World Organisation for Animal Health

Identifying barriers to notification of terrestrial and aquatic animal diseases in Asia-Pacific

A report prepared for the World Organisation for Animal Health by

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Executive summary

What was done

This study aimed to identify and analyse key barriers to immediate notification of terrestrial and aquatic animal diseases in the Asia Pacific region and develop strategies and recommendations to overcome the identified barriers.

Two approaches to data collection were used: 1) an online survey to identify factors that may influence reporting outcomes, and 2) online focus group workshops to explore the causes of barriers to notification identified in the survey and develop actions to overcome the barriers and improve notification.

Behavioural factors relevant to notification were explored by using two well studied psychological theories that are relevant to notification including the Theory of Planned Behaviour and the Integrative Model of Organisational Trust.

Why was it done

Notification of aquatic and terrestrial animal disease events to WOAH is a fundamental obligation of WOAH Members and was the key objective of establishing the OIE in 1924. The notification requirements (specified in Chapter 1.1 of the Terrestrial Animal Health Code and the Aquatic Animal Health Code) aim to ensure there is transparency in the global animal disease situation, allowing countries to take informed actions to prevent the spread of animal diseases.

Despite the importance of Members providing disease notifications to WOAH, it is generally accepted that better compliance with notification requirements is required to achieve the intended outcome of preventing animal disease spread.

What was found

An online survey was provided to a study population of 136 Delegates and Focal Points in the Asia Pacific region. Eighty-two valid responses were received. The survey included 19 measures (factors) relevant to notification, each comprising multiple questions to improve accuracy. The survey results were statistically analysed to determine which factors influence notification intention.

Organisational capability and organisational knowledge were found to be strong predictors, explaining 37.3% of the variance in intention to notify. Additionally, perceived behavioural control (the perceived ease or difficulty of performing a behaviour) was a strong predictor explaining 29.9% of the variance in intention to notify. These three factors are modifiable meaning that actions can be taken to improve them and thereby improve notification.

Trust in trading partners was not associated with notification intention despite trade consequences being proposed as the principal risk associated with notifying. The lack of effect of trust can be explained by the wide variation in perceived risk among respondents. Additionally, the importance of animal production and animal health was not associated with notification intention.

The study revealed many positive aspects of notification in the Asia Pacific region including that attitudes to notification are strongly positive, the social norms of notification are strong, and perceived benefits of notification are uniformly strong.

The principal barriers to notification were identified and include diagnosis and laboratory confirmation; decision-making and administrative issues; and surveillance and reporting system

issues. The barriers were investigated further through a series of focus group workshops and defined and achievable actions to address them were developed. Thirteen actions were developed, and these are addressed within seven recommendations which have been proposed to improve notification, including:

Recommendation 1. Develop an action plan for supporting Members to enhance the diagnostic capability of national reference laboratories in the Asia-Pacific region.

Recommendation 2. Develop an action plan to support Members in the Asia-Pacific region to enhance their surveillance systems and capabilities

Recommendation 3. Evaluate whether the WOAH PVS Pathway sufficiently emphasises notification capabilities to provide adequate guidance to Members for improving notification.

Recommendation 4. Develop a plan for routine training of WOAH Delegates and relevant WOAH Focal Points in areas relevant to notification that is tailored to their experience and capabilities. The plan should include evaluation methodology so that return on investment can be measured.

Recommendation 5. Develop fit-for-purpose guidance materials, exemplars and resources to support notification.

Recommendation 6. Design and implement an approach for ongoing recognition of Members with strong notification performance.

Recommendation 7. Establish a system for notification performance to allow continuous analysis of the status of compliance with notification requirements

What are the next steps

The findings of this study provide new insights on the factors that facilitate notification. A strengths-based approach to implement the actions and recommendations of this report is recommended to encourage and develop a positive shared notification culture.

Implementation of the actions and recommendations suggested in this report will require consideration and agreement by WOAH and its Members in the Asia Pacific region.

Introduction

Background

Notification of aquatic and terrestrial animal disease events to WOAH has been a fundamental obligation of WOAH Members since the formation of the OIE in 1924. The notification requirements, which are specified in Chapter 1.1 of the Terrestrial Animal Health Code and the Aquatic Animal Health Code, aim to ensure there is transparency in the global animal disease situation to allow countries to take informed actions to prevent the spread of animal diseases. In fact, the rapid exchange of information about animal diseases is considered the key objective of establishing the OIE in 1924 (Vallat et al., 2013)

Member notification of animal disease occurrence to WOAH contributes to the World Animal Health Information System (WAHIS). WOAH collects, validates and curates disease information, disseminates it to Members and makes it available publicly. The system has evolved greatly in recent decades and has become entirely digital, increasing the speed of information submission and distribution, and improving user access. The evolution of WOAH's notification system since the formation of the OIE in 1924 is described by Ben Jebara et al. (2012), Vallat et al. (2013) and Cáceres et al. (2020).

WOAH programmes to support notification

Several WOAH programmes aim to support disease notification by WOAH Members (see Cáceres et al., 2020). These programmes include training for WOAH Focal Points for Animal Disease Notification, an active search system for unofficial disease information, modernisation of the WAHIS database and user interface, and capacity building through the WOAH Performance of Veterinary Services (PVS) Pathway.

Training of WOAH Focal Points for Animal Disease Notification had occurred annually from 2006 (Cáceres et al., 2020). Training on notification has also been provided to other focal points with responsibility for notification (e.g. WOAH Focal Points for Aquatic Animals and WOAH Focal Points for Wildlife). An e-learning platform was also launched in 2017.

The active search programme involves searches for non-official animal disease information. When there is inconsistency between non-official information and the information provided by a Member, the Delegate is contacted to clarify the situation and validate the correct information (Ben Jebara et al., 2012).

A redeveloped WAHIS was launched in March 2021 (WOAH, 2021). The new system was designed based on user feedback to increase functionality, incorporate new technologies and improve interconnectivity (Eloit, 2017).

The PVS Pathway is WOAH's principal capacity-building programme for the sustainable improvement of national veterinary services and their compliance with WOAH international standards. The PVS Tool defines 45 critical competencies for assessment and planning within the WOAH PVS Pathway (WOAH, 2019). Some of these competencies are directly relevant to notification.

Research on barriers to notification

Despite the importance of Members providing disease notifications to WOAH, it is generally accepted that better compliance with notification requirements is required to achieve the intended

outcome of preventing animal disease spread. Gaps are routinely evident for six-monthly report data, with some Members taking one or more years to submit their data for inclusion in WAHIS. In the period from 2006 to 2011, the median time for six-monthly report submission ranged from 138 to 260 days after the end of the reporting period (Ben Jebara et al., 2012). For immediate notifications of disease events, reports are sometimes provided much later than the required 24 hours. Twelve to 22% of immediate notifications were the result of active search and verification activities by WOAH over the period from 2005 to 2009 (Ben Jebara et al., 2012).

The factors that facilitate or inhibit WOAH Member compliance with notification requirements have been explored previously, but few studies have taken empirical or theory driven approaches. Thierman (2010) stated that "the OIE has determined that the majority of countries not rapidly reporting the occurrence of notifiable diseases in their territories is because of inability and not unwillingness", but no supporting analysis was cited.

Ben Jebara et al. (2012) provided data on the associations between Member notification performance and several factors (e.g. changes to notification requirements in 2005, release of a new WAHIS database and user interface, active verification of non-official animal disease information, and focal point training). Descriptive data indicated that Members with more experienced focal points (i.e. those who had attended one or more training events) may be more likely to submit six-monthly reports; however, no inferential analysis was presented (Ben Jebara et al., 2012).

