.brown@usask.ca

**Dr Antoni Dalmau Bueno**

Researcher  
 IRTA. Animal Welfare Unit  
 Monells (Girona)  
 Finca Camps i Armet, SN  
 SPAIN, ES-17121  
 Tel.: +34 902 789 449 + 1434  
 antoni.dalmau@irta.cat

**Prof. Paul Hamilton Hemsworth**

Director  
 Animal Welfare Science Centre  
 Faculty of Veterinary and Agricultural  
 Sciences  
 The University of Melbourne  
 Parkville, 3052  
 AUSTRALIA  
 phh@unimelb.edu.au

**Dr Cleandro Pazinato Dias**

Consultant IICA and MAPA  
 Av. José Gabriel de Oliveira,  
 915 ap. 1102 Torre I  
 Aurora - Londrina  
 86047360, PR  
 BRAZIL  
 Tel.: +43 911 269 38  
 cleandropazinato@uol.com.br

**OIE HEADQUARTERS**

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**Dr Leopoldo Stuardo**

Chargé de mission  
 Standards Department  
 l.stuardo@oie.int

**Dr Harry Kwok**

Intern  
 Standards Department  
 h.kwok@oie.int



Annex 39 (contd)

Annex II

**OIE AD HOC GROUP ON ANIMAL WELFARE AND PIG PRODUCTION SYSTEMS**

**Paris, 24–26 January 2017**

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**Adopted agenda**

1. Welcome and introduction
2. Consider Member Country's comments on draft Chapter 7.X. 'Animals welfare and pig production systems' and amend text as appropriate
3. Programme for further work after this meeting
4. Draft a report of the *ad hoc* Group meeting
5. Other business.

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Annex 39 (contd)Annex III

DRAFT CHAPTER 7.X.  
**ANIMAL WELFARE AND  
 PIG PRODUCTION SYSTEMS**

Article 7.X.1.

**Definitions**

'Pig production systems' are defined as all commercial systems in which the purpose of the operation includes some or all of the breeding, rearing and management of pigs (*Sus scrofa domesticus*) intended for production of *meat*.

For the purposes of this chapter, 'management' is defined at the farm management level and at the *animal handler* level. At the level of farm management, human resources management practices including selection and training of handlers, and animal management practices, such as best practice in housing and husbandry and implementation of welfare protocols and audits, all impact on *animal welfare*.

At the *animal handler* level this requires a range of well-developed husbandry skills and knowledge to care for animals.

For the purpose of this chapter, 'environmental enrichment' means increasing the complexity (e.g. foraging opportunities, social housing) of the animal's environment to foster the expression of normal behavior, provide cognitive stimulation and reduce the expression of abnormal behaviour ~~and provide cognitive stimulation~~. The ~~endpoint aim~~ aim of providing enrichment should be to improve the biological functioning of the animal (Newberry, 1995).

For the purpose of this chapter stereotypy is defined as a sequence of abnormal, repetitive and unvarying behaviours caused by known factors such as frustration, coping attempts, or dysfunction of the central nervous system. Some stereotypies commonly observed in pigs include sham chewing, stone chewing, tongue rolling, teeth grinding, bar biting and floor licking (NFACC, 2014; Tuytens, 2007; Mason and Latham, 2004).

For the purpose of this chapter apathy is considered to mean that the animal ceases to respond to stimuli that would normally elicit a response (Wood-Gush and Vestergaard, 1989). Furthermore, apathetic behaviour has been described as an abnormal or maladaptive behaviour, indicated by reduced activity, lack of interest or concern (i.e. indifference) and lack of feeling or emotion (impassiveness).

For the purpose of this chapter agonistic behaviour is a continuum of behaviours expressed in conflict situations, and includes offence, defence and submissive or escape components. The behaviours involved may include contact, such as biting and pushing, or non-contact, such as threats in the form of body postures and gestures. Aggressive behaviour is a component of agonistic behaviour (Petherick and Blackshaw, 1987).

Article 7.X.2.

**Scope**

This chapter addresses the welfare aspects of pig production systems. However, *captive wild* pigs are not considered.

Article 7.X.3.

**Commercial pig production systems**

Commercial pig production systems include:

Annex 39 (contd)Annex III (contd)1. Indoors

These are systems in which pigs are kept indoors, and are fully dependent on humans to provide for basic animal needs such as ~~feed~~ feed and water. The type of housing depends on the environment, climatic conditions and management system. The animals may be kept in groups or individually.

2. Outdoors

These are systems in which pigs live outdoors with shelter or shade, have some autonomy over access to shelter or shade, ~~and but~~ may be fully dependent on humans to provide for basic animal needs such as ~~feed~~ feed and water. ~~They~~ Pigs are typically confined in paddocks or pastures according to their production stage. The animals may be kept in groups or individually.

3. Combination systems

These are systems in which pigs are managed in any combination of indoor and outdoor production systems, ~~depending on weather or production stage.~~

## Article 7.X.4.

**Criteria (or measurables) for the welfare of pigs**

The following outcome-based criteria (or measurables), specifically animal-based criteria, can be useful indicators of *animal welfare*. The use of these indicators and their appropriate thresholds should be adapted to the different situations in which pigs are managed. Consideration should also be given to the design of the systems. These criteria can be considered as a tool to monitor the efficiency of design and management, given that both of these can affect *animal welfare*.

1. Behaviour

Certain behaviours could indicate an *animal welfare* problem. These include changes of in feed and water intake, altered locomotory behaviour ~~and or~~ posture, altered lying time, altered respiratory rate and panting, coughing, shivering and huddling, certain vocalisations, and increased agonistic behaviours (including aggression), and stereotypic, apathetic or other abnormal behaviours (e.g. tail biting).

Certain behaviours are indicators of good animal welfare. These may include positive social behaviour and play behaviour.

~~Stereotypy is defined as a sequence of invariant motor acts, which provide no obvious gain or purpose for the animal. Some stereotypies commonly observed in pigs include sham chewing, tongue rolling, teeth grinding, bar biting and floor licking.~~

2. Morbidity rates

Rates of infectious and metabolic diseases, lameness, ~~peri-partum~~ peripartum and post-procedural complications, injury and other forms of morbidity, above recognised thresholds, may be direct or indirect indicators of the *animal welfare risk status to which* of the whole *herd is exposed*. Understanding the aetiology of the disease or syndrome is important for detecting potential *animal welfare* problems. Mastitis and metritis, leg and hoof problems, shoulder ulcers in sows, skin lesions, respiratory and digestive diseases, and reproductive diseases are also particularly important animal health problems for pigs. Scoring systems, such as for body condition, lameness and injuries, and including information gathered at the slaughterhouse/abattoir, can provide additional information.

Both clinical and post-mortem pathologic examination ~~and pathology~~ should be utilised as indicators of disease, injuries and other problems that may compromise *animal welfare*.

Annex 39 (contd)Annex III (contd)3. Mortality and culling rates

Mortality and culling rates affect the length of productive life and, like morbidity rates, may be direct or indirect indicators of the *animal welfare* status. Depending on the production system, estimates of mortality and culling rates can be obtained by analysing the causes of *death* and culling and their temporal and spatial patterns of occurrence. Mortality and culling rates, and their causes, when known, should be recorded regularly, e.g. daily, and used for monitoring e.g. monthly, annually.

Necropsy is useful in establishing the cause of *death*.

4. Changes in body weight and body condition

In growing animals, body weight changes outside the expected growth rate, especially excessive sudden weight loss, are indicators of poor *animal welfare* and health.

~~In mature animals, b~~Body condition outside an acceptable range or large variation amongst individual animals in the group may be an indicator of compromised *animal welfare*, and health, and reproductive efficiency in mature animals.

5. Reproductive efficiency

Reproductive efficiency can be an indicator of *animal welfare* and health status. ~~Future performance of sows or gilts can be affected by under or over nutrition at different stages of rearing.~~ Poor reproductive performance, compared with the targets expected for a particular breed or hybrid, can indicate *animal welfare* problems (Hemsworth *et al.*, 1981, 1986, 1989, 1994; Munsterjelm *et al.*, 2006).

Examples may include:

- low conception rates,
- high abortion rates,
- metritis and mastitis,
- low small litter size (total born),
- low numbers born alive,
- high numbers of stillborns or mummies.

6. Physical appearance

Physical appearance may be an indicator of *animal welfare* and health. Attributes of physical appearance that may indicate compromised welfare include:

- body condition,
- presence of ectoparasites,
- abnormal texture or hair loss,
- excessive soiling with faeces in indoor systems,
- reddish skin discoloration,
- swellings, injuries or lesions,
- discharges (e.g. from nose or eyes, including tear staining) (Telkänranta *et al.*, 2016).
- feet and leg abnormalities,
- abnormal posture (e.g. rounded back, head low),
- emaciation or dehydration (in piglets).

Annex 39 (contd)Annex III (contd)7. Handling response

Improper handling or lack of human contact can result in fear and distress in pigs. Fear of humans may be an indicator of poor *animal welfare* and health. Indicators include:

- evidence of poor human-animal relationship, such as marked avoidance of handlers and vocalisation ~~disturbed behaviour~~ when being moved or when *animal handlers* interact with pigs ~~enter a pen~~,
- animals slipping or falling during handling,
- injuries sustained during handling, such as bruising, lacerations and fractured legs,
- animals vocalising abnormally or excessively during ~~restraint and~~ handling.

Well designed and maintained handling facilities assists proper handling.

8. Lameness

Pigs are susceptible to a variety of infectious and non-infectious musculoskeletal disorders. These disorders may ~~lead to~~ cause lameness and ~~to~~ gait abnormalities. Pigs that are lame or have gait abnormalities may have difficulty reaching ~~food~~ feed and water and may experience pain and distress. Musculoskeletal problems have many causes, including genetic, nutrition, sanitation, floor quality, and other environmental and management factors. There are several gait scoring systems available.

9. Complications from common procedures

Some procedures such as surgical castration, tail docking, teeth clipping or grinding, tusk trimming, identification, nose ringing and hoof care are ~~commonly~~ performed in pigs to facilitate management, ~~to~~ meet market or environmental requirements and improve human safety or and safeguard animal welfare.

However, if these procedures are not performed properly, *animal welfare* and health can be unnecessarily compromised.

Indicators of ~~such~~ problems associated with these procedures could include:

- post-procedure *infection* and swelling,
- post-procedure lameness,
- behaviour indicating pain, fear and distress,
- morbidity, mortality and culling rates,
- reduced feed and water intake,
- post procedure body condition and weight loss.

Article 7.X.5.

**Recommendations**

Ensuring good welfare of pigs is contingent on several management factors, including system design, environmental management, and animal management practices which include responsible husbandry and provision of appropriate care. Serious problems can arise in any system if one or more of these elements are lacking.

Annex 39 (contd)Annex III (contd)

Articles 7.X.6. to 7.X.26. provide recommendations for measures applied to pigs.

