



Checklist on the Practical Application of Compartmentalisation for Avian Influenza and Newcastle Disease

Introduction

This Checklist advises on the practical implementation of the concept of compartmentalisation for two avian diseases: avian influenza (AI) and Newcastle disease (ND) in poultry. **It is not for the moment an OIE standard, nor is it part of the OIE *Terrestrial Animal Health Code* (the *Terrestrial Code*).** It is provided to help countries wishing to quickly implement compartments for one or both of these diseases.

Relevant information may be found in the *Terrestrial Code*:

- Chapter 1.3.5. on Zoning and Compartmentalisation;
- Chapters 2.7.12. on Avian Influenza and on 2.7.13. Newcastle Disease;
- Chapters 1.3.3. and 1.3.4. on Evaluation of Veterinary Services;
- Appendix 3.8.1. on General Guidelines on Animal Health Surveillance, Appendix 3.8.9. on Guidelines on Surveillance for Avian Influenza and Appendix 3.X.X. on Guidelines on Surveillance for Newcastle Disease (under development);
- Appendix 3.Y.Y. on General Guidelines on the Application of Compartmentalisation (under development);
- Appendix 3.5.1. on General Principles for the Identification and Traceability of Live Animals.

Compartmentalisation is a procedure that may be implemented by a country to define and manage animal subpopulations of distinct health status within its territory, in accordance with the recommendations in the *Terrestrial Code* for the purpose of disease control and/or international trade.

While zoning applies to an animal subpopulation defined primarily on a geographical basis (using natural, artificial or legal boundaries), compartmentalisation applies to an animal subpopulation defined primarily by management and husbandry practices related to biosecurity. In practice, spatial considerations and good management play important roles in the application of both concepts.

The recommendations for compartments in the *Terrestrial Code* cannot be applied in all situations. The effective implementation of the concept of compartmentalisation depends inter alia on the epidemiology of the disease, country factors, environmental factors, the biosecurity measures which may be applicable, the health status of animals in adjacent areas, surveillance and the public/private sector relationship. Compartmentalisation may be particularly applicable in intensive industries where production systems are vertically integrated.

The document lists the principal issues that need to be addressed. Some issues are relevant to the infrastructure within which compartmentalisation for ND and/or AI may be effectively implemented and others apply to the establishment and operation of individual compartments.

1. Principles for defining a compartment

A compartment must be clearly defined, indicating the location of all its components including establishments, as well as related functional units (such as feed mills, slaughterhouses and rendering plants), their interrelationships and their contribution to an epidemiological separation between the animals in a compartment and subpopulations with a different health status. The definition should include:

- the components of the establishment(s) and/or other premises operated by an

enterprise which would constitute the compartment, and the common biosecurity management system under which they operate (for example, animal housing facilities, animal transport routes, feed distribution systems, work procedures), using diagrams to show flowpaths, functional boundaries, etc.;

- a description of the avian subpopulation comprising the compartment (the epidemiological unit) based on the application of animal identification and traceability in accordance with the *Terrestrial Code*; depending on the sector, this may be done at the flock, lot or individual bird level;
- a description (for example through process flowcharts) of the functional relationships between components of the compartment showing their contribution to the epidemiological separation between poultry in the compartment and other subpopulations, including:
 - common management or ownership of poultry;
 - adoption of industry plans that contain biosecurity guidelines e.g. health improvement plans and breed registries;
 - integration or grouping of establishments supplying poultry for production or slaughter with related functional units (such as feed mills, slaughterhouses and rendering plants).

2. Separation of a compartment from potential sources of infection

The management of a compartment must provide to the Veterinary Administration documented evidence on the following:

a) Physical or spatial factors that affect the status of biosecurity in a compartment

A description of the spatial factors relating to pathways of AI or ND transmission to ensure that there is adequate physical separation of the birds in the compartment from nearby animal subpopulations of different or unknown health status, including:

- the locations and the AI and/or ND status of the nearest domestic and wild flocks;
- for AI, the locations of the nearest domestic and wild pig herds;

- for AI, the locations of any human cases of infection with HPAI;
- the location of bird houses within the compartment with regard to birds of lower or unknown health status outside the compartment; the spatial separation that would preclude direct contact or aerosol spread would be a minimum of one kilometre for AI and a minimum of 1-2 kilometres for ND.