Lin et al. (2023) analysed immediate notification data for terrestrial animal disease events spanning the period 2005 to 2021. The median notification time (from laboratory confirmation to notification to WOAH) across this period was four days. Notification time had a statistically significant correlation with country income groups (gross national income per capita). High-income group countries had a median notification time of 3 days while for low-income group countries it was 8 days (Lin et al., 2023).

Ben Jabara et al. (2012) stated that animal disease notification depends on a number of parameters including the commitment and technical proficiency of the focal point, the political will of the Member for transparency, and the financial and human resources assigned to the veterinary services. Lin et al. (2023) proposed factors that may influence disease detection capability and notification including: quality of surveillance systems, the size of the susceptible animal populations, the ratio between veterinarians and the livestock population, the types of production systems (e.g., intensive vs. extensive), the clinical expression of the disease, stakeholder awareness, trust in the authorities, whether compensation policies exist, laboratory capability and trade consequences.

Need for this project

Previous projects exploring disease notification to WOAH have tended to focus on resources and capabilities that may support notification (or aspects of those capabilities) but have not explored broader influences and constraints that may influence the notification process. In addition to resources and capabilities, other factors might influence a decision to notify including norms (expectations of others regarding notification), political influence, trust, attitudes, perceived risk and perceived benefit. This project aims to identify the key barriers to notification of terrestrial and aquatic animal disease events with a focus on Asia and the Pacific region. The identified barriers will inform the development of targeted strategies and recommendations to improve notification and inform capacity-building investments.

This project aligns with the objectives of the WOAH Seventh Strategic Plan 2021-2025 and the WOAH Aquatic Animal Health Strategy (Activity 2.4 Identify barriers to transparency in disease reporting).

The project objectives are to:

a) Identify and analyse key barriers to immediate notification of terrestrial and aquatic animal diseases (in accordance with the requirements of Chapter 1.1. of the Aquatic Animal Health Code and Terrestrial Animal Health Code), and
b) Develop strategies and recommendations to overcome the identified barriers.

Approach

Notification requires many steps involving different individuals from when a disease event occurs through to when a notification is sent to and published by WOAH. Table 1 shows the generalised steps of the notification process and indicates the complexity of the process.

As making a notification is a behaviour, or a series of behaviours (by those with a role to prepare, approve or otherwise support notification), it is possible to examine the complexity of notification through behavioural approaches, in addition to examining specific capabilities that may enable notification.

Two well studied psychological theories are considered relevant to notification and have been applied in this study. They include the Theory of Planned Behaviour (Ajzen, 1991) and the Integrative Model of Organisational Trust (Mayer et al., 1995). Each theory is described below, including their relevance to the notification process.

Theory of Planned Behaviour

The Theory of Planned Behaviour is a framework developed by Ajzen (1991) that is widely used in behavioural studies to understand human actions in many different contexts (e.g. education, health). The Theory of Planned Behaviour is one of the most applied theories in social and behavioural sciences, having been the subject of empirical scrutiny in more than 4,200 papers referenced in the Web of Science bibliographic database (Bosnjak et al., 2020).

The theory has also been applied to biosecurity contexts previously; for example, qualitative research on pig farmers' decision-making on disease control (Alarcon et al., 2014), cattle farmers' perceptions of biosecurity measures (Sayers et al., 2019), dairy farmers' biosecurity practices (Willis et al., 2018). However, the theory has not previously been applied to examine producer reporting of notifiable diseases or to WOAH Member notification.

Table 1. Generalised steps of the notification process from disease occurrence through to publication of an immediate notification by WOAH. This process includes passive surveillance steps which may not be relevant if a disease or disease agent is detected by active surveillance. Adapted from the general surveillance process described by Martin et al. (2015). VA = veterinary authority, CA= competent authority.

Step	Description	
Stage 1. Disease recognition and notification		
1	Clinical signs occur	
2	Clinical signs are observed	
3	Recognition of a problem	
4	Observer notifies animal health professional	
Stage 2. Clinical Investigation		
5	Disease investigated	
6	Notifiable disease suspected	
7	Samples sent to laboratory	
Stage 3. Laboratory Investigation		
8	Samples are tested	
9	Notifiable disease diagnosed	
10	Competent Authority notified	
Stage 4. Competent Authority decision making (if not the same as the VA)		
11	CA considers available information	
12	CA decides to notify VA	
13	VA notified	
Stage 5. Veterinary Authority decision making		
14	VA considers available information	
15	VA decides to notify WOAH	
16	Notification prepared and approved	
17	Notification submitted to WOAH	
Stage 6. WOAH publication of notification		
18	WOAH receives and reviews notification	
19	WOAH seeks further information (if required)	
20	WOAH publishes notification	

The theory aims to predict and explain how an individual's intention to perform a behaviour (the immediate determinant of actual behaviour) is influenced by:

1) their **attitudes** toward the behaviour (i.e. whether the person has a favourable or unfavourable evaluation of the behaviour)
2) **subjective norms** (i.e. perceived social pressure to perform or not perform the behaviour), and
3) **perceived behavioural control** (i.e. perceived ease or difficulty of performing the behaviour, reflecting past experience and anticipated impediments) (Ajzen, 1991).

The theory is well suited to the context of disease notification because its variables cover a range of factors that may influence notification, including across all stages of the notification process described in Table 1. The variables that have the greatest influence on intention to notify can be

determined, allowing further exploration of the specific issues that determine that variable's influence.

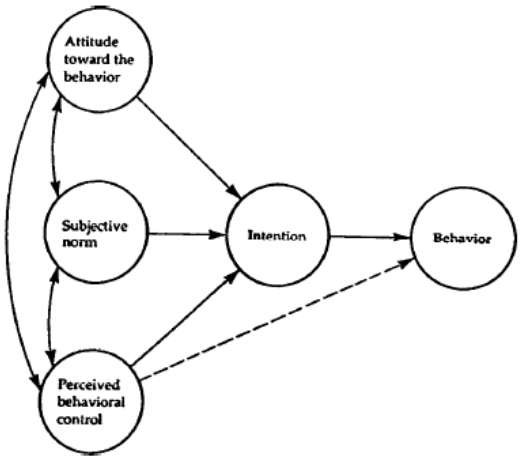


Figure 1. The Theory of Planned Behaviour (from Ajzen, 1991)

Integrative Model of Organisational Trust

The Integrative Model of Organisational Trust (IMOT) provides a theoretical framework for examining trust in organisations (Mayer et al., 1995). The IMOT has been applied across diverse disciplines (e.g., marketing, agribusiness, psychology, economics) and can examine trust at different levels of analysis including individual, group and organisational (Schoorman et al., 2007). It is well suited to the context of WOAH Member notification because it can be applied at an organisational level and incorporates measures of risk.

Trust has been identified as a psychological influence on disease reporting (e.g. Palmer et al., 2009; Wright et al., 2018); however, few studies have examined trust using theory-driven approaches. Scutt et al. (2023) applied the IMOT to examine the influence of trust on farmers' intentions to report suspected disease on their farm. Trust in government positively and significantly predicted farmer intentions to report suspected disease outbreaks, explaining 26% of the variance (Scutt et al., 2023).

The IMOT defines trust as the willingness of a party to be vulnerable to the actions of another party, irrespective of the ability to monitor or control that other party (Mayer et al., 1995). Core elements of this definition are that trust includes a willingness to be vulnerable to the actions of another party (the trustee) and that the trustor has positive expectations of how they will be treated, leading to trusting behaviours (Mayer et al., 1995).

Trust is context specific. In the context of a WOAH Member providing a notification, the notifying party (trustor) is making themselves vulnerable to the actions of their trading partners (trustee). A degree of risk and interdependence between the trustor and trustee are necessary conditions for a trust relationship. In the context of notification, the risk/interdependence between parties is the possible application of trade measures by the trustee in response to a notification by the trustor.