Each recommendation includes a list of relevant outcome-based criteria (or measurable) derived from Article 7.X.4.

This does not exclude other criteria being used where or when appropriate.

~~Article 7.X.6.~~

### **Housing**

~~When new facilities are planned or existing facilities are modified, professional advice on design in regards to welfare and health of animals should be sought.~~

~~Housing systems and their components should be designed, constructed and regularly inspected and maintained in a manner that reduces the risk of injury, disease or stress for pigs. Facilities should to allow for the safe, efficient and humane management and movement of pigs.~~

~~There should be a separate area where sick and injured animals can be treated and monitored. When a separated space is provided, this should accommodate all the needs of the animal e.g. recumbent or lame animals or animals with severe wounds may require additional bedding or an alternative floor surface.~~

~~Pigs should not be tethered as part of their normal housing systems.~~

~~Good outcomes in the welfare and health of animals can be achieved in a range of housing systems. The design and management of the system are critical for achieving that.~~

~~Pigs are social animals and prefer living in groups, therefore housing systems where pregnant sows and gilts can be kept in groups are recommended.~~

~~Outcome based criteria (or measurables): physical appearance (injuries), behaviour, changes in body weight and body condition, handling response, reproductive efficiency, lameness and morbidity, mortality and culling rates.~~

~~Article 7.X.7.~~

### **Training of Personnel training**

Pigs should be cared for by a sufficient number of personnel, who collectively possess the ability, knowledge and competence necessary to maintain the welfare and health of the animals.

All people responsible for pigs should be competent through formal training or practical experience in accordance with their responsibilities. This includes understanding of and skill in animal handling, nutrition, reproductive management techniques, behaviour, *biosecurity*, signs of disease, and indicators of poor *animal welfare* such as stress, pain and discomfort, and their alleviation.

Outcome-based criteria (or measurables): handling response, physical appearance, behaviour, changes in body weight, body condition, reproductive efficiency, lameness and morbidity, mortality and culling rates and complications from common procedures.

~~Article 7.X.8.~~

### **Handling and inspection**

Pigs should be inspected at least once a day when fully dependent on humans to provide for basic needs such as food and water and to identify welfare and health problems.

Annex 39 (contd)Annex III (contd)

Some animals should be inspected more frequently, for example, farrowing sows, new born piglets, newly weaned pigs, ~~and newly-mixed gilts and sows,~~ sick or injured animals and pigs showing increased abnormal behaviours such as tail nibbling.

Pigs identified as sick or injured should be given appropriate treatment at the first available opportunity by competent *animal handlers*. If *animal handlers* are unable to provide appropriate treatment, the services of a *veterinarian* should be sought.

Recommendations on the handling of pigs are also found in Chapter 7.3. In particular handling aids that may cause pain and distress (e.g. electric goads) should be used only when other methods fail in extreme circumstances and provided that the animal can move freely. The use of electric ~~prods~~ goads should be avoided (see also point 3 of Article 7.3.8.), and ~~in any case~~ should not be repeatedly used on the same animal, and not be used in sensitive areas including the udder, face, eyes, nose or ~~ano-genital~~ anogenital region.

Exposure of pigs to sudden movement or changes in visual contrasts should be minimised where possible to prevent stress and fear reactions. Pigs should not be improperly or aggressively handled ~~aggressively~~ (e.g. kicked, thrown, dropped, walked on top of, held or pulled by one front leg, ears or tail). Pigs that become distressed during handling should be attended to immediately.

Pigs should be restrained only for as long as necessary and only appropriate, well-maintained restraint devices should be used.

Outcome-based criteria (or measurables): physical appearance, behaviour, changes in body weight and body condition, handling response, reproductive efficiency, lameness and morbidity, mortality and culling rates.

Article 7.X.98.

**Painful procedures**

Some procedures such as surgical castration, tail docking, teeth clipping or grinding, tusk trimming, identification, and nose ringing are ~~commonly~~ performed in pigs. These procedures should only be performed to facilitate management, to meet market or environmental requirements and ~~improve human safety or~~ and safeguard animal welfare.

These procedures are painful or have the potential to cause pain and thus should be performed only when necessary and in such a way as to minimise any pain and distress to the animal, e.g. using anaesthesia or analgesia under the recommendation or supervision of a veterinarian.

Options for enhancing *animal welfare* in relation to these procedures include the internationally recognised 'three Rs' which involves replacement (e.g. using entire or immunocastrated males ~~vs.~~ rather than castrated males), reduction (e.g. tail docking and teeth clipping only when necessary) and refinement (e.g. providing analgesia ~~or~~ and anaesthesia under the recommendation of a veterinarian) (*Bonastre et al., 2016 and Hansson et al., 2011*).

Outcome-based criteria (or measurables): complications from common procedures, morbidity rates, mortality and culling rates, abnormal behaviour, physical appearance and changes in weight and body condition.

Article 7.X.940.

**Feeding and watering of animals**

The amount of feed and nutrients pigs require in any management system is affected by factors such as climate, the nutritional composition and quality of the diet, the age, gender, genetics, size and physiological state of the pigs (e.g. pregnancy, lactation, growth), and their state of health, growth rate, previous feeding levels and level of activity and exercise.

Annex 39 (contd)Annex III (contd)

All pigs should receive adequate ~~quantities~~ quantity and quality of feed and nutrients each day to enable each pig to:

- maintain good health;
- meet its physiological and behavioural requirements ~~demands; and~~.
- ~~avoid metabolic and nutritional disorders.~~

Feed and water should be provided in such a way as to prevent undue competition and injury.

~~Pigs should be fed a diet with sufficient fibrous feedstuffs in order to reduce as much as possible the occurrence of gastric ulcers (Hodde *et al.*, 1985).~~

All pigs should have access to an adequate supply of ~~palatable~~ water ~~at a temperature~~ that does not inhibit drinking and that meets their physiological requirements and is free from contaminants hazardous to pig health (Patience, 2013).

Outcome-based criteria (or measurables): changes in body weight and body condition, physical appearance (dehydration in piglets), behaviour (agonistic behaviour at feeding and watering places and abnormal behaviour such as tail biting), mortality and culling rates, and morbidity rates ~~(gastric ulcers)~~.

Article 7.X.1011.

### **Environmental enrichment**

Animals should be provided with an environment that provides complexity, manipulability and cognitive stimulation (e.g. foraging opportunities, social housing) to foster normal behavior (e.g. rooting and biting/chewing), reduce abnormal behaviour (e.g. tail, ear, leg and flank biting and apathetic behaviour) and improve biological function (Dudnik *et al.*, 2006; Elmore *et al.*, 2011; Newberry, 1995; Van de Weerd *et al.*, 2006; Wittaker *et al.*, 1999).

Pigs should be provided with multiple forms of enrichment that aim to improve their welfare of the animals through the enhancement of their physical and social environments, such as:

- sufficient quantity of suitable materials to enable pigs to fulfil their innate needs to explore and look for feed (edible materials), bite (chewable materials), root (investigable materials) and manipulate (manipulable materials) (Bracke *et al.*, 2006); novelty is another aspect that is very important so as to maintain interest in the provided material(s) (Trickett *et al.*, 2009; Abou-Ismaïla and Mendl, 2016; Tarou and Bradshaw 2007);
- social enrichment which that involves either keeping pigs in groups or individually with visual, olfactory and auditory contact with other pigs;
- positive human contact (such as pats, rubs and talking when the opportunity arises) (Hemsworth and Coleman, 2011; Hemsworth and Coleman, 1994).

Outcome-based criteria (or measurables): physical appearance (injuries), behaviour (stereotypies, tail biting), changes in body weight and body condition, handling response, reproductive efficiency, lameness and morbidity, mortality and culling rates.

Article 7.X.1112.

### **Prevention of abnormal behaviour**

In pig production there are a number of abnormal behaviours that can be prevented or minimised with appropriate management procedures.

Annex 39 (contd)Annex III (contd)

Many of these problems are multifactorial and minimising their occurrence requires an examination of the whole environment and of several management factors. ~~However some r~~ Recommendations to that may reduce their occurrence of some of these behavioural problems include:

- 1) Oral stereotypies (e.g. bar biting, sham chewing, excessive drinking) ~~in adult pigs~~ can be minimised by providing environmental enrichment and increasing feeding time and satiety by increasing fibre content in the diet or foraging roughage (Robert *et al.*, 1997; Bergeron *et al.*, 2000).
- 2) Tail biting may be reduced by providing an adequate enrichment material and an adequate diet (avoiding deficiencies of sodium or essential ~~amino acids~~ amino acids), and avoiding high stocking densities and competition for feed and water (Walker and Bilkei, 2005). Other factors to consider include animal characteristics (breed, genetics, gender) and social environment (*herd* size, mixing animals) (Schroder-Petersen and Simonsen, 2001; EFSA, 2007; Taylor *et al.*, 2010), general health, thermal comfort and air quality.
- 3) Belly nosing and ear sucking may be reduced by increasing the weaning age, and providing feed to piglets prior to weaning to avoid the abrupt change of feed (Marchant-Forde, 2009; Sybesma, 1981; Worobec, 1999).
- 4) Vulva biting may be reduced by minimising competition in accessing the feeding area (Bench *et al.*, 2013; Leeb *et al.*, 2001; Rizvi *et al.*, 1998).

Outcome-based criteria (or measurable): physical appearance (injuries), behaviour (abnormal behaviour), morbidity rates, mortality and culling rates, reproductive efficiency and changes in body weight and body condition.

Article 7.X.612.**Housing (including outdoor production systems)**

When new facilities are planned or existing facilities are modified, professional advice on design in regards to welfare and health of animals should be sought.

Housing systems and their components should be designed, constructed and regularly inspected and maintained in a manner that reduces the risk of injury, disease ~~or~~ and stress for pigs. Facilities should ~~to~~ allow for the safe, efficient and humane management and movement of pigs. In systems where pigs could be exposed to adverse weather conditions they should have access to shelter to avoid thermal stress and sunburn.

There should be a separate pen or area where sick and injured animals or animals that exhibit abnormal behaviour can be isolated, treated and monitored. Certain animals may need to be kept individually. When a separated space is provided, this should accommodate all the needs of the animal e.g. recumbent or lame animals or animals with severe wounds may require additional bedding or an alternative floor surface, and water and feed must be within reach.

Pigs should not be tethered as part of their normal housing systems.

Good outcomes in the welfare and health of animals can be achieved in a range of housing systems. The design and management of the system are critical for achieving these outcomes.

Pigs Sows and gilts are social animals and prefer living in groups (Stolba and Wood-Gush, 1989; Newberry and Wood-Gush, 1988; Gonyou, 2001), therefore its recommended to housing systems where pregnant sows and gilts can be kept in groups are recommended (Anil *et al.*, 2005; Barnett *et al.*, 2001; Boyle *et al.*, 2002; Broom *et al.*, 1995; Karlen *et al.*, 2007; Marchant and Broom, 1996; McGlone *et al.*, 2004; AVMA, 2015). Sows and gilts can be successfully mixed early after breeding, without any reproduction consequences (Spoolder *et al.*, 2009).