A description of the relevant environmental factors that may affect exposure to the pathogen(s), including:

- natural windbreaks and other barriers to pathogen spread;
- existence of wetlands or other geographic features attractive to large numbers of wild birds;
- expected pathogen survivability in the local environment;
- seasonal factors.

b) Infrastructural factors

A description of the relevant infrastructural factors that may affect exposure to the pathogen(s), including buildings and equipment:

- bird house ventilation air inlets and outlets are suitably oriented to minimise the likelihood of disease spread;
- equipment coming into contact with birds is either dedicated to the compartment or is appropriately cleaned and disinfected immediately upon entry to the compartment;
- at the end of a production batch, the bird houses are cleaned and disinfected, and then closed until next use, and all litter removed from the compartment.

c) Biosecurity plan

A model biosecurity plan should address all relevant factors including:

- the partnership(s) between the Veterinary Services and the relevant enterprise(s);
- the means of making a practical assessment of the resources required and available – financial, human and technical;

- the means of identifying the relevant animal subpopulation and its distinct animal health status, including through the animal identification and traceability system, and the relevant management and animal health records;
- a description of the potential pathways for the entry into and spread of AI and/or ND within the compartment, and of the associated risks; consideration should be given to domestic bird movements; rodents; wild birds; aerosols; arthropods, vehicles, people, biological products, equipment; fomites, feed; waterways; drainage; and to the survivability of AI/ND in the environment:
 - a description of the procedures in place to regularly review scientific data relating to these pathways and risks;
- indicative sanitary measures which would be necessary to manage the risks relating to the distinct animal health status of the subpopulation;
- management of environmental risks, ensuring that:
 - there is no standing water or other sources of attraction for wild birds on the premises or close by;
 - there are no unprotected heaps of feed or manure/litter, or used equipment or housing material close to bird houses or free-range birds;
- how the necessary sanitary measures would be incorporated into the management and husbandry practices of the establishment(s) and other relevant premises, to produce standard operating procedures (SOPs) for the compartment;
- how the SOPs for the compartment would be audited to ensure that they are in accordance with the biosecurity plan;
- how the risks would be regularly re-assessed and the SOPs of the compartment adjusted appropriately.

The Veterinary Administration should:

- provide scientific data that explain the epidemiology of AI and ND, and the associated risk pathways, in the part of the country in which compartments will be located;

- implement programmes to increase awareness of bird owners, bird handlers and hobbyists, in the non-production sectors, and poultry workers, transporters, maintenance personnel, in the production sector, of general biosecurity principles and particularly those applicable to AI and ND;
- encourage the management of establishments and other relevant premises in a generally biosecure manner; for example through the development and application of codes of practice.

The management of the compartment should work with the Veterinary Services in the development of biosecurity plans and in the management of the operations of the compartments in accordance with the biosecurity plans.

While these responsibilities should be addressed in partnership, the final authority for the purposes of disease surveillance and reporting, disease control and veterinary certification for international trade from the compartment lies with the Veterinary Administration.

d) Traceability system

The Veterinary Administration should ensure that an effective animal identification and traceability system is in place. Depending on the type of production, identification and registration may be done at the flock, lot or bird level.

3. Documentation of factors critical to the definition of a compartment

Documentation must provide clear evidence that the biosecurity, surveillance, traceability, management and control practices defined for a compartment are effectively applied. Documentation should include:

- a description of the partnership between the Veterinary Services and the relevant establishment(s), and documentation of their respective responsibilities;
- documentation of:
 - the critical control points for each pathway and the measures to manage each critical control point;
 - standard operating procedures (SOP) including for the implementation, maintenance and monitoring of these