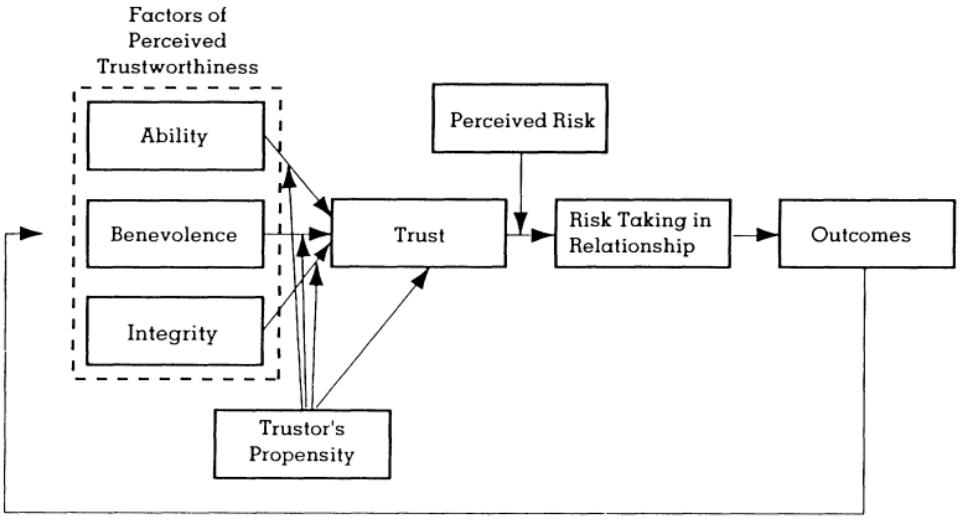


Figure 2. The Integrative Model of Organisational Trust (from Mayer et al., 1995)

The core elements of the IMOT include characteristics of the trustee (trustworthiness), and characteristics of the trustor (propensity to trust, perceived risk, and trust) which influence the trustors behaviour (risk-taking in the relationship) (Figure 2). Risk taking behaviour leads to outcomes which then influence the future trust relationship (e.g. trustworthiness, trust, perceived risk) and therefore future behaviour of the trustor.

The trustor has perceptions of the trustworthiness of the trustee (trading partner) which are comprised of their evaluation of the trustee's:

1) **ability** (skills, competencies, and characteristics that enable the trustee to have influence within the relevant context of the trust relationship),
2) **benevolence** (the extent to which a trustee is believed to want to do good to the trustor)
3) **integrity** (the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable).

Within the IMOT, perceived trustworthiness predicts trust, moderated by characteristics of the trustor—their propensity to trust. Trust predicts risk taking in the relationship (i.e. notification in the context of this study), which is the behavioural manifestation of the willingness to be vulnerable (i.e., trust). While trust positively predicts risk taking in the relationship, this relationship is mediated by the trustor's perceptions of risk in performing the behaviour.

Within the IMOT, perceived risk is intended to capture both potential gains and losses of the behaviour, outside of the relationship with the trustee (Mayer et al., 1995). However, perceived risk and perceived benefit are distinct concepts (Slovic, 1993). In this study, the approach of Scutt et al. (2023) has been followed and perceived benefit has been included within the IMOT framework, in addition to perceived benefit.

Negative trade impacts are often raised as a possible consequence of notification. This indicates that the key assumptions of the IMOT (interdependence between the trustor and the trustee, perception of risk by the trustor) appear to be met within this context and that the IMOT would be suitable for exploring the influence of trust and perceived risk on notification. Propensity to trust was not examined in this study as it is variable among individuals and not modifiable. Additionally, a meta-

analysis has shown that propensity to trust generally explains only small amounts of variance in trust (Colquitt et al., 2007).

Factors examined in this study

This project aims to identify the principal factors that influence a WOAH Member's decision to make an immediate notification for a terrestrial or aquatic animal disease event. Factors chosen for evaluation are based on previous research and their relevance across the steps of the notification process (see Table 1). Additionally, established psychological theory has been used as a framework for behavioural factors that may influence a WOAH Member's intention to notify. The chosen factors include:

1. importance of animal production and animal health
2. organisational knowledge
3. organisational capability

[Theory of Planned Behaviour]

4. attitudes on notifying animal disease events
5. subjective norms on notifying animal disease events
6. perceived behavioural control on notifying animal disease events

[Integrated Model of Organisational Trust]

7. perceived risk or benefit of notifying WOAH
8. trustworthiness of trading partners
9. trust in trading partners.

Methods

Data collection methods

The project included two approaches to data collection: 1) an online survey to explore the key steps of the notification process (see Table 1) including behavioural factors that may influence reporting outcomes, 2) online focus group meetings at the conclusion of the survey to share preliminary results of the survey, validate findings, explore root causes and test possible strategies for improving notification outcomes.

Study population

WOAH Member countries and territories

WOAH Member countries and territories from the Asia-Pacific region were considered for inclusion in the study population. Criteria for deciding on the WOAH Member countries and territories to be included in the study population included:

a) Primary membership of the Asia-Pacific region (where a Member may belong to more than one region). The rationale for this criterion is that WOAH Members with a primary interest in a different region may be influenced by different factors and issues that could bias results for the Asia-Pacific region.
b) The WOAH Member had complied at least partially with notification requirements over the past 3 years based on their record of submission of semestral reports (as of November 2024). The rationale for this criterion is that Members who have made no routine notifications over an extended period likely face different barriers and constraints to those complying mostly or partially and their inclusion may bias results.

Following consideration of points a and b above, 29 WOAH Member countries and territories from the Asia-Pacific region were identified for inclusion in the study. The Delegates of these 29 WOAH Members were invited to participate in the study (refer to Annex 1 for the invitation letter to Delegates). One Member declined participation, leaving a study population of 28 WOAH Member countries and territories.

Participants

Participation in the survey was role based with responses sought from multiple personnel within each participating WOAH Member country or territory. Multiple responses could be provided for a particular role where that role was shared among personnel.

Substantive roles in notification (i.e. either to prepare, approve, submit or otherwise support notification) were identified and targeted for data collection. Table 2 includes the notification roles that were included in the study population and the rationale for their inclusion.

Table 2. Roles within WOAH Member countries and territories included within the study population and the rationale for their inclusion.

Role	Rationale for inclusion
• WOAH Delegate	Overall authority for providing a notification to WOAH
• Chief Veterinary Officer (if not also the WOAH Delegate)	Responsibility for disease investigation and response
• WOAH National Focal Point for Animal Disease Notification	Responsibility for animal disease notification to WOAH (included in relevant focal point terms of reference)
• WOAH National Focal Point for Aquatic Animals	Responsibility for aquatic animal disease notification to WOAH (included in relevant focal point terms of reference) and/or support focal point for animal disease notification.
• WOAH National Focal Point for Wildlife	Responsibility for wildlife disease notification to WOAH (included in relevant focal point terms of reference) and/or support focal point for animal disease notification.
• WOAH National Focal Point for Veterinary Laboratories	Responsibility for facilitating cooperation and communication among national laboratory networks. Fundamental capability to support notification.
• Other personnel with a significant role in notification (as nominated by the WOAH Delegate)	Responsibility for some roles may be shared (e.g. deputies, or alternates).

To determine the number of unique individuals within the study population, publicly available lists of Delegates and focal points from the website of the WOAH Regional Representation for Asia and the Pacific were reviewed. The study population was determined to comprise N=136 unique individuals once vacant roles, individuals filling multiple roles, and additional nominees were accounted for.

Survey

A survey questionnaire was developed to explore the key elements of the notification process consistent with the model of notification (see Table 1) and in accordance with the project objectives and scope (see introduction section above). The survey was developed with consideration of the following issues:

- The survey should build on previous studies on notification conducted by WOAH.
- For behavioural aspects of disease notification, the survey should incorporate relevant psychological theory (e.g. integrative model of organisational trust; theory of planned behaviour) to evaluate the key constructs that influence notification.
- Validated measures (i.e. those that have been shown through research to accurately and reliably measure the construct they are designed to assess) should be utilised where available and appropriate.