Outcome-based criteria (or measurables): physical appearance (injuries), behaviour, changes in body weight and body condition, handling response, reproductive efficiency, lameness and morbidity, mortality and culling rates.

Annex 39 (contd)Annex III (contd)

## Article 7.X.13.

**Space allowance**

Space allowance should be managed taking into account different areas for lying, standing, ~~and~~ feeding and elimination. ~~Crowding~~ Stocking density should not adversely affect normal behaviour of pigs and durations of time spent lying.

Insufficient and inadequate space allowance may increase stress, the occurrence of injuries and have an adverse effect on growth rate, feed efficiency, reproduction and behaviour such as locomotion, resting, feeding and drinking, agonistic and abnormal behaviour (Gonyou *et al.*, 2006; Ekkel, 2003; Turner, 2000).

1. Group housing

Floor space may interact with a number of factors such as temperature, humidity, floor type and feeding systems (Marchant–Forde, 2009; Verdon, 2015). All pigs should be able to lie down ~~rest~~ simultaneously; and ~~each animal lie down~~, to stand up and move freely. Sufficient space should be provided to enable animals to have access to feed, water, to separate lying and elimination areas and to avoid aggressive animals.

If ~~abnormal~~ high level of aggressive behaviour ~~is~~ are seen, corrective measures should be taken, such as increasing space allowance and providing barriers where possible.

In outdoor systems where pigs have some autonomy over diet selection, stocking density should be matched to the available feed supply.

Outcome-based criteria (or measurables): reduction or variation in body weight and body condition, increasing agonistic and abnormal behaviour such as tail biting, injuries, morbidity, mortality and culling rates, and physical appearance (e.g. excessive presence of faeces on the skin).

2. Individual pens

~~Pigs should only be housed in individual pens, if necessary. In individual pens for pigs must~~ should be provided with sufficient space so that they can stand up, turn around and lie comfortably in a natural position, and that provides separate areas for ~~separation of dunging-elimination~~, lying and eating ~~areas~~.

Outcome-based criteria (or measurables): increasing abnormal behaviour (stereotypies), morbidity, mortality and culling rates, and physical appearance (e.g. excessive presence of faeces on the skin, injuries).

3. Stalls and ~~crates~~

Feeding, gestation and insemination stalls and farrowing crates ~~Stalls should~~ must be sized appropriately to allow pigs to be able to:

- ~~be able to~~ stand up in their natural stance without contact with either side of the stall or crate,
- stand up ~~without~~ in their natural stance without contact with touching the top bars,
- stand ~~in a stall~~ without simultaneously touching both ends of the stall or crate,
- lie comfortably on their sides without disturbing neighbouring pigs.

Outcome-based criteria (or measurables): physical appearance (e.g. injuries), increasing abnormal behaviour (stereotypies), reproductive efficiency, lameness and morbidity, mortality and culling rates (e.g. piglets).

## Article 7.X.14.

**Flooring, bedding, resting surfaces**

In all production systems pigs need a well-drained, dry and comfortable place to rest.

Annex 39 (contd)Annex III (contd)

Floor management in indoor production systems can have a significant impact on pig welfare (Temple *et al.*, 2012; Newton *et al.*, 1980). Flooring, bedding, resting surfaces and outdoor yards should be cleaned as conditions warrant, to ensure good hygiene, comfort and minimise risk of diseases and injuries. Areas with excessive faecal accumulation are not suitable for resting.

Floors should be designed to minimise slipping and falling, promote foot health, and reduce the risk of claw injuries.

If a housing system includes areas of slatted floor, the slat and gap widths should be appropriate to the claw size of the pigs to prevent injuries.

Slopes of the floor ~~pens~~ should allow water to drain and not pool in the floorpens.

In outdoor systems, pigs should be rotated between paddocks to ensure good hygiene and minimise risk of diseases.

If bedding or rubber matting is provided it should be ~~suited~~ (e.g. ~~hygienic, non-toxic~~) and maintained to provide pigs with a clean, dry and comfortable place on which to lie.

Outcome-based criteria (or measurables): physical appearance (e.g. injuries, presence of faeces on the skin, bursitis), lameness and morbidity rates (e.g. respiratory disorders, reproductive tract infections).

Article 7.X.15.

**Air quality**

Good air quality and ventilation are important for the welfare and health of pigs and reduce the risk of respiratory discomfort, ~~and diseases and abnormal behaviour~~. Dust, ~~toxins, micro-organisms~~ microorganisms and noxious gases, including ammonia, hydrogen sulphide, and methane due to decomposing animal waste, can be problematic in indoor systems ~~due to decomposing animal waste~~ (Drummond *et al.*, 1980).

Air quality is influenced strongly by management and building design in housed systems. Air composition is influenced by stocking density, the size of the pigs, flooring, bedding, waste management, building design and ventilation system (Ni *et al.*, 1999).

Proper ventilation is important for effective heat dissipation in pigs and to prevent the build-up of effluent gases (e.g. ammonia and hydrogen sulphide), including those from manure and dust in the housing unit. The ammonia ~~level~~ concentration in enclosed housing should not exceed 25 ppm. A useful indicator is that if air quality at the level of the pigs is unpleasant for humans it is ~~also~~ most likely ~~to be~~ a problem for pigs.

Outcome-based criteria (or measurables): morbidity, mortality and culling rates, physical appearance (excessive soiling and tear staining), behaviour (especially respiratory rate, ~~or~~ coughing and tail biting), change in body weight and body condition.

Article 7.X.16.

**Thermal environment**

Although pigs can adapt to ~~different~~ a range of thermal environments, particularly if appropriate breeds and housing are used for the anticipated conditions, sudden fluctuations in temperature can cause heat or cold stress.

1. Heat stress

Heat stress is a serious problem in pig production. It can cause significant discomfort, as well as reductions in weight gain and fertility, or sudden death (Werremann and Bazer, 1985).

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The risk of heat stress for pigs is influenced by environmental factors including air temperature, relative humidity, wind speed, ventilation rates, stocking density, shade and wallow availability in outdoor systems, and animal factors including breed, age and body condition (Heitman and Hughes, 1949; Quiniou and Noblet, 1999).

*Animal handlers* should be aware of the risk that heat stress poses to pigs and of the thresholds in relation to heat and humidity that may require action. If the risk of heat stress reaches too high levels the *animal handlers* should institute an emergency action plan that gives priority to access to additional water and could include provision of shade and wallows in outdoor systems, fans, reduction of stocking density, water-based cooling systems (dripping or misting), and provision of cooling systems as appropriate for the local conditions.

Outcome-based criteria (or measurables): behaviour (feed and water intake, respiratory rate, panting, agonistic behaviour), physical appearance (presence of faeces on the skin), morbidity, mortality and culling rates, and reproductive efficiency.

## 2. Cold stress

Protection from cold should be provided when ~~these conditions are likely create a serious risk to the to~~ compromise the welfare of pigs, particularly in neonates and young pigs and others that are physiologically compromised (e.g. ill animals). This Protection can be provided by insulation, extra bedding, heat mats or lamps and natural or man-made shelters in outdoor systems (Blecha and Kelley, 1981).

Outcome-based criteria (or measurables): morbidity, mortality and culling rates, physical appearance (long hair, piloerection), behaviour (especially abnormal postures, shivering and huddling) and changes in body weight and body condition.

Article 7.X.17.

## Noise

Pigs are able to cope with a range of ~~adaptable to different~~ levels and types of noise. However, exposure of pigs to sudden or loud noises should be minimised where possible to prevent stress and fear reactions. Ventilation fans, feeding machinery or other indoor or outdoor equipment should be constructed, placed, operated and maintained in such a way that they cause the least possible amount of noise (Algers and Jensen, 1991).

Outcome-based criteria (or measurables): behaviour (e.g. fleeing and vocalisation), physical appearance (e.g. injuries), reproductive efficiency, changes in body weight and body condition.

Article 7.X.18.

## Lighting

Indoor systems should have light levels sufficient to allow all pigs to see one another, to investigate their surroundings visually and to show other normal behaviour patterns and to be seen clearly by staff to allow adequate inspection of the pigs. The lighting regime ~~shall~~ should be such as to prevent health and behavioural problems. It should follow a 24-hour rhythm and include sufficient uninterrupted dark and light periods, preferably no less than 6 hours for both.

A minimum of 40 lux of lighting is recommended for a minimum of 6 hours per day (Martelli *et al.*, 2005; Taylor *et al.*, 2006).

Artificial light sources should be located so as not to cause discomfort to the pigs.

Outcome-based criteria (or measurable): behaviour (locomotive behaviour), morbidity rates, reproductive efficiency, physical appearance (injuries) and changes in body weight and body condition.

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## Article 7.X.19.

**Farrowing and lactation**

Sows and gilts need time to adjust to their farrowing accommodation before farrowing. Nesting material should be provided where possible some days before farrowing (Yun *et al.*, 2014). Sows and gilts should be observed frequently around their expected farrowing times. As some sows and gilts need assistance during farrowing, there should be sufficient space and competent staff.

When new buildings are planned, loose housing systems for farrowing sows and gilts should be considered. (Baxter *et al.*, 2012; Cronin *et al.*, 2014; KilBride *et al.*, 2012; Morrison *et al.*, 2013; Weber, 2007).

Outcome-based criteria (or measurables): mortality and culling rates (piglets), morbidity rates (metritis and mastitis), behaviour (~~stereotypes~~ restlessness and savaging), reproductive efficiency, physical appearance (injuries).

## Article 7.X.20.

**Weaning**

Weaning ~~can be~~ is a stressful time for sows and piglets and good management is required. Problems associated with weaning are generally related to the piglet's size and physiological maturity. Early weaning systems require good management and nutrition of the piglets.

~~An average~~ weaning age of three weeks or older is recommended (Hameister *et al.*, 2010; Smith *et al.*, 2010; Gonyou *et al.*, 1998; Worobec *et al.*, 1999).

Delaying weaning to the age of four weeks or more may produce benefits such as improved bowel immunity and reduced diarrhea, less preventive use of antimicrobial agents (EFSA, 2007; Hameister *et al.*, 2010; McLamb *et al.*, 2013; Smith *et al.*, 2010; Gonyou *et al.*, 1998, Bailey *et al.*, 2001).

Regardless of age, low weight piglets require additional care and can benefit from being kept in small groups in specialised pens until they are able to be moved to the common nursery area.

Newly weaned pigs are susceptible to disease challenges, so adherence to high-level hygiene protocols as well as proper dietary provisions is important. The area that piglets are weaned into should be clean, ~~and~~ dry and warm.