- measures at the level of the compartment and at the level of establishment(s) and other relevant premises;
- the steps taken by the Veterinary Services to verify the baseline health status of birds in the compartment;
- full documentation of the compartment's SOPs, to provide clear evidence that they are adequate to meet the definition of the compartment, including:
 - personnel training:
 - generic hygiene and biosecurity principles and procedures;
 - procedures applicable to maintaining biosecurity for AI and/or ND;
 - the specific procedures to be followed, such as human and animal movement controls;
 - quality assurance schemes (if any) in operation;
 - animal movement controls:
 - in the case of poultry that are not confined to houses, for example free-range domestic poultry, procedures are in place to prevent their contact with animals from outside the compartment, especially wild birds;
 - facilities are in place, for example netting, to prevent other animals especially wild birds from entering bird houses and pastures;
 - for an AI compartment, procedures are in place to prevent epidemiologically relevant animals other than birds (e.g. cats, pigs) from entering the compartment;
 - if birds or hatching eggs are sourced from outside the compartment, procedures are in place to ensure that the birds are sourced only from flocks of approved status for AI and/or ND;
 - the bird/hatching egg handling and transport procedures operate in a biosecure manner through the use of either equipment dedicated to the compartment or appropriately cleaned and disinfected equipment;
 - if the establishment(s) is/are not run on an all-in-all-out production basis, procedures are in place to ensure the appropriate separation between production groups and from newly introduced birds;
 - poultry health:
 - appropriate flock breeding and production records are available;
 - morbidity and mortality history is available;
 - details of medications used (including vaccines) and treatment outcomes are available;
 - arrangements for veterinary involvement in flock health, and disease diagnosis and reporting are appropriate;
 - procedures are in place for the identification, handling, storage and disposal of sick and dead birds in a biosecure manner; these procedures comply with the relevant environmental legislation;
 - human movement controls:
 - there is functional boundary fencing, with cleared areas and secure access points, and appropriate signage;
 - procedures are in place, for example through the use of colour-coded clothing and one-way entries, to regulate the movement of humans within the compartment;
 - procedures are in place for regulating visitor access to premises in the compartment, for example through the use of a visitor logbook, restrictions on prior contact with birds outside the compartment, the use of disinfectant footbaths at all entries, and procedures for hand-washing and the provision of clean clothing and footwear for visitors who may come into contact with birds in the compartment;
 - procedures are in place for regulating the access and movements of visiting workers and their equipment (including veterinarians, contractors, maintenance personnel, bird handlers and feed delivery personnel) to premises and to bird houses in the compartment, for example through the use of a visiting worker logbook, restrictions on prior contact with birds outside the compartment, the use of footbaths with disinfectant at all entries, the use of hand-washing, clean clothing and footwear;

- procedures are in place for ensuring that different groups of birds within the compartment are handled in a biosecure manner, for example through handling young birds before older birds, segregating birds under suspicion of health problems, and working with, not against, the flow of bird movements in the production cycle;
- procedures are in place for dealing with emergencies that threaten the health status of the compartment through additional measures such as showering and complete clothing changes for workers dealing with 'at risk' poultry;
- restrictions are in place regarding employee contact with birds outside the compartment, for example: employees are not permitted to own birds or other epidemiologically relevant animals, and must have no contact with birds of lesser or unknown health status within 48 hours prior to entering the compartment;
- controls over vehicles:
 - procedures are in place for regulating visitor vehicle access to the premises;
 - procedures are in place for regulating the activities of work vehicles relevant to the compartment (such as feed delivery, bird delivery and pickup, litter delivery and removal, and maintenance vehicles) for example:
 - those operating solely within the compartment are subject to regular cleaning and disinfection;
 - those with access to premises outside the compartment are subject to full cleaning and disinfection immediately upon entering the compartment;
- security of feed and water sources:
 - the water supply is known to be free from contamination with avian pathogens through the use of mains water or appropriately treated water (for example chlorination or UV treatment) from other sources;
 - if any feed is sourced from outside the compartment, that feed supply is known to be free from contamination with avian pathogens through the use of approved/audited suppliers and production methods;
 - the feed transport and handling facilities operate in a biosecure manner through the use of either dedicated equipment or equipment which is cleaned and disinfected before being used for feed destined for use in the compartment.

4. Surveillance for the agent or disease

The Veterinary Administration should ensure that:

- the necessary surveillance and the means to implement it, and the procedures for the investigation and reporting of disease incidents are in place;
- through effective surveillance at national level, ensure a good knowledge and understanding of the avian disease situation (particularly for AI and ND) within and outside the compartment, including in wild birds. This surveillance should be conducted in accordance with Appendix 3.8.1. on General guidelines for animal health surveillance, Appendix 3.8.9. on Guidelines for the surveillance of avian influenza and Appendix 3.x.x on Surveillance for Newcastle disease (under development) in the *Terrestrial Code*;
- documentation is provided on the surveillance conducted for AI and/or ND to ensure that the subpopulation of birds in the compartment complies with the defined health status of the compartment (in accordance with the measures stipulated in Chapter 2.7.12. on Avian influenza and/or Chapter 2.7.13. on Newcastle disease in the *Terrestrial Code*. Essential components include:
 - the documented baseline health status of the subpopulation before the compartment was established, indicating the dates of last disease occurrence (if any), the number of outbreaks and the methods of disease control that were applied;
 - evidence of compliance with Appendix 3.8.1. on General guidelines on animal health surveillance, Appendix 3.8.9. on Surveillance for avian influenza and Appendix 3.x.x. on Guidelines on surveillance for Newcastle disease (under preparation) in the *Terrestrial Code*;