- Best practice survey design should be followed to reduce bias and provide for a quality data set (e.g. clear, concise, single concept questions, screens for conscientious responding).
- The survey should be designed to maximise suitability for participants for which English is not their first language.

The draft survey was piloted on 10 people including experts (e.g. WOAH staff) and on people representative of the study population but external to it (e.g. focal points from other regions). All comments on the pilot survey were reviewed and amendments were made to the survey questions in line with the study objectives and principles of survey design provided in the paragraph above.

Recruitment

Participants were recruited by seeking nominations of individuals fitting the described roles (Table 2) from the WOAH Delegate of the targeted WOAH Member countries and territories. The call for nominations included an information sheet on the project and an explanation of the nominations required. An invitation to participate in the project was sent by the WOAH Regional Representation for Asia Pacific to the WOAH Delegates of the 29 WOAH Member countries and territories within the scope of the project (see Annex 1).

The following methods aimed to encourage participation in the survey:

a) An introductory webinar provided an overview of information on the project and guidance on completion of the survey (see Annex 4).
b) The survey was anonymous with no information collected that could identify the participants, or their country or territory. This was emphasised in all communications.
c) An online survey platform was chosen which could deliver automated reminders to participants who had not responded to the survey, while also maintaining anonymity.
d) Participants were invited to take part in online focus group workshops where they received early feedback on preliminary survey results and had an opportunity to shaping project recommendations.

Survey delivery

The survey was delivered through Survey Monkey. Responses were anonymous and no participant information was collected that could identify them or their country/territory. Anonymity was necessary due to the potentially sensitive nature of some questions, to encourage participation and to avoid any possible risk for participants associated with participation.

Survey items and measures

For all items (questions) requiring a score, a five-point Likert scale was used. A five-point response scale was chosen (in preference to a seven-point scale) for ease of completion by participants and because it has been demonstrated to be appropriate for the psychological theories utilised in this study. The mean score of all items within a measure was used as the total score.

To ensure reliability, at least three items were included for each measure. This approach aligns with published scales for the Theory of Planned Behaviour and Integrative Model of Organisation Trust and provides a balance between reliability and simplicity (Stanton et al., 2002).

The final survey questions and participant instructions are provided at Annex 5. The sections below provide a description of the items included in the survey and the measures that they contributed to.

Conscientious responder scale

A conscientious responder scale (CRS) was embedded randomly throughout the questionnaire in accordance with Marjanovic et al. (2014). The purpose of the CRS was to provide a way of screening out inattentive responses and ensure data quality. At least three correct answers of the five CRS questions were required for a response to be considered valid. To prevent responders from being surprised by the nature of the CRS questions, advice was embedded in the survey instructions; for example, "Note that some questions in the survey may ask you to respond in a certain way—these are for quality control".

Demographic questions

As the survey was anonymous, no identifying questions were asked of respondents. However three demographic questions were asked, including respondent roles associated with notification (question 1), types of notifications that the respondent is responsible for (question 2), and the type of organisation in which they perform that role (question 3) (refer to Annex 5).

Importance

Seven items contributed to a measure of the importance of a country or territory's animal industries and animal health management (Table 3). Importance (aquatic) and importance (terrestrial) are each subsets of the overall importance measure, each comprising three different items of the total seven importance items.

Table 3. Measures for importance of a country or territory's animal industries and animal health management. Complete survey questions are available at Annex 5.

Measure	Items	Relevant stage of notification process*
Importance	Question 4, including four items: 1) terrestrial animal production, 2) aquatic animal production, 3) terrestrial animal exports, 4) aquatic animal exports	1, 2, 3, 4, 5
	Question 5, including three items: 5) terrestrial animal health, 6) aquatic animal health, 7) wildlife health	1, 2, 3, 4, 5
Importance (Terrestrial)	Items 1, 3 and 5 above	1, 2, 3, 4, 5
Importance (Aquatic)	Items 2, 4 and 6 above	1, 2, 3, 4, 5

* see Table 1 for stages of the notification process

Organisational knowledge and capability

Three items contributed to a measure of organisational knowledge relevant to notification and five items contributed to a measure of organisational capability relevant to notification (Table 4)

Table 4. Measures for organisational knowledge and organisational capability. Complete survey questions are available at Annex 5.

Measure	Items	Relevant stage of notification process*
Organisational knowledge	Questions 7, 8 and 9.	4, 5
Organisational capability	Questions 10, 11, 12, 13, and 14.	1, 2, 3, 4, 5

* see Table 1 for stages of the notification process

Theory of planned behaviour

Items were included for four measures within the theory of planned behaviour (attitudes, subjective norms, perceived behavioural control and intentions—see introduction for definitions). In addition, items were included for a measure of past notification behaviour as this is known to be a good predictor of future behaviour (e.g. Albarracin & Wyer, 2000).

Six items contributed to a measure for attitude toward notification (Table 5Table 3). Attitude (listed diseases) and attitude (emerging diseases) are each subsets of the overall attitude measure, each comprising three different items of the total six attitude items.

Three items contributed to a measure for subjective norms relevant to notification (Table 5). This measure aimed to understand the respondent's perceived expectations of others relevant to notification, and how much the individual values those expectations.

Three items contributed to a measure for perceived behavioural control relevant to notification (Table 5). This measure aimed to understand perceptions regarding the degree to which notification may be facilitated or impeded. Free text questions (questions 29 to 31) were associated with the items for perceived behavioural control to identify the most important factors that may prevent or delay notification.

Six items contributed to a measure for the dependent variable, intention to notify (Table 5). This measure aimed to understand role-based intentions to support a notification in circumstances of a disease event meeting notification requirements.

Three items contributed to a measure for past notification behaviour (Table 5). This measure was included to evaluate whether past behaviour and intention are distinct variables, and to examine their relationship.

Integrative Model of Organisational Trust

Items were included for six measures within the Integrative Model of Organisational Trust (perceived risk, perceived benefit, three dimensions of trustworthiness [ability, benevolence, and integrity], and trust —see introduction for definitions). The contextual application of the Integrative Model of Organisational Trust in this study was to examine the trust relationship between a country or territory making a disease notification (the trustor) and its trading partners (the trustee).

Table 5. Measures of the Theory of Planned Behaviour. Complete survey questions are available at Annex 5.

Measure	Items	Relevant stage of notification process*
Attitudes	Question 17, for listed diseases, including three items. Question 18, for emerging diseases, including three items.	2, 3, 4, 5
Attitude (listed diseases)	Question 17, including three items	2, 3, 4, 5
Attitude (emerging diseases)	Question 18, including three items	2, 3, 4, 5
Subjective norms	Questions 20, 21 and 23	2, 3, 4, 5
Perceived behavioural control	Questions 25, 26, 27, 28(RC)	1, 2, 3, 4, 5
Intentions	Question 32, including three items. Question 34, including three items.	1, 2, 3, 4, 5
Past behaviour	Question 33, including three items.	1, 2, 3, 4, 5

* see Table 1 for stages of the notification process; RC = reverse coded question

Three items contributed to a measure for perceived risk of making a notification (Table 6Table 3). To identify the most important perceived risks, respondents were asked to identify the single greatest risk that may arise from making an immediate notification to WOAH. The response choices were developed by examining the results of WOAH's global survey of National Focal Points for Animal Disease Notification. The results of this global survey are not yet publicly available.

Three items contributed to a measure for perceived benefit of making a notification (Table 6Table 3). To identify the most important perceived benefits, respondents were asked to identify the single greatest benefit that may arise from making an immediate notification to WOAH.