All newly weaned pigs should be monitored during the first two weeks after weaning for any signs of ill-health or undue stress.

Outcome-based criteria (or measurable): mortality and culling rates (piglets), morbidity rates (respiratory disease, diarrhoea), behaviour (belly nosing and ear sucking), physical appearance (injuries) and changes in body weight and body condition.

## Article 7.X.21.

**Mixing**

Mixing of unfamiliar pigs can result in fighting to establish a dominance hierarchy, and therefore mixing should be minimised as much as possible (Moore *et al.*, 1994; Fabrega *et al.*, 2013). When mixing, strategies to reduce aggression and injuries should be implemented, ~~and~~ Animals should be observed after mixing and interventions applied if the aggression is intense or prolonged, and pigs become injured supervised.

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Measures to prevent excessive fighting and injuries can include (Arey and Edwards, 1998, Verdon et al., 2015):

- providing additional space and a non-slippery floor,
- feeding before mixing,
- feeding on the floor in the mixing area,
- ~~provision of~~ providing straw or other suitable enrichment materials in the mixing area,
- providing opportunities to escape and to hide from other pigs, such as visual barriers,
- mixing previously familiarised animals whenever possible,
- mixing young animals ~~should be mixed~~ as soon after weaning as possible,
- avoiding the addition of ~~adding~~ one or small number of animals to a large established group.

Outcome-based criteria (or measurables): mortality, morbidity and culling rates, behaviour (agonistic), physical appearance (injuries), changes in body weight and body condition and reproductive efficiency.

Article 7.X.22.

### **Genetic selection**

Welfare and health considerations should balance any decisions on productivity and growth rate when choosing a breed or hybrid for a particular location or production system.

Selective breeding can improve the welfare of pigs for example by selection to improve maternal behaviour, piglet viability, temperament and resistance to stress and disease and to reduce tail biting and aggressive behaviour (Turner *et al.*, 2006).

Outcome-based criteria (or measurable): physical appearance, behaviour (e.g. maternal and agonistic behaviour), changes in body weight and body condition, handling response, reproductive efficiency, lameness, and morbidity, mortality and culling rates.

Article 7.X.23.

### **Protection from predators and pests**

In outdoor and combination systems pigs should be protected from predators.

Pigs should also be protected from pests such as excessive numbers of flies and mosquitos.

Outcome-based criteria (or measurable): morbidity, mortality and culling rates, behaviour, and physical appearance (injuries).

Article 7.X.24.

### **Biosecurity and animal health**

#### 1. Biosecurity and disease prevention

*Biosecurity plans* should be designed, implemented and maintained, commensurate with the best possible *herd* health status, available resources and infrastructure, and current disease risk and, for *listed diseases* in accordance with relevant recommendations in the *Terrestrial Code*.

Annex 39 (contd)Annex III (contd)

These *biosecurity plans* should address the control of the major sources and pathways for spread of pathogen agents including:

- pigs, including introductions to the *herd*,
- ~~young~~ animals coming from different sources,
- other domestic animals, *wildlife*, and pests,
- people, including sanitation practices,
- equipment, including vehicles, tools and facilities,
- ~~vehicles~~,
- ~~air~~,
- biological inputs, including air, water ~~supply~~, semen, feed and bedding,
- waste, including manure, waste garbage and disposal of dead animals.
- ~~semen~~.

Outcome-based criteria (or measurables): morbidity, mortality and culling rates, reproductive efficiency, changes in weight and body condition, physical appearance (signs of disease).

## a) Animal health management

*Animal health management* should optimise the ~~physical and behavioural~~ health and welfare of the pig in the herd. It includes the prevention, treatment and control of diseases and conditions affecting the *herd* (in particular respiratory, reproductive and enteric diseases).

There should be an effective programme for the prevention and treatment of *diseases* and conditions, formulated in consultation with a *veterinarian*, ~~when appropriate~~. This programme should include the recording of production data (e.g. number of sows, piglets per sow per year, feed conversion, and body weight at weaning), morbidity, mortality and culling rate and medical treatments. It should be kept up to date by the *animal handler*. Regular monitoring of records aids management and quickly reveals problem areas for intervention.

For parasitic burdens (e.g. endoparasites, ectoparasites and protozoa) and fly control, a programme should be implemented to monitor, control and treat, as appropriate.

Lameness can be a problem in pigs. *Animal handlers* should monitor the state of feet and legs and take measures to prevent lameness and maintain foot and leg health.

Those responsible for the care of pigs should be aware of early specific signs of *disease* or distress, such as coughing, abortion, diarrhoea, changes in locomotory behaviour or apathetic behaviour, and non-specific signs such as reduced feed and water intake, changes in weight and body condition, changes in behaviour or abnormal physical appearance.

Pigs at higher risk will require more frequent inspection by *animal handlers*. If *animal handlers* suspect the presence of a *disease* or are not able to correct the causes of *disease* or distress, they should seek advice from those having training and experience, such as *veterinarians* or other qualified advisers, as appropriate.

Annex 39 (contd)Annex III (contd)

~~Non-ambulatory~~ Nonambulatory pigs should not be transported or moved unless absolutely necessary for treatment, recovery, or diagnosis. Such movements should be done carefully using methods that avoid dragging the animal or lifting it in a way that might cause further pain, suffering or exacerbate injuries.

*Animal handlers* should also be competent in assessing fitness to transport, as described in Chapter 7.3.

In case of *disease* or injury, when treatment has failed, is not feasible or recovery is unlikely (e.g. pigs that are unable to stand up, unaided or refuse to eat or drink), the animal should be humanely killed as soon as possible in accordance with Chapter 7.6.

Outcome-based criteria (or measurable): morbidity, mortality and culling rates, reproductive efficiency, behaviour (apathetic behaviour), lameness, physical appearance (injuries) and changes in body weight and body condition.

b) Emergency plans for disease outbreaks

Emergency plans should cover the management of the farm in the event of an ~~emergency~~ disease outbreak, consistent with national programmes and recommendations of *Veterinary Services* as appropriate.

Article 7.X.25.

### Contingency ~~Emergency~~ plans

Where the failure of power, water ~~and or~~ feed supply systems could compromise *animal welfare*, pig producers should have contingency plans ~~to cover the failure of these systems~~. These plans may include the provision of fail-safe alarms to detect malfunctions, back-up generators, contact information for key service providers, ability to store water on farm, access to water cartage services, adequate on-farm storage of feed and an alternative feed supply.

Preventive measures for emergencies should be input-based rather than outcome-based. Contingency plans should be documented and communicated to all responsible parties. Alarms and back-up systems should be checked regularly.

Article 7.X.26.

### Disaster management

Plans should be in place to minimise and mitigate the effect of disasters (e.g. earthquake, fire, flooding, blizzard and hurricane). Such plans may include evacuation procedures, identifying high ground, maintaining emergency feed and water stores, destocking and humane *killing* when necessary.

Procedures for Humane killing ~~procedures for~~ of sick or injured pigs should be part of the disaster management plan.

Reference to emergency plans can also be found in Article 7.X.25.

Article 7.X.27.

### Euthanasia (Humane killing)

Allowing a sick or injured animal to linger unnecessarily is unacceptable. Therefore, for sick and injured pigs a prompt diagnosis should be made to determine whether the animal should be treated or humanely killed.

Annex 39 (contd)Annex III (contd)

The decision to kill an animal humanely and the procedure itself should be undertaken by a competent person.

For a description of acceptable methods for humane killing of pigs see Chapter 7.6.

The establishment should have documented procedures for on-farm humane killing. Staff should be trained in the humane killing procedures appropriate for each class of pig.

Reasons for humane *killing* may include:

- severe emaciation, weak pigs that are ~~non-ambulatory~~ nonambulatory or at risk of becoming ~~non-ambulatory~~ nonambulatory,
- ~~severely injured or non-ambulatory~~ nonambulatory pigs that will not stand up, refuse to eat or drink, or have not responded to ~~therapy~~ treatment,
- rapid deterioration of a medical condition for which ~~therapies have~~ treatment has been unsuccessful,
- ~~severe, debilitating pain,~~
- ~~compound fracture,~~
- ~~spinal injury,~~
- ~~central nervous system disease,~~
- multiple joint *infections* with chronic weight loss,
- piglets that are premature and unlikely to survive, or have a debilitating congenital defect, and
- as part of disaster management response.

~~For a description of acceptable methods for humane killing of pigs see Chapter 7.6.~~

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— Text deleted.

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Annex 39 (contd)

Annex III (contd)

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**REPORT OF THE MEETING OF THE OIE AD HOC GROUP ON  
VETERINARY PARAPROFESSIONALS  
Paris, 22–24 November 2016**

The OIE *ad hoc* Group on Veterinary Paraprofessionals (hereafter referred to as ‘the Group’) met from 22 to 24 November 2016 at the OIE Headquarters in Paris, France.

Dr Matthew Stone, OIE Deputy Director General of International Standards and Science, welcomed the participants and reiterated the importance of veterinary paraprofessionals (“VPPs”) in the current working programme of the OIE. Thanking the Group for its support and stressing the need of the Group’s expertise, he provided the participants with some notes of background of this initiative:

- Noting that the OIE *Terrestrial Code* may not adequately address the real field situation in many Member Countries, where other categories of staff are involved in activities of veterinary services, the OIE picked up the issue of role and responsibility of private veterinarians and veterinary paraprofessionals in an earlier *ad hoc* Group more than ten years ago;
- The definition of VPPs and modifications to Chapter 3.2. Evaluation of Veterinary Services were adopted by the World Assembly in 2004;
- PVS Evaluation missions started in 2006 have been providing the OIE as well as Member Countries with good understanding of the importance of the contribution of VPPs and scope of their activities, including the differences in their involvement and roles among Member Countries.
- Such elevated awareness during past years is reflected in the OIE Sixth Strategic Plan, for 2016-2020. One of the several outcomes expected under “Strategic Objective 3: Ensuring the Capacity and Sustainability of Veterinary Services” is “a better definition of the role of paraprofessionals and non-veterinary specialists, including their education and training” which prompted the OIE to strive to elevate the level of its past work to the next stage, so that Member Countries have better guidance to improve the quality of their Veterinary Services, in particular, the role of VPPs.

Dr Stone concluded that the focus of the Group is the development of core competencies and curricula for VPPs.

Finally, referring to a similar exercise conducted for veterinarians some years ago, namely, development of “OIE recommendations on the Competencies of graduating veterinarians” and “OIE Guidelines on Veterinary Education Core Curriculum,” Dr Stone noted that the differences among Member Countries regarding roles, scope of activities and training mechanisms must be much wider for VPPs than for veterinarians, and thus an in-depth review and global discussion are critically important to define the structure and content of minimum competencies and core training curricula.