- procedures for the early detection of disease in the event that AI or ND enters the compartment; for example, through the monitoring of parameters such as increased morbidity or mortality, reduced feed or water consumption, changes in behaviour and reduced egg production;
- procedures for investigation of a suspect case, including reporting and subsequent management.

The administration of the compartment should report accurately and in a timely manner to the Veterinary Services on disease incidents occurring in the compartment.

5. Diagnostic capabilities and procedures

The Veterinary Administration should support surveillance through the testing of samples at laboratories operating in accordance with the OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* (hereafter referred to as the *Terrestrial Manual*). Each laboratory that conducts testing should use systematic procedures for rapid reporting of results to the Veterinary Administration. Where appropriate, results should be confirmed by an OIE reference laboratory.

6. Emergency response and notification

Early detection, diagnosis and notification of disease are critical to minimise the consequences of outbreaks.

In case of a suspicion or occurrence of any OIE listed disease not previously present according to the baseline animal health report of the compartment, the management of the compartment should notify the Veterinary Administration. The Veterinary Administration should immediately suspend export certification and should notify any importing countries. Trade may only be resumed after the compartment has adopted the necessary measures to re-establish the biosecurity level and the Veterinary Administration re-approves the compartment for trade.

Positive findings of the disease(s) for which the compartment has been defined, should be immediately notified following the provisions of Chapter 1.1.2.

7. Supervision and control of a compartment within the poultry sector

The responsibilities of the Veterinary Administration regarding the infrastructure supporting the compartment (which needs to be in place before the compartment is established) include:

- to ensure that the Veterinary Services have been evaluated, at least with respect to their ability to oversee the establishment and management of compartments (see Text Box for the key elements of an evaluation);
- to ensure that effective partnerships have been developed between the Veterinary Services and the poultry production and associated sectors, which may include equipment supply and maintenance, feed production and waste management;
- to ensure that systems are in place to provide credible official certification of the health status of the compartment, and commodities that may be traded from it;
- to devise generic criteria, including for management and husbandry practices relating to biosecurity, that are applicable to compartmentalisation in the poultry sector;
- to devise model biosecurity plans in conjunction with the poultry sector(s);
- to publicise the generic criteria and model biosecurity plans through official channels.

The Veterinary Services should be responsible for the following:

- to develop effective partnerships with managers in the poultry production sector and associated sectors (such as equipment supply and maintenance, feed production and waste management), and leaders in other relevant avian sectors, which may include village poultry, small poultry farms, game bird flocks, ornamental birds, racing pigeons, hobby farms with birds/poultry and zoological collections;
- through such partnerships, to gain a good knowledge and understanding of the structure and operations of the various avian sectors (production and non-production);

- to regularly review scientific data on AI and ND and re-assess the risk factors, to ensure that the SOPs continue to be appropriate to the situation;
- to develop and implement audit and review procedures to ensure that the agreed SOPs are being implemented.

The avian production and relevant other avian sectors should be responsible for the following:

- to develop effective partnerships with the Veterinary Services;
- to provide documentation of the programming and performance of audits, to verify the AI and/or ND status of the compartment.

Relevant information may be found in Chapters 1.3.3. and 1.3.4. of the *Terrestrial Code* and in the OIE Performance, Vision and Strategy Tool available at the OIE Web site at the following address: www.oie.int

Key factors of an evaluation of the Veterinary Services in relation to compartmentalization:

- legislative and administrative infrastructures;
- independence in the exercise of official functions;
- coordination capability;
- adequacy of technical and financial resources;
- disease surveillance and diagnostic capability;
- knowledge of relevant animal production and non-production sectors;
- systems for the early detection of disease and emergency response;
- effective consultation with stakeholders;
- performance history, including the timeliness and accuracy of disease reporting.



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