Three items contributed to each of the three measures that comprise trustworthiness (i.e. ability, integrity and benevolence). Items for ability, integrity and benevolence were in the context of a disease notification made by the respondent's country or territory being considered by trading partners (Table 6Table 3).

Three items contributed to a measure of trust to understand if participants trust trading partners to respond to a disease notification in compliance with WOAH standards (Table 6).

Statistical analysis

All statistical analyses were conducted using JASPv0.19.2.0. All reverse-coded items were recoded prior to analysis. Descriptive statistics were examined to summarize the data, and a correlation matrix was generated to assess associations among variables. The internal consistency of multi-item scales was evaluated using Cronbach's alpha. For selected scales, exploratory factor analysis was performed to identify their underlying factor structure. Linear regression analysis was conducted to explore relationships between predictor and outcome variables. Logistic regression was performed to examine whether predictor variables could predict the dichotomous variable intention to notify (high / low intention).

Table 6. Measures of the Integrative Model of Organisational Trust. Complete survey questions are available at Annex 5.

Measure	Items	Relevant stage of notification process*
Perceived risk	Question 36, including three items.	1, 2, 3, 4, 5
Perceived benefit	Question 39, including three items.	1, 2, 3, 4, 5
Ability	Question 41, including three items.	4, 5
Integrity	Question 42, including three items.	4, 5
Benevolence	Question 43, including three items.	4, 5
Trust	Questions 44, 46, 47(RC)	4, 5

* see Table 1 for stages of the notification process; RC = reverse coded question

Focus group workshops

Following the completion of the survey, participants were invited to take part in short online workshops where they were provided with preliminary survey results and invited to discuss the findings. The aims of the workshops were to 1) validate the barriers identified in the survey, 2) undertake a root cause analysis exercise for key barriers, 3) identify feasible and meaningful activities to address the barriers / root causes.

All nominated project participants were invited to attend any one of three meetings held virtually on 5 December 2024. Registrations were limited to 20 people for each focus group. Mentimeter was used as an online collaboration tool to facilitate and capture participant comments and allow anonymity.

Ethical considerations and data security

The research project was designed in consideration of the following issues.

Risks of participation. The survey included topics that may be of a sensitive nature. To mitigate participant risk, all responses were anonymous with no identifying information collected of participants or their country or territory.

Benefits. There were no direct benefits for individuals from participating in the survey. However, the survey aimed to identify barriers to notification of animal disease events and identify strategies to address them. These issues are likely of interest to participants and their organisations.

Incentives for participation. No direct incentives were provided. However, participants were provided with an opportunity to contribute directly to the project. Participants were also provided with early access to project outcomes through focus group meetings.

Informed consent. Participation in the survey was entirely voluntary. A detailed participant information sheet was provided, explaining the survey's purpose, procedures, and potential risks and benefits. This information was accessible within the survey questionnaire. Agreement to participate was required before proceeding with the survey, and participants were able to withdraw at any time before submission.

Confidentiality. To protect participants' privacy, no identifying information was collected, and participants were advised not to include any identifying details in their responses. This approach ensured all responses remained confidential and anonymized.

Data management and security. All data collected is stored securely on a password-protected computer on an encrypted server. Ownership of the data and project outputs rests with WOAH, which will also assume responsibility for long-term data storage.

Results

Ninety-one responses were downloaded from Survey Monkey, indicating a response rate of 67% (N=136). Eighty-two valid responses remained following exclusion of incomplete (n=6) and non-conscientious responses (n=3). Non-conscientious responses were defined as those with less than three correct answers on the conscientious responder scale (Marjanovic et al., 2014).

Table 7 provides a summary of the notification roles and type of organisation reported among the 82 valid responses. Six individuals reported multiple roles. Of the 82 valid responses, 67 of these individuals reported they were from their country or territory's veterinary authority, 13 reported to be from a different competent authority and two reported to be from a non-government organisation.

Table 7. Notification roles and type of organisation among the 82 valid responses to the online survey.

Role	Veterinary Authority	Other Competent Authority	Non-Government Organisation	**Total**
Delegates	11	0	0	**11**
Notification Focal Point	24	1	1	**26**
Aquatic Animals Focal Point	8	8	0	**16**
Wildlife Focal Point	10	4	1	**15**
Laboratories Focal Point	13	1	0	**14**
Other[1]	8	0	0	**8**
Total[2]	**74**	**14**	**2**	**90**

[1] For roles reported as "other", six were described as alternate or pending appointments as notification focal point and two were alternate aquatic animals focal points. [2] The total is greater than 82 as 6 individuals reported multiple roles.

The final survey questions are provided at Annex 5. Internal consistency of items (questions) contributing to each measure was investigated by calculating Cronbach's alpha (see Table 8). For perceived behavioural control, alpha was improved from 0.53 (95% CI, 0.34-0.73) to 0.60 (95% CI, 0.35-0.85) by removal of question 28 (refer to Table 5 and Annex 5). For intention, alpha was improved from 0.82 (95% CI, 0.75 to 0.89) to 0.90 (95% CI, 0.85-0.96) by removal of items two and three of question 34 (refer to Table 5 and Annex 5). For trust, alpha was improved from 0.27 (95% CI, -0.05-0.59) to 0.81 (95% CI, 0.71-0.91) by removal of question 47 (refer to Table 6 and Annex 5). Internal consistency of final measures was acceptable ($\alpha>0.7$) for 16 of the 19 measures and moderate ($0.6<\alpha<0.7$) for three measures.

Composite scores for each measure were created by averaging final item scores for each measure. Non-normality of measures was indicated by skewness, kurtosis, the Shapiro-Wilk test and visual assessment of histograms for each measure. Internal consistency and descriptive statistics for each measure are included in Table 8. Directional consistency was ensured across all measures, with higher scores indicating stronger outcomes for each construct.

Table 8. Internal consistency (measured by Cronbach's alpha) and descriptive statistics for 19 measures.

Measures	Number of items [Final (initial)]	Final Cronbach's α	Mean	Std. Deviation	Minimum	Maximum
Importance	7 (7)	0.79 (0.72-0.86)	4.077	0.612	2.714	5
Importance–aquatic[1]	3 (3)	0.83 (0.74-0.91)	3.967	0.849	1.000	5
Importance–terrestrial[1]	3 (3)	0.67 (0.50-0.83)	4.248	0.645	2.667	5
Organisational knowledge	3 (3)	0.81 (0.72-0.89)	4.317	0.611	2.330	5
Organisational capability	5 (5)	0.91 (0.87-0.95)	4.182	0.654	1.800	5
Attitude overall[2]	6 (6)	0.91 (0.88-0.95)	4.486	0.520	3.330	5
Attitude–listed diseases[3]	3 (3)	0.88 (0.83-0.94)	4.508	0.550	3.330	5
Attitude–emerging diseases[3]	3 (3)	0.90 (0.85-0.96)	4.463	0.581	3.000	5
Subjective norms[2]	3 (3)	0.66 (0.51-0.82)	4.203	0.576	2.667	5
Perceived behavioural control[2]	3 (4)	0.60 (0.35-0.85)	4.061	0.659	2.333	5
Past behaviour	3 (3)	0.88 (0.77-0.99)	3.801	0.785	1.670	5
Intentions	5 (7)	0.90 (0.85-0.96)	3.983	0.763	1.400	5
Perceived risk[4]	3 (3)	0.92 (0.89-0.96)	2.866	1.067	1.000	5
Perceived benefit[4]	3 (3)	0.91 (0.85-0.96)	4.090	0.609	1.330	5
Ability (of trustee)[4]	3 (3)	0.95 (0.86-1.04)	3.601	0.817	1.670	5
Integrity (of trustee)[4]	3 (3)	0.86 (0.78-0.93)	3.655	0.682	2.000	5
Benevolence (of trustee)[4]	3 (3)	0.90 (0.79-1.02)	3.646	0.700	1.670	5
Trustworthiness (of trustee)[4,5]	3 (3)	0.82 (0.72-0.92)	3.634	0.631	2.220	5
Trust[4]	2 (3)	0.81 (0.72-0.91)	3.640	0.726	2.000	5

[1] subset measure of importance; [2] measure of the theory of planned behaviour; [3] subset measure of attitude; [4] measure of the theory of planned behaviour; [5] composite measure of ability, integrity and benevolence

Data was initially examined for correlations among the 19 measures. Table 9 presents Pearson's r value among the 19 measures. Correlations between the dependent variable "intention" and other variables were examined to provide an overview of the relationships among variables and to inform further analysis.