Annex 40 (contd)**Discussion with Director General**

On Day 3 the Group met Dr Monique Eloit, Director General of the OIE, and reported to her a summary of their discussion up to that point. Referring to the OIE Sixth Strategic Plan and emphasizing the critical importance of VPPs for the national veterinary services especially for developing Member Countries, Dr Eloit expressed appreciation for the Group's efforts to support the OIE in developing core competencies and core training curricula for VPPs. She informed the Group that the OIE Collaborating Centre for Training Veterinary Officials and Diagnosing Infectious Animal Diseases and Zoonoses in Tropical Africa in Dakar is interested in developing a pilot programme for training of VPPs once the framework is developed through the work of this Group.

She also stressed the importance of involving veterinary education establishments (VEE) in the training of VPPs, as the close relationship of veterinarians and VPPs is indispensable. Referring to the global strategy for the eradication of Peste des Petits Ruminants (PPR) under which a vaccine campaign is planned for launch by the end of 2017, she expressed her expectation of receiving from the Group preliminary guidance for animal health VPPs by mid-2017.

Dr Eloit concluded her message by thanking the Institute for Infectious Animal Diseases (IIAD), an OIE Collaborating Centre for Biological Threat Reduction, for its contribution to this work by supporting the Group.

**1. Appointment of the chairperson and adoption of the agenda**

Dr Johan Oosthuizen was appointed as the chairperson and it was confirmed that the OIE staff would be the rapporteur.

The adopted Agenda and List of Participants are presented in Appendices I and II of this report, respectively.

**2. Background**

Dr David Sherman provided a brief overview of the background and content of the first OIE Africa Veterinary Technicians Association (AVTA) GALVMed Conference on the Role of VPPs in Africa, held in Pretoria, South Africa in October 2015. He then focused on sharing the recommendations of the conference, which were of two categories – the seven recommendations to the Veterinary Authorities of OIE Member Countries and the seven recommendations to the OIE itself. He noted that there was ongoing progress within OIE to address all the recommendations, including the formation of the *ad hoc* Group to develop day 1 competencies and core curricula for VPPs. He informed those present that the full proceedings of the Conference are available at [www.rr-africa.oie/VPPREPORT.pdf](http://www.rr-africa.oie/VPPREPORT.pdf)

Dr Tomoko Ishibashi outlined the 4th OIE Global Conference on Veterinary Education held in Thailand in June 2016, of which major topics included how to ensure implementation of the OIE recommendations and guidelines on Veterinary Education and the review of the progress of OIE Twinning Projects on veterinary education establishments. She said that some presentations about regional situations did include the roles, recognition and training of VPPs of some countries and that the participants were also informed about the discussion at the Conference on the role of VPPs in Africa. She advised that some of the Conference recommendations are related to veterinary professionals. In particular, the OIE is recommended to identify minimum competencies and develop guidelines on core training curricula. In response to a question raised by a Group member, she noted that the OIE has not considered expanding its Twinning Programme to training institutions for VPPs.

Ms Emily Tagliaro informed the Group that the financial support from the United States Government was confirmed in June 2016 in principle for two years which would allow this new project to contribute to improvement of the quality of VPPs. She outlined the five overarching project objectives:

1. Undertake a thorough analysis of the existing VPP categories and their related curricular requirements for animal health, Veterinary Public Health and veterinary laboratories;

Annex 40 (contd)

2. Define OIE Recommendations on the Competencies of VPPs in different standardized categories to assure National Veterinary Services of standards of quality recognised by the World Assembly of National Delegates of the OIE;
3. Define OIE Guidelines on the minimum curricular requirements for VPPs for the main categories of VPPs that exist, in terms of scope and level of qualification, and that this be recognised by the World Assembly of Delegates of the OIE;
4. Undertake consultation with relevant stakeholders on the role of VPPs globally; and
5. Advocate for the implementation of the OIE Recommendations and Guidelines relating to VPPs in all OIE Member Countries through engagement with national Veterinary Services and Veterinary Statutory Bodies (VSBs).

She explained that the work of this Group will directly contribute to the first three objectives and that the Group's advice may indirectly support the OIE for the remaining two objectives. Considering the volume and complexity of the work, she informed the Group that the IIAD will help the OIE to collect materials and conduct necessary analysis for consideration by the Group. She also noted that the outcomes will be tested in two countries with support from a separate project funded by the Bill and Melinda Gates Foundation.

Regarding the treatment and status of the work products to be developed by the Group, Dr Ishibashi noted that, as in the case of veterinary education, the work products will be reviewed by the relevant Specialist Commissions, probably all four Commissions, and eventually distributed to Member Countries as an annex to a meeting report of the Terrestrial Animal Health Standards Commission; Member Countries will be welcomed to send to the OIE their views, which can be reflected in the finalised work products. Unlike the OIE *Codes* and *Manuals*, the work products will not constitute OIE Standards, but reference documents. Thus, the adoption process at the World Assembly is not applicable.

A member expressed his desire that the Group review different situations in various Member Countries to make sure that the recommendations will be truly representative across the board and able to be adopted and translated in different local settings. It was also noted that in many countries, there is more reliance on VPPs in remote areas and that those working in veterinary laboratories also have more field work expectations in rural and remote areas.

### 3. Terms of Reference

Dr Ishibashi explained the Terms of Reference of the Group (Appendix III). Noting the wide variation in the roles and activities of paraprofessionals working in the veterinary sphere, she clarified that the scope should fall within the OIE mandate and align with the existing OIE *Terrestrial Code* definition of VPPs: in concrete terms, VPPs working in the field, either for animal health activities or public health activities, or in the laboratories for diagnosis of animal diseases. After referring to the Group's main responsibilities, namely, to develop draft recommendations for standardised minimum competencies and guidelines on core training curricular requirements, it was clarified that this first meeting should identify additional research/analysis needs, consider possible structure and content of minimum competencies and core training curricula and identify desirable profiles for experts of sub-groups.

Dr Oosthuizen, Chair, noted that the logical approach of work is to start with defining competencies followed by developing the core training curricula. Dr Miftahul Islam Barbaruah suggested it would be useful if the Group focuses on functions before defining elements (competencies).

### 4. Review of available information about roles, recognition, and training and education of VPPs

The Group then moved to a review of the current situation around the world, which was to be presented by all Group members. At the onset of the agenda item, Dr Oosthuizen reminded the members of the scope of this work as outlined above. He also noted that the issues of VSBs and veterinary legislation, although very relevant to the status and recognition of VPPs, are not included in the Terms of Reference of this particular Group.

Annex 40 (contd)

Dr Oosthuizen presented an overview of the South African VPP categorization, academic requirements, registration of veterinary paraprofessionals and diploma content (theory and practice). South Africa has adopted Day 1 Skills and Competencies, which were provided to the Group. VPPs are regulated under the Veterinary and Para Veterinary Professions Act of 1982; while the category of Veterinary Welfare Assistants will be registered by 2018, VPPs working in the field of Veterinary Public Health are currently under the control of regulators on the human health side. Dr Oosthuizen noted that an important prerequisite for admission of training courses is mathematics.

Dr Benson Oduor Ameda presented an overview of the AVTA, which is the umbrella body representing the interest of Veterinary Technicians in Africa. He noted that, following the continental meeting held in Pretoria, issues related to standardization in training across the continent raised serious concerns amongst the participants, and that the various existing categories have unstandardized levels (Certificate, Diploma, Degrees) of training with diverse training curricula offered. He drew the Group's attention to the fact that, in Kenya, while 82% of VPPs are Certificate holders, Diploma and Degree holders represent only 7% and 1% respectively. However, Certificate holders may be more competent than Diploma or Degree holders in other countries, as the qualification does not necessarily reflect the actual amount of training they receive; Certificate programmes are often very condensed in a period which is too short to be considered as a Diploma course and having plural Certificates is not considered equivalent as having one Diploma, which is discouraging for career progression. He also noted the benefit of a step-up pathway from VPP Certificate training to Veterinary Education.

Dr Samuel Niyi Adediran presented an overview of the field experience of GALVmed in delivering veterinary services. Seventy percent of veterinary service practitioners are paraprofessionals. He highlighted roles and activities performed by VPPs, the challenges of bringing veterinary services to small holders, and the role of VPPs in delivering that service. He informed the Group of very useful training modules developed by Afrivet. Concerning the role of other animal health service providers without formal or institutional education, he emphasized the need for proper classification and role definition, documentation and harmonization of training and curricula, regional accreditation bodies, promoting synergies between educational institutions, Public-Private-Partnerships and partner involvement, policy to action and building regional management capacities.

Dr Miftahul Islam Barbaruah presented an overview of the roles, training and recognition of VPPs from the South Asia perspective. He provided many resource materials to the Group, including national occupational standards for VPPs in India and UK. He noted that currently, demand for VPPs exceeds supply in this sub-region and the need exists for private training institutes to meet the increasing demand for VPPs. The absence of a proper monitoring framework for VPPs by veterinarians is resulting in occasional conflicts in the sub-region. He noted Nepal as a positive case study in the development of a model supervision and monitoring framework for VPPs. Dr Barbaruah drew the group's attention to the private sector-driven process of developing national occupational standards based on occupational mapping followed by a functional analysis of each job role and description of performance criteria for each of the elements within a function. He emphasized that private sector organisations such as non-governmental organisations (NGOs) and feed and pharmaceutical companies will play an expanded role as employers of VPPs in the future and therefore competency frameworks and curricula for VPPs should take into consideration the needs of the private sector.

Dr Markus Avong presented an overview of governance of VPPs in Africa through the experience of the Veterinary Council of Nigeria (VCN). He emphasised the importance of VPPs in Africa, noting that many African VSBs don't govern VPPs and that discrepancies exist in training, competencies and nomenclature of cadres of VPPs among African countries. He advised that lack of legislation prohibits VCN from registering VPPs and noted difficulties encountered in amending the VCN law for good governance of VPPs and the preference of some VPPs to have their own separate statutory body. He noted that a single Curriculum exists for training of VPPs in animal health and veterinary public health and another for VPPs in veterinary laboratories. He mentioned Nigerian-specific VPP cadres for hides and skin, a major source of revenue in the past. He concluded that Nigerian VPPs could progress to higher cadres provided they acquired requisite knowledge and skills.

Annex 40 (contd)

Dr Hervé Petit presented an overview of the Vétérinaires Sans Frontières' (VSF) international network (11 members), with 19 countries currently having VSF projects involved in VPP training where animal health services are not available or are limited. Farmers trained as Community Animal Health Workers (CAHWs) fill this role and offer proximity access to quality drugs, consultation, treatment and vaccination. Always linked to private veterinarians and public veterinary services, they are cost efficient and locally available. In response to a question about supervision of training programmes by VSBs or educational authorities, Dr Petit explained that in some countries, CAHWs' activities are already regulated by law (e.g. Cambodia, Togo), while in some others (e.g. Madagascar) the VSF has projects to develop law on VPPs. He noted that in some countries there is still confusion between veterinarians and VPPs, as well as between VPPs and CAHWs, and he considers that the advantages for veterinarians to supervise VPPs and CAHWs should be well understood.