Table 9. Correlation matrix for the 19 continuous variables. Pearson's r value shown with level of significance. * p<0.05 (light grey shading); ** p<0.01 (medium grey shading); *** p<0.001 (dark grey shading)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
1. Organisational knowledge	—																		
2. Organisational Capability	0.636***	—																	
3. Importance	0.096	0.258*	—																
4. Importance Aquatic[1]	0.054	0.135	0.884***	—															
5. Importance Terrestrial[1]	0.111	0.219*	0.761***	0.428***	—														
6. Attitude Listed Diseases[3]	0.311**	0.365***	0.438***	0.403***	0.263*	—													
7. Attitude Emerging Diseases[3]	0.203	0.226*	0.407***	0.413***	0.221*	0.693***	—												
8. Attitude[2]	0.278*	0.319**	0.458***	0.443***	0.262*	0.915***	0.925***	—											
9. Subjective Norms[2]	0.556***	0.411***	0.356**	0.283**	0.284**	0.546***	0.47***	0.551***	—										
10. Perceived Behavioural Control[2]	0.538***	0.603***	0.408***	0.283**	0.338**	0.455***	0.306**	0.411***	0.499***	—									
11. Intention[2]	0.522***	0.576***	0.243*	0.206	0.161	0.276*	0.321**	0.325**	0.437***	0.501***	—								
12. Past Behaviour	0.416***	0.538***	0.341**	0.284**	0.269*	0.368***	0.323**	0.375***	0.479***	0.416***	0.692***	—							
13. Ability (trustee)[4]	0.278*	0.327**	0.351**	0.333**	0.234*	0.179	0.189	0.2	0.265*	0.303**	0.323**	0.22*	—						
14. Integrity (of trustee)[4]	0.082	0.229*	0.342**	0.213	0.344**	0.172	0.247*	0.229*	0.241*	0.219*	0.182	0.088	0.698***	—					
15. Benevolence (of trustee)[4]	-0.036	0.018	0.276*	0.158	0.349**	0.22*	0.236*	0.248*	0.307**	0.107	0.052	-0.055	0.478***	0.667***	—				
16. Trustworthiness (of trustee)[4, 5]	0.136	0.229*	0.377***	0.28*	0.354**	0.22*	0.258*	0.26*	0.314**	0.249*	0.224*	0.105	0.86***	0.908***	0.816***	—			
17. Trust (in trustee)[4]	-0.051	-0.071	0.17	0.058	0.259*	0.036	0.259*	0.164	0.143	0.072	0.06	-0.033	0.411***	0.673***	0.654***	0.662***	—		
18. Perceived Risk[4]	0.037	-0.016	0.002	-0.032	0.029	-0.086	-0.158	-0.134	-0.018	0.001	-0.11	-0.109	0.17	0.039	0.025	0.097	-0.09	—	
19. Perceived Benefit	0.067	-0.064	0.118	0.051	0.093	0.199	0.309**	0.277*	0.206	0.229*	0.147	0.041	0.199	0.211	0.361***	0.296**	0.357***	-0.053	—

[1] subset measure of importance; [2] measure of the Theory of Planned Behaviour; [3] subset measure of attitude; [4] measure of the Integrative Model of Organisational Trust; [5] composite measure of ability, integrity and benevolence

Intention to notify and past notification behaviour are correlated but distinct variables

This study included two measures of notification behaviour—self-reported intention to notify and self-reported past behaviour. Within the theory of planned behaviour, behavioural intention is considered the immediate antecedent and predictor of actual behaviour (Ajzen, 1991). However, past behaviour is also known to be a good predictor of future behaviour, considering contextual factors and the consequences of previous behaviour (e.g. Albarracin & Wyer, 2000).

Intention to notify was significantly and strongly correlated with past notification behaviour ($r=0.692$, $p<0.001$) (Table 9). Due to the large correlation between these two variables, exploratory factor analysis (EFA) was undertaken to determine whether intention and past behaviour represented a single construct. A one-factor solution was initially considered, and according to Kaiser's criterion (eigenvalue >1) the analysis suggested a one-factor solution ($\chi 2$ (28) = 587.89, $p < 0.001$), which explained 61.3% of the variance in responses.

To explore whether intention and past behaviour could be separated into distinct factors, a two-factor solution was manually specified. This model was supported ($\chi 2$ (13) = 43.044, $p < 0.001$). In the unrotated solution (i.e., before adjusting the factors for interpretability), eigenvalues were 5.260 for factor 1 and 0.968 for factor 2. After applying Promax rotation (a method that makes it easier to interpret factor groupings when factors may be correlated), the eigenvalues were 3.107 for factor 1 and 2.661 for factor 2. This rotation increased the overall variance explained to 72.1% with factor 1 accounting for 38.8%; and factor 2 accounting for 33.3%.

The factor loadings (i.e. the degree to which each item correlates with a given factor) showed that except for one item (intention item 10 (Q35_I10), all intention items loaded strongly on factor 1 while all past behaviour items loaded on factor 2 (Table 10).

This analysis confirmed that intention and past behaviour represent two distinct constructs and supported using intention as the dependent variable in the models of behaviour (Theory of Planned Behaviour) and trust (Integrative Model of Organisational Trust) utilised in this study.

Table 10. Factor loadings for the two-factor solution for intention and past behaviour. Items I1, I2, I3, I7 and I10 measure intention; items PB1-3 measure past behaviour.

	Factor 1	Factor 2	Uniqueness
Q32_I1	1.018		0.048
Q32_I3	0.997		0.133
Q32_I2	0.822		0.153
Q34_I7	0.499		0.597
Q33_PB1		0.971	0.096
Q33_PB2		0.879	0.253
Q33_PB3		0.716	0.494
Q35_I10		0.534	0.459

Organisational capability and organisational knowledge predict intention to notify

This study included measures for organisational knowledge (3 items) and organisational capability (5 items) relevant to making an immediate notification to WOAH. Items included in each measure were chosen to be relevant to the generalised steps of the notification process shown in Table 1.

Intention to notify had a statistically significant and strong correlation with organisational knowledge ($r = 0.522$, $p < 0.001$) and organisational capability ($r = 0.576$, $p < 0.001$) (Table 9).

A linear regression analysis was conducted to evaluate the combined and individual contributions of organisational knowledge and organisational capability with the dependent variable, intention to notify. The overall model was significant ($R^2 = 0.373$, $F(2, 79) = 23.476$, $p < 0.001$) explaining 37.3% of the variance in intention to notify.

Both predictors significantly contributed to the model. Organizational capability (β = 0.410, p=0.001) had a stronger influence than organizational knowledge (β = 0.261, p <0.027). For each one-unit increase in organizational capability, intention to notify increased by 0.479 units (holding organizational knowledge constant). For each one-unit increase in organizational knowledge, intention to notify increased by 0.326 units (holding organizational capability constant).

The importance of animal production and animal health on intention to notify

Importance is a composite measure derived from seven individual items (Annex 5). These items collectively measure the perceived importance of animal production, animal commodity exports, and animal health. Importance (aquatic) and importance (terrestrial) are each subsets of the overall importance measure, each comprising three different items of the total seven importance items.

Descriptive statistics indicated high overall importance (of animal production, animal commodity exports and animal health) (mean = 4.077, SD = 0.612) (Table 4). The mean score for the subset measure, importance-terrestrial, was the highest of the importance measures (mean = 4.248, SD = 0.645). The mean score of importance-aquatic was also high (mean = 3.967, SD = 0.849) but a higher standard deviation indicated a broader distribution of responses, which was also indicated by kurtosis statistics (importance-aquatic, 0.459; importance terrestrial, -0.577).

Intention to notify had a statistically significantly but weak correlation with importance ($r = 0.243$, $p < 0.05$) but not with the subset measures importance-aquatic and importance-terrestrial (Table 5). A logistic regression was performed to examine whether importance could predict the dichotomous variable intention to notify (high versus low intention). High intention was set at ≥ 4 (on the 5-point scale). The model approached significance ($\Delta X^2 = 3.819$, $p = 0.051$) and explained 6.1% of the variance in intention (Nagelkerke $R^2 = 0.061$). Importance had an odds ratio of 2.10 (β = 0.740, SE = 0.388), though this effect was not statistically significant (p = 0.057). The model showed limited predictive accuracy, with an overall classification rate of 59.76% indicating that importance did not have a meaningful influence on intention to notify.

Theory of planned behaviour

Within the theory of planned behaviour, three core factors (attitudes, subjective norms and perceived behavioural control) together shape behavioural intentions, which are considered the strongest predictor of future behaviour (Ajzen, 1991). The mean score for attitudes indicated a strong positive attitude to notification (mean = 4.486, SD = 0.520) (Table 4). The mean score for subjective norms (mean = 4.203, SD = 0.576) was high, indicating generally positive expectations of others (within and outside the respondents' organisations) toward notification. The mean score for perceived behavioural control (mean = 4.061, SD = 0.659) was also high, indicating generally positive perceptions of the ability to notify.

Intention to notify was significantly correlated with the three factors of the theory of planned behaviour, attitudes ($r = 0.325$, $p < 0.01$), subjective norms ($r = 0.437$, $p < 0.001$), and perceived behavioural control ($r = 0.501$, $p < 0.001$) (Table 9).

A linear regression analysis was conducted to evaluate the combined and individual contributions of attitudes, subjective norms and perceived behavioural control with the dependent variable, intention to notify. The overall model was significant ($R^2 = 0.547$, $F(3, 78) = 11.11$, $p < 0.001$) explaining 29.9% of the variance in intention to notify.

Perceived behavioural control significantly contributed to the model ($\beta = 0.368$, $p = 0.001$). For each one-unit increase in perceived behavioural control, intention to notify increased by 0.427 units (holding other factors constant). The coefficient for subjective norms was positive but marginally non-significant ($\beta = 0.226$, $p = 0.067$), indicating a possible role in influencing intentions. Attitudes ($\beta = 0.049$, $p=0.672$) did not contribute uniquely to predicting intentions in the model.

Integrative model of organisational trust

The integrative model of organisational trust (IMOT) measures characteristics of a trust relationship to understand the role of trust in a behavioural outcome. The contextual application of the IMOT in this study was to examine the trust relationship between a country or territory making a disease notification (the trustor) and its trading partners (the trustee). The behavioural outcome in this context was measured by the trustor's intention to notify, consistent with intention being the strongest predictor of a behaviour (Ajzen, 1991).

Four factors of the IMOT were investigated in this study, trustworthiness of the trustee (comprised of the trustors perceptions of the trustee's ability, benevolence, and integrity for responding to a disease notification by the trustor in compliance with WOAH standards), trust (of the trustor in the trustee) and perceived risk (of the trustor making a disease notification). Additionally, perceived benefit (of the trustor making a disease notification) was examined in accordance with the conceptual model of Scutt *et al.* (2023).

Mean scores were similar for the component factors of trustworthiness, including perceptions of trading partners' ability (mean = 3.601, SD = 0.817), integrity (mean = 3.655, SD = 0.682) and benevolence (mean = 3.646, SD = 0.700) in the context of them responding to a notification. There was a broad distribution for these three measures with peaks around the mean, indicating perceptions varied somewhat among respondents (Figure 3). The composite measure, trustworthiness, was created by averaging the scores for ability, integrity and benevolence (mean = 3.634, SD = 0.631).

The mean score for perceived benefit was high (mean = 4.090, SD = 0.520) indicating a positive perception of the benefits of making notifications (Table 4). The mean score for perceived risk (mean = 2.866, SD = 1.067) was lower than for perceived benefit (Table 4). There was a broader distribution of responses for perceived risk indicating that perceptions of risk vary widely among respondents, but perceptions of benefit are more uniformly high (Figure 4).

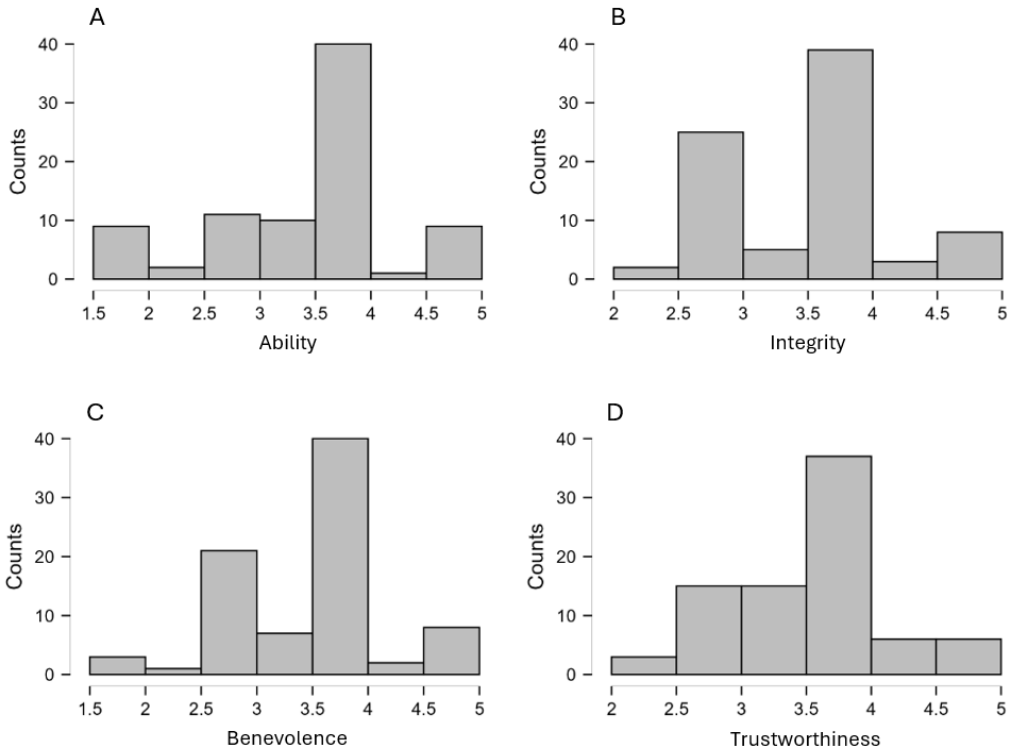


Figure 3. Distributions of respondents' perceptions of trading partner ability (A) integrity (B) and (C) benevolence in responding to their country or territory's disease notification. Trustworthiness (D), a composite measure of ability, integrity and benevolence. n=82.