Dr Susan Cork presented an overview of a VPP training of veterinary laboratory technicians for remote regions and made a number of points:

- Practical competencies are essential in addition to theoretical knowledge;
- General skills in laboratory management are needed for laboratory technicians;
- Regional adaptations for specific diseases, and situational context are necessary for training curricula;
- Veterinary laboratory and animal health field technicians should have some exposure to each other's experience to better understand each other and to work together to make the best of challenging situations and resource limitations;
- Enhanced communication skills, team work and leadership skills can benefit everyone;
- Troubleshooting is important in addition to basic diagnostic competencies;
- Technologies introduced and implemented should be suitable for the conditions present in the region/country; and
- Ongoing training and technical support for veterinary laboratory technicians and field staff is important.

Dr Gert-Jan Duives presented an overview of the Afghanistan situation for the training of VPPs by the Dutch Committee for Afghanistan. In order to address this particular training, he chose the term "paravets," while noting other VPP trainings in Afghanistan include a two-year official training by government. District-based veterinary field units are at the centre of the initiative. They are manned by paravets who charge for their services and earn their own money. Seventy percent earn sufficient income from this activity to meet their needs. All districts with high animal concentration are covered by at least one veterinary field unit. Dr Duives shared the outline of the training curriculum including courses and hours spent. Major emphasis in the five-month curriculum is on relevant practical skills needed in the field. He also noted that, although rather short because of the intensiveness, it may be more competitive than the two-year programme provided at the government training institution. Paravet candidates are recruited from their communities and are expected to have a high school education and pre-existing experience with livestock. This experience - combined with the practical approach of the paravet curriculum - often makes these paravets more effective in the field than university-educated full-fledged veterinarians in Afghanistan.

The Group agreed that hours and content are more important than simple programme length.

Dr Willy Schauwers presented an overview of a training programme in Afghanistan for laboratory technicians. The modular training program (duration approximately 5 months) is organized for already employed veterinary laboratory personnel. The major emphasis of the modular training program (7 modules) is on gaining relevant practical skills. Seventy percent of the training is practical, with 70 people having been trained since 2007). Dr Schauwers also shared the list of the most important diseases diagnosed and the outline of the laboratory network. The veterinary laboratories are manned by DVMs, Veterinary Assistants and VPP (laboratory service provided is free of charge). The equipment available (tolerant to temperature extremes) and the laboratory techniques used are also mentioned. Dr Schauwers made suggestions and described challenges and opportunities for issues related to competencies and curricula. He recommended that the OIE support the development of the district laboratory handbook by updating the existing 'The Veterinary Laboratory & Field Manual.'

Annex 40 (contd)

Dr Simmons presented an overview of the roles, competencies and training of VPPs in the USA. Programmes ranged from certified veterinary assistants to veterinary technicians/technologists. It was noted the certain programme requirements called for completion of a Skills/Competency log for validation of practical training that was to be signed by a veterinarian. In the USA, third party certification/accreditation is required and is not done by training providers. Certification for veterinary technicians/technologists occurs at the national level. Certification for veterinary assistants occurs at the state veterinary medical association level. Programmes include a vocational aspect to VPP training. Lab and VPH are boutique issues in the US context and so new efforts are being done to raise awareness about these other areas to know other domains in which veterinarians work.

All comments and proposals made by experts were provided and collated for the purposes of the brainstorming session on competencies on Day 2.

**5. Proposals of the research/analysis on existing paraprofessional curricula as well as the two umbrella categories of VPPs**

Dr Heather Simmons presented a preliminary analysis of the replies to an OIE questionnaire about roles, recognition, and education of VPPs ([Appendix IV](#)) which was sent to selected Member Countries with the largest active VPP workforces according to their reports to the OIE WAHIS (2015). The analysis was made based on the replies collected from 14 OIE Member Countries. The main observations included:

- In almost all surveyed Member Countries, VPPs participated in both public and private sector Veterinary Services;
- Among various roles of VPPs, while animal disease control activities are almost always recognized both in the public and private sector, veterinary public health activities and disease diagnosis are more recognized in the public sector and clinical care is more recognized in the private sector;
- Nearly half of the surveyed Member Countries do not have a mechanism for recognition of VPPs; and
- There are many categories/types of VPPs and training programmes reported, and their training duration varies from 9 months to 6 years.

Dr Simmons asked the Group's assistance in rephrasing widely varied categories/types of VPPs identified in the replies associated with levels of education (e.g. certificate, diploma, degree) and years of education required into new categories.

The objective of this survey was to obtain an overview of the use of VPPs in the veterinary services among OIE Member Countries by asking standardized questions, and the Group agreed the results provide a valuable background for its work. There was an opinion expressed that the meaning of "private sector" and "public sector" should be clarified in order to better understand the questionnaire. The Group also considered that the countries targeted by the questionnaire should be geographically balanced and encouraged the OIE to send it to several additional Member Countries.

Dr Simmons proposes that the OIE make formal contact with the responsible bodies for certifying curricula provided in questionnaire replies to obtain curricula, and the Group agreed that this is the most appropriate way forward.

Stating that in many cases VPPs are unable to support themselves only by working for the Veterinary Services, some members considered that when designing the competencies, private sector needs should be taken into account as well. The Group was, however, reminded of the mandate of the OIE, which is reflected in the scope of the present work.

Annex 40 (contd)

Dr Simmons then presented a preliminary analysis of the data relevant to VPPs, i.e., the level of advancements of Critical Competency I-1B (Professional and technical staffing of the Veterinary Services for VPPs and other technical staff) and Critical Competency I-2B (Competencies of VPPs), extracted from all PVS Country evaluation reports of 129 Member Countries including follow-up mission reports of 33 Member Countries. The main observations included:

- Substantial number of initial PVS Evaluation mission reports (44) don't provide a level of assessment for I-1B because it was either not applicable, or there was not sufficient information to assess the competency (it should be noted that initial PVS Tool 2006 did not have CC I-1B);
- VPP play a tangible role in Africa and there seems to be a good level of formal structure of VPP roles;
- About two-thirds of the 129 Member Countries were assessed by the OIE PVS Tool as level 2 or level 3 for both I-1B and I-2B; and
- About a third of 33 Member Countries having a PVS follow-up Evaluation received the same levels as they received at the initial PVS Evaluation, while many Member Countries improved their level.

The Group agreed that further analysis of the PVS Evaluation reports for those Member Countries showing a higher level of advancement in the PVS follow-up Evaluation would be helpful for studying effective interventions and may contribute to identifying success stories. It was suggested, for comparison, to look also at the Member Countries whose assessment levels decreased over time. Dr Simmons informed the Group that the next step would be analysis of the narrative content of the PVS Evaluation reports related to the targeted Critical Competencies.

The Group recognized the value of systematic analysis of the PVS Evaluation reports and expressed appreciation for the contributions to the Group by Dr Simmons and IIAD up to now, and looks forward to future contributions by this OIE Collaborating Centre in the future.

## **6. Discussion about the structure and content of minimum competencies**

Based on a review and analysis of information available up to the meeting date, the Group considered that, although there exist competencies with common importance for all types of activities and that the degree of commonality between competencies is high between animal health and veterinary public health activities, the competencies required for veterinary public health activities might also have substantial specificity. Thus, the domains (or main areas) related to the competencies necessary on Day 1 were discussed for three streams: 1) for those VPPs working for animal health, 2) for those VPPs working for veterinary public health, and 3) for those VPPs working in laboratories.

### Animal Health

The following domains were identified for future work: regulatory, sampling, animal handling and welfare, biosafety and biosecurity, disease recognition, prevention and control, primary animal health care including diagnostic and therapeutic techniques, jurisprudence, ethics, business management, extension, and animal production.

### Veterinary Public Health

The following domains were identified for future work: zoonotic diseases, meat inspection, *ante-mortem* inspection, surveillance, biosafety and biosecurity, drug residues and resistance, occupational safety, point of care diagnosis, animal population control, animal welfare, quarantine, food safety, preservation of livestock products, commodity process "farm to fork," one health, sanitary measures, traceability, emergency management, regulation of public health/public health literacy, quality system management, livestock market system, human health delivery system, international trade, and various "soft skills" (e.g. record keeping, communication, consumer education, demographics, political/gender/cultural sensitivities).

Annex 40 (contd)Laboratories

The following domains were identified for future work: specimen collection, animal handling and sampling, laboratory testing, scientific knowledge, procedures and regulations, communication, analytical capacity, quality control and quality assurance, data management, work flow management, biosafety and biosecurity, and equipment.

The domains for each category will be further discussed by the two subgroups that will be convened as they relate to basic, specific and advanced competencies, and to knowledge, skills and abilities.

Many domains were identified as cross-cutting categories (e.g., biosafety and biosecurity, animal welfare, point of care diagnostics, risk analysis) which will apply to the formal training of all VPPs, but with the differing objectives and perspectives. These common competencies, as well as some professional and management skills applicable to all categories, will be further explored by the subgroups.

**7. Discussion about the structure and content of core curricula**

The Group discussed existing curricula based on several basic questions, including how they are developed, where they are used and what methods are used for their delivery. The Group also developed a list of existing and accessible curricula to be analysed and reviewed by IIAD to facilitate the Group's future study. Members were requested to follow-up on missing information as well as provide any further curricula examples to which they have access to assist in moving forward on the analysis of curricula.

It was recommended that the OIE approach certain Member Countries, including those replying to the questionnaire discussed in agenda Item 6, to obtain additional information about the curricula in place. Curricula should be pursued especially from the Middle East Region, West and Central Africa and South East Asia.

Regarding curricula for laboratory VPPs, it was suggested that an analysis of equivalent training curricula for medical laboratory technicians would be useful, since in many countries, Laboratory Technicians are trained in the medical sector. Additional sections, such as anatomy and histology, specifically related to the veterinary field, may need to be added in order to prepare these VPP in the laboratory for Day 1. This issue will be addressed during the laboratory VPPs sub-group.

The Group agreed that once the analysis is complete, they will review the outcomes and cross-analyse those outcomes with the working list of competencies developed.

**8. Proposals for the profiles/qualifications of specific subject-matter experts**

The Group then discussed the desirable composition of specific subject-matter sub-groups and the profiles of experts to be included.

The Group agreed that in principle, two sub-groups, one for animal health activities, another for laboratory diagnostic activities, should be created. Considering that training for veterinary public health is often treated as a stream on the basis of general training for animal health, the veterinary public health activities will be discussed during the animal health sub-group meeting and a specific session with public veterinary health experts should be considered at a later stage if necessary.

While the participation of some Group members in the sub-groups is considered necessary for consistency and efficiency of the discussion, the Group agreed that there is a need for additional members to give guidance on theoretical and practical experience and to ensure the validity and applicability of the core competencies and core training curricula.