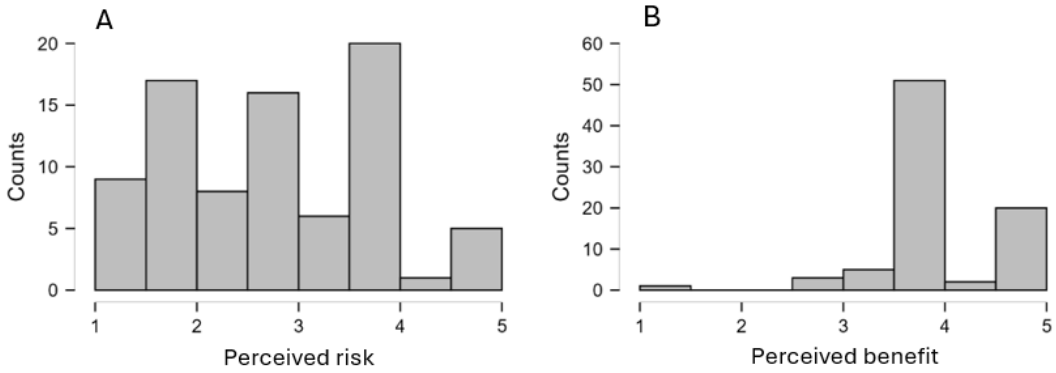


Figure 4. Distributions of perceived risk (A) and perceived benefit (B), n=82. Note that the y axis scale differs.

Intention to notify was significantly correlated with ability (of the trustee) ($r = 0.323$, $p < 0.01$) but not integrity or benevolence (Table 9). Intention to notify was also correlated with the composite measure trustworthiness ($r = 0.244$, $p < 0.05$) (Table 9). Trust, perceived benefit and perceived risk were not significantly correlated with intention to notify.

A linear regression analysis was conducted to evaluate the combined and individual contributions of the components of trustworthiness (ability, integrity and benevolence) on trust. The overall model was significant ($R^2 = 0.537$, $F(3, 78) = 30.108$, $p < 0.001$) explaining 53.7% of the variance in trust. Integrity ($\beta = 0.544$, $p < 0.001$) and benevolence ($\beta = 0.386$, $p < 0.001$) significantly contributed to the model. For each one-unit increase in integrity, trust increased by 0.544 units (holding other factors constant). For each one-unit increase in benevolence, trust increased by 0.386 units (holding other factors constant). Ability did not contribute to predicting trust in the model ($\beta = -0.109$, $p=0.257$).

A linear regression analysis was conducted to evaluate the combined and individual contributions of trust, perceived benefit and perceived risk on the intention to notify. The overall model was not significant ($F(3, 78) = 0.861$, $p = 0.465$).

Perceived risks and perceived benefits

The measure for perceived benefit indicated a generally high perception of the benefits of notification. The measures for perceived risk indicated lower overall perceived risk but a broader range of the perceived level of risk among respondents (see IMOT section above).

In addition to these measures, respondents were asked to provide their opinion on the single greatest risk and single greatest benefit from making a notification to WOAH. The highest ranked perceived risk was “reduced access to international markets” (50%) with the next highest response “no risk” (15.9%) (Table 11Table 12). The highest ranked perceived benefit from making an immediate notification was “maintaining our international reputation for transparency and compliance with WOAH standards” (46.3%) and the next highest response was “limiting the international spread of animal diseases” (32.9%) (Table 12).

Table 11. The single greatest risks from making an immediate notification to WOAH.

Risk	Frequency	Percent	Rank
Reduced access to international markets	41	50.0	1
No risk	13	15.9	2
Domestic consumer behaviour is negatively impacted	7	8.5	3
Reduced trading partner confidence in our animal disease management	5	6.1	4
Increased workload for the Veterinary Authority	5	6.1	4
Reduced confidence of our politicians in our animal disease management	4	4.9	5
Reduced confidence of our animal industry in our animal disease management	4	4.9	5
Other	3	3.7	6
Total[1]	**82**	**100**	

Table 12. The single greatest benefits from making an immediate notification to WOAH.

Benefit	Frequency	Percent	Rank
Maintaining our international reputation for transparency and compliance with WOAH standards	38	46.3	1
Limiting the international spread of animal diseases	27	32.9	2
Providing detailed disease information to avoid unnecessary/unwarranted trade impacts	7	8.5	3
Controlling accurate communication of disease information to our trading partners	4	4.9	4
Maintaining our industry's confidence in the professionalism of our Veterinary Authority	4	4.9	4
Maintaining political confidence in the professionalism of our Veterinary Authority	1	1.2	5
Other	1	1.2	5
Total[1]	**82**	**100**	

Barriers to notification

Survey participants were asked to identify a single issue that would be the most likely to prevent or delay their country or territory from making an immediate notification to WOAH for each of the following situations: a) a listed disease event of terrestrial animals, b) a listed disease event of aquatic animals, and c) an emerging disease event.

Answers to these three 3 questions were compared to determine the principal subject areas and specific issues identified. The three principal subject areas identified that could delay or prevent a notification were a) diagnosis and laboratory confirmation, b) decision-making and administrative issues, and c) surveillance and reporting system issues (see Table 13).

Although the principal subject areas were consistent across the three questions, there were some minor differences. For example, for aquatic animal diseases and emerging disease events, interagency communication and approvals were raised as barriers but these were not raised for terrestrial animal disease events. For emerging diseases, decision making to determine if an event meets the definition an emerging disease was raised.

Maximising benefits and minimising risks

Survey participants were asked to identify ways to maximise the benefits and minimise the risks of providing immediate notifications. To maximise the benefits, respondents focussed on subject areas such as capacity building, reputation, trade and outbreak management (Table 14). To minimise the risks, respondents focussed on areas such as the accuracy and quality of notifications, communicating the purpose and benefit of notification with stakeholders, supporting continuity of safe trade, strengthening government processes and provision of support to members (Table 15).

Table 13. Summary of barriers to notification identified for listed disease events of terrestrial and aquatic animals, and emerging disease events.

Subject area	Issues	Frequency
Diagnostic delays and laboratory confirmation	Laboratory capability for listed and emerging diseases Time to undertake laboratory testing Delays if further investigation or resampling are required Delays if reference laboratory confirmation required	30
Decision making and administrative	Time for Delegate approval Need for higher approvals (e.g. senior officials or ministers) Need for inter-agency approvals / communication (aquatic and wildlife diseases) Communication between different levels of government Deciding if event meets definition of a confirmed case / emerging disease	20
Surveillance and reporting system issues	Poor surveillance systems Poor reporting/communication systems Producer reluctance to report Delays/capability for field investigation	15
Lack of personnel and resources	Human resources and expertise Accessing remote locations	10
No barriers	Nil	15

Table 14. Summary of respondents nominated ways to maximise the benefits of making an immediate notification.

Subject area	Ways to maximise benefit
Capacity development	Attract support of development partners
Reputation	Recognition of conscientious reporting by Members Enhancing trust among trading partners
Trade	Using notifications and follow-up reports as reference documents when contacting trading partners
Outbreak management	Receiving advice/ on control measures
Common benefit among Members	Promoting standardised capability to diagnose diseases Preventing international spread of diseases Providing a basis for decisions on international trade to be made based on reliable information

Table 15. Summary of respondent nominated ways to minimise the risks of making an immediate notification.

Subject area	Ways to minimise risk
Accuracy and quality of notifications	Verify the accuracy and reliability of data before submitting notifications
	Clearly communicate the context and significance of notifications to stakeholders
	Provide comprehensive and accurate information to reduce misunderstandings
	Maintain transparency to build trust
Establish purpose and benefit of notification	Educate stakeholders about the importance of immediate notifications for global animal health
	Highlight the benefits of early reporting to reduce concerns over reputational risks
Support continuity of safe trade	Foster collaboration between member countries and WOAH to mitigate negative reactions
	Encourage open dialogue with trading partners