Regarding the animal health sub-group, additional experts from training institutions with certified training programmes were considered necessary to develop model curricula, while additional experts with experience in the skills and services that VPPs are actually providing in the field ("end users") were considered necessary to refine the competencies.

Annex 40 (contd)

It was also noted that the experts from Asia as well as the Americas are indispensable, considering the importance of VPPs in their veterinary services. Additional membership should attempt to include representatives of veterinary paraprofessional associations. Consideration should also be given to adding wildlife and aquatics expertise.

**9. Other matters**

Dr Barbaruah informed the Group that the International Standard Classification of Occupations (ISCO) of the International Labor Organization (ILO) provides definitions of various categories of veterinary service providers. He suggested the OIE interface with the ILO to better understand their consultation procedure in developing such definitions.

Considering the priority and timeline advised by the Director General, the Group made a tentative plan for the next six months as follows:

**December 2016:**

- Developed competency sets are reorganised by IIAD and further discussed through e-consultation
- OIE and experts look for curricula from specific regions
- OIE sends questionnaire to selected Member Countries of regions missing in the original survey

**January 2017:**

- IIAD starts working on the curricula analysis

**February 2017:**

- Sub-group for Animal Health to complete the draft competency set for AH/VPH

**March 2017:**

- Sub-group for Laboratory to complete the draft competency set for Laboratory

**April 2017:**

- 2nd *ad hoc* Group meeting to review the work of two Sub-groups

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.../Appendices



Annex 40 (contd)

Appendix I

## MEETING OF THE OIE *AD HOC* GROUP ON VETERINARY PARAPROFESSIONALS

Paris, 22–24 November 2016

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### Adopted agenda

1. Welcome, introductory remarks and adoption of agenda
2. Background
  - Review of the recommendations from of the 1<sup>st</sup> OIE - AVTA - GALVMED regional conference on the role of veterinary paraprofessionals in Africa
  - Review of the recommendations from the 4<sup>th</sup> OIE Global Conference on Veterinary Education in Bangkok
  - Outline and objectives of the project
3. Terms of Reference
4. Review of available information about roles, recognition and training/education of veterinary paraprofessionals
5. Proposals of the research/analysis on existing paraprofessional curricula as well as the two umbrella categories of veterinary paraprofessionals
6. Discussion about the structure and content of minimum competencies
7. Discussion about the structure and content of core curricula
8. Proposals of the profile/qualifications of specific subject-matter experts for two sub-*ad hoc* Groups for both umbrella categories of veterinary paraprofessionals
9. Other matters



Annex 40 (contd)Appendix II**MEETING OF THE OIE AD HOC GROUP ON VETERINARY PARAPROFESSIONALS****Paris, 22–24 November 2016****List of participants****MEMBERS OF THE OIE AD HOC GROUP**

**Dr Johan Oosthuizen** (Chair)  
President  
South African Association of Veterinary  
Paraprofessionals  
Pretoria  
SOUTH AFRICA  
Tel.: 011 471 2984  
oostej@unisa.ac.za

**Dr Benson Oduor Ameda**  
President  
Africa Veterinary Technicians Association  
Nairobi  
KENYA  
b.ameda.ba@gmail.com

**Dr Markus Avong**  
Veterinary Council of Nigeria  
P. O. Box 2092, GPO Jos  
Plateau State  
NIGERIA  
Tel.: +234 803 429 7372  
avongam2000@yahoo.com

**Dr Miftahul Islam Barbaruah**  
Director,  
Vet Helpline (India) Pvt Ltd  
House No.31/32 (Near Masjid No.1)  
Chandmari – Milanpur, Guwahati-781021,  
Assam  
INDIA  
Tel.: +91 361-2651593  
drbarbaruah@gmail.com

**Dr Karoon Chanachai**  
*(Invited but could not attend)*  
Senior Veterinary Officer  
Bureau of Disease Control and Veterinary  
Services  
Department of Livestock Development  
69/1, Phaya Thai Rd., Ratchathewi,  
Bangkok  
THAILAND 10400  
kchanachai@hotmail.com

**Dr Susan Catherine Cork**  
Head of Department & Professor of  
Ecosystem & Public Health  
Faculty of Veterinary Medicine University  
of Calgary  
3280 Hospital Drive, Calgary, Alberta,  
T2N 4Z6  
CANADA  
Tel.: 403 210-6522 scork@ucalgary.ca

**Dr Gert-Jan Duives**  
Senior lecturer Animal Health &  
Production  
Department : International Food &  
Agribusiness  
HAS University of Applied Sciences  
P.O.Box 90108  
5200MA 's-Hertogenbosch  
THE NETHERLANDS  
Tel.: +31 8889 03600  
g.duives@has.nl

**Dr Abdul Baqui Mehraban**  
*(Invited but could not attend)*  
Ap. 3, 102-106 Railway Terrace  
Merrylands, NSW, 2160  
AUSTRALIA  
Tel.: +61450 185115  
abmehraban@yahoo.co.uk  
abmehraban@gmail.com

**Dr Samuel Niyi Adediran**  
Asst. Director Market Development &  
Access  
GALVmed, Africa Office  
4th Floor, Wing C – Suite B  
Galana Plaza  
Galana Road, off Arwings Kodhek Road  
P. O. Box 52773-00100  
Nairobi  
KENYA  
Tel.: +254 (0)772 157 782 ext 302.  
niyi.adediran@galvmed.org.

Annex 40 (contd)Appendix II**MEMBERS OF THE OIE AD HOC GROUP**

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**Dr Hervé Petit**

Veterinary and Programme Officer  
Agronomes et Vétérinaires Sans  
Frontières (AVSF)  
45 bis, avenue de la Belle Gabrielle  
F-94736 Nogent-sur-Marne Cedex  
FRANCE  
Tel.: +33 (0)1 43 94 72 08  
h.petit@avsf.org

**Dr Willy Schauwers**

Veterinary laboratory technology  
consultant  
Haasdonksesteenweg 40  
9140 Temse  
BELGIUM  
willy.schauwers@skynet.be

**Dr Sovann Sen**

*(Invited but could not attend)*  
Vice-President of the OIE Regional  
Commission for Asia, the Far East and  
Oceania  
Deputy Secretary General, MAFF  
Project Director, TS-PRSHD  
Ministry of Agriculture, Forestry and  
Fisheries  
200 Preah Norodom Boulevard  
Sangkat Tonle Basak Khan Chamkamon  
PO Box 2447  
Phnom Penh 3  
CAMBODIA  
sen.sovann88@gmail.com

**Dr Heather Simmons**

Program Manager and Education and  
Outreach Theme Leader  
Institute for Infectious Animal Diseases  
A Department of Homeland Security  
Science & Technology Center of  
Excellence  
Texas A&M University  
1500 Research Parkway  
Building B, Suite 270  
College Station, TX 77843-3202  
UNITED STATES  
Tel.: 979-862-3202  
hlsimmons@ag.tamu.edu

**OTHER PARTICIPANTS**

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**Dr Barbara M. Martin**

BM Martin Laboratory Consultants  
2503 Eisenhower Avenue  
Ames, IA 50010  
UNITED STATES  
Tel.: +1 515 708 5622  
martin.barbara.m@gmail.com

**OIE HEADQUARTERS**

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**Ms Jennifer Lasley**

Project Coordinator  
Programmes Department  
j.lasley@oie.int

**Dr David Sherman**

Chargé de mission  
Regional Activities Department  
d.sherman@oie.int

**Dr Tomoko Ishibashi**

Senior Manager, Standards  
Development and Horizontal  
Management Framework  
t.ishibashi@oie.int

**Ms Emily Tagliaro**

Head of the World Fund Unit  
e.tagliaro@oie.int

## **Ad hoc Group on Veterinary Paraprofessionals: Terms of Reference**

### **Background**

The OIE 6<sup>th</sup> Strategic Plan for 2016-2020 unanimously adopted by its Member Countries in May 2015 has three Strategic Objectives. One of the several outcomes expected under Strategic Objective 3: Ensuring the Capacity and Sustainability of Veterinary Services is “a better definition of the role of paraprofessionals and non-veterinary specialists, including their education and training.”

The 4<sup>th</sup> OIE Global Conference on Veterinary Education, (22-24 June 2016, Bangkok) provided a set of recommendations to both OIE Member Countries and the OIE. Among these, the Conference participants recommended the OIE “consider expanding its work on the quality of Veterinary Services to better cover veterinary paraprofessionals working in Veterinary Services, by identifying minimum competencies for various categories of veterinary paraprofessionals and developing guidelines on core training curricula.”

In June 2016, the OIE has received financial support from the United States Government to develop internationally standardised minimum competencies and core curricula for veterinary paraprofessionals in alignment with the OIE intergovernmental standards, guidelines and recommendations.

With this background, the OIE will convene an ad hoc Group on veterinary paraprofessionals, which will hold its first meeting on 22–24 November 2016.

### **Scope**

Given the OIE mandate and the definition of veterinary para-professional<sup>2</sup> from the OIE *Terrestrial Code*, the *ad hoc* Group will focus its work around the tasks as outlined below, taking a broad view by developing standardised minimum competencies and potentially core curricula for two umbrella categories of veterinary paraprofessionals, namely Animal/Public Health veterinary paraprofessionals and Laboratory veterinary paraprofessionals<sup>3</sup>. It is recognized that globally there are many different designations of veterinary paraprofessionals, a variety of expected skills and a wide range of training programmes. The outputs of this *ad hoc* Group will serve to provide Member Countries and their veterinary statutory bodies with general guidelines for expected competencies which they can then apply to the various categories of veterinary paraprofessionals that they recognize as eligible for registration in their respective countries. It is not the responsibility of the *ad hoc* Group to catalogue the numerous classification and categories of veterinary paraprofessionals that exist around the world.

### **Terms of Reference**

The *ad hoc* Group should, with the support of specific subject-matter experts composing two groups for two umbrella categories of veterinary paraprofessionals and of OIE staff;

1. conduct an in-depth review, based on provided information and with a worldwide scope, of the current approaches to and best practices of veterinary paraprofessionals’ education and training curricula, taking into account the current and future expectations of their contribution to the national Veterinary Services, and examine desirable approaches to, and structures for, veterinary paraprofessionals’ education and training in order to produce suitably prepared veterinary paraprofessionals;

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<sup>2</sup> ‘a person who, for the purposes of the *Terrestrial Code*, is authorized by the veterinary statutory body to carry out certain designated tasks (dependent upon the category of veterinary para-professional) in a territory, and delegated to them under the responsibility and direction of a veterinarian. The tasks for each category of veterinary paraprofessional should be defined by the veterinary statutory body depending on qualifications and training, and in accordance with need.

<sup>3</sup> Animal health veterinary paraprofessionals involved in surveillance and disease control within the mandate of VS. Public Health veterinary paraprofessionals involved in ante- and post-mortem inspection in the food chain under the mandate of VS. Laboratory veterinary paraprofessionals involved in diagnostic services under the mandate of VS.

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2. develop draft recommendations for standardised minimum competencies for veterinary paraprofessionals, which competencies are required for the performance of the necessary OIE and public policy tasks, including those tasks defined in the OIE Terrestrial and Aquatic Animal Health Codes, and take into account new threats, opportunities and societal expectations;
3. develop draft guidelines on minimum curricular requirements for the two umbrella categories of veterinary paraprofessionals, which may have additional curricular requirements at progressing levels of advancement;
4. provide advice to the OIE, as appropriate, on the implementation by the OIE Member Countries of the following recommendations from the 4th OIE Global Conference on Veterinary Education:

To the Veterinary Authorities of the Member Countries to:

6. maintain a comprehensive understanding of both the roles of and responsibilities borne by veterinary paraprofessionals in the Veterinary Services of their country and also their professional training opportunities nationwide;
7. ensure that Veterinary Statutory Bodies established or refined in line with the OIE's definition, noting their important function of registration or licensing of veterinarians and veterinary paraprofessionals, impose a minimum requirement for continuing education as a condition of renewal of licensure of veterinarians and veterinary paraprofessionals; and
8. develop or modernise their veterinary legislation, as necessary so that both veterinarians and veterinary paraprofessionals are regulated in compliance with OIE standards and so as to ensure that legislation covers their responsibility.

At its first meeting, the *ad hoc* Group should

- a) in order to perform point 1 above, identify and structure both the research/analysis on existing paraprofessional curricula as well as the two umbrella categories of veterinary paraprofessionals
- b) in order to perform point 2 and point 3 above, consider possible structure and content of minimum competencies and a core curriculum
- c) identify the profile/qualifications of specific subject-matter experts for two sub-groups for both umbrella categories of veterinary paraprofessionals and nominate appropriate experts to the OIE.

In performing the above tasks, the *ad hoc* Group should review relevant resource materials provided by the OIE secretariat listed below.

List of documents to be provided.

- 1) Extracts from the OIE *Terrestrial Animal Health Code* and *Aquatic Animal Health Code*
- 2) Extracts from the OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* and the OIE *Manual of Diagnostic Tests for Aquatic Animals*
- 3) Extract from the Codex Alimentarius Code of Hygienic Practice for Meat
- 4) Extracts from the OIE PVS Tool

Annex 40 (contd)

Appendix III (contd)

- 5) Examples of curricula of veterinary paraprofessionaleducation/training provided by participants and collected by the OIE
- 6) Summary of the findings of PVS Evaluation missions conducted in OIE Member Countries about “I-1 Professional and technical staffing of the Veterinary Services (VS): B Veterinary paraprofessionals and other technical personnel” and “I-2 Competencies of veterinarians and veterinary paraprofessionals: B Competencies of veterinary paraprofessionals”
- 7). Summary of types and numbers of veterinary paraprofessionals of OIE Member Countries reported to the WAHIS
- 8) Summary of replies from OIE Member Countries to the questionnaire about role, recognition and education of veterinary paraprofessionals



Annex 40 (contd)Appendix IV**Questions to selected Member Countries**

Roles: Are veterinary paraprofessionals<sup>4</sup> (VPPs) functional members of Veterinary Services?

1. Do VPPs participate in public sector veterinary services?
  - a) Yes / No
  - b) If 'Yes,' please indicate the area in which they work by ticking any or all of the boxes that are relevant.
    - Animal disease control activities including surveillance and vaccination
    - Clinical care such as administering drugs, caring for wounds, castration, etc.
    - Veterinary public health activities e.g., slaughterhouse inspections
    - Disease diagnosis at a laboratory including sample handling, testing protocols
    - Other (please briefly describe).
  
2. Do VPPs participate in private sector veterinary services?
  - a) Yes / No
  - b) If 'Yes,' please indicate as many of the following areas as are relevant by ticking the boxes.
    - Animal disease control activities including surveillance and vaccination
    - Clinical care such as administering drugs, caring for wounds, castration, etc.
    - Veterinary public health activities e.g., slaughterhouse inspections
    - Disease diagnosis at a laboratory including sample handling, testing protocols
    - Other (please briefly describe).

Recognition: Is there a registration mechanism of VPPs?

3. Is there a veterinary statutory body or bodies that register VPPs?
  - a) Yes / No
  - b) If 'Yes,' please provide the name of the body (bodies)
  - c) Please indicate the categories of work recognized by such body for registration.
    - Animal disease control activities including surveillance and vaccination
    - Clinical care such as administering drugs, caring for wounds, castration, etc.
    - Veterinary public health activities e.g., slaughterhouse inspections
    - Disease diagnosis at a laboratory including sample handling, testing protocols
    - Other (please briefly describe).

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<sup>4</sup> a person who, for the purposes of the *Terrestrial Code*, is authorized by the veterinary statutory body to carry out certain designated tasks (dependent upon the category of veterinary para-professional) in a territory, and delegated to them under the responsibility and direction of a veterinarian. The tasks for each category of veterinary paraprofessional should be defined by the veterinary statutory body depending on qualifications and training, and in accordance with need.

Annex 40 (contd)Appendix IV (contd)

Training/education: What types of training programmes exist for VPPs

4. What levels of education (e.g. certificate, diploma, degree) are required for the different categories/types of VPPs and how many years of study are associated with each level?

<b>VPP Category/Type</b>	<b>Level of Training Certificate/diploma/degree</b>	<b>Years of Study</b>

5. Is there a responsible body for certifying curriculum and facilities?
- Yes / No
  - If 'Yes,' please provide the name of the body
6. Are any veterinary faculties directly involved in training of VPPs including laboratory technicians?
- Yes / No
  - If 'Yes,' please provide the names of such veterinary faculty(ies).

#### Recommendation of Expert

- Please provide names and contact details of experts in your country who have excellent knowledge of the work of VPPs including laboratory technicians and their corresponding training systems. In connection with the expected work of developing guidelines on core training curricula, we would particularly appreciate any suggestions you may have of experts who are directly involved in VPPs training institutions.

Please return your answer to the OIE ([t.ishibashi@oie.int](mailto:t.ishibashi@oie.int)) by 31 October 2016.

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## TIPS FOR SUBMITTING EFFECTIVE COMMENTS

### Introduction

These tips are intended to help Member Countries communicate effectively with the Terrestrial Animal Health Standards Commission (the Code Commission) and make their comments easier to read and understand.

Members Countries are requested to provide their proposal for amendments accompanied by the related rationale. Deletion should be presented in '~~strike through~~' and new texts should be presented in 'double underline'. A coloured background can be used to distinguish changes that had been proposed between at the current Code Commission meeting and its previous meeting.

Please note that the examples provided here are taken from comments submitted by some Member Countries.

### Example 1.

#### Text as presented:

Article 11.4.15.

- 2) b) the bones have been subjected to a process which includes all of the following steps:
  - i) pressure washing (degreasing),

#### Proposed alternative text:

Article 11.4.15.

- 2) b) the bones have been subjected to a process which includes all of the following steps:
  - i) ~~pressure washing~~ (degreasing),

**Rationale:** We are advised there is no pressure involved in the degreasing step used by the gelatine industry.

### Example 2.

Article 7.X.1.

#### Preamble

In many countries, working equids, used for transport and traction, contribute directly and indirectly to households' livelihoods and benefit communities as a whole.

#### **Country comment**

We would ask the OIE to consider moving the final sentence of the below paragraph here so that the first paragraph reads:

"In many countries, working equids, used for transport and traction, contribute directly and indirectly to households' livelihoods and benefit communities as a whole. Working equids may be of direct or indirect use in production and commercial activities."

**Justification:** The two sentences both seem to be appropriate as an introduction.

Annex 41 (contd)**Example 3.****Text as presented:**

Article 1.2.2.

4 ...

- c) The *disease* has been shown to, or scientific evidence indicates that it would, cause a significant impact on the health of morbidity or mortality in ~~wild wildlife animal~~ populations taking into account the occurrence and severity of the clinical signs, including direct production losses and mortality, and ecological threats.

**Clean text intended:**

Article 1.2.2.

4 ...

- c) The *disease* has been shown to, or scientific evidence indicates that it would, cause a significant impact on the health of *wildlife* taking into account the occurrence and severity of the clinical signs, including direct production losses and mortality, and ecological threats.

**Proposed alternative:**

Article 1.2.2.

4 ...

- c) The *disease* has been shown to, or scientific evidence indicates that it would, cause a significant impact on the health of *wildlife* taking into account the occurrence and severity of the clinical signs, including direct production losses and mortality, and ~~ecological~~ any threats to the viability of a *wildlife* population.

**Rationale:** We do not like the phrase “ecological threats”. We consider that the word “ecological” could too easily be interpreted more broadly than the mandate of the OIE, which is protecting animals.

**Example 4.****Text as presented:**~~Article 15.1.17.~~**~~Recommendations for the importation of litter and manure (from pigs)~~**

~~Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that these products:~~

- ~~1) come from an ASF free country, zone or compartment, or~~
- ~~2) have been processed in an establishment approved by the *Veterinary Authority* for export purposes so as to ensure the destruction of the ASFV, and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.~~

**Proposed alternative text:**

Article 15.1.17. (Reinstated)

**Recommendations for the importation of litter and manure from pigs**

Veterinary Authorities should require the presentation of an international veterinary certificate attesting that these products:

- 1) originated from domestic or captive wild pigs in a country, zone or compartment free from ASF and have been processed in an establishment approved by the Veterinary Authority for export purposes; or
- 2) have been processed in an establishment approved by the Veterinary Authority for export purposes so as to ensure the destruction of the ASFV in accordance with one of the processes listed in Article 15.1.21tris, and that the necessary precautions were taken after processing to avoid contact of the product with any source of ASFV.

**Rationale:** We propose that a separate Article 15.1.17. be reinstated covering litter and manure and a separate article should cover bristles only. Bristles are traded much more widely internationally, and in greater volumes, than litter and manure. The commodities are so different, bristles compared with litter and manure, that lumping them together in a single article makes little sense.

**Example 5.****Current OIE text**

User's Guide

C. Specific issues

3. Prevention and control

Chapters 4.3. and 4.4. describe the measures that should be implemented to establish zones and compartments. Zoning and compartmentalisation should be used to control diseases and to facilitate safe trade.

**Proposed alternative text**

User's Guide

C. Specific issues

3. Prevention and control

Chapters 4.3. and 4.4. describe the measures that should be implemented to establish zones and compartments. Zoning and compartmentalisation should may be used to control diseases and to facilitate safe trade.

**Rationale:** 'Should' implies that using zones and compartments is desirable which may not always be the case. We suggest 'may'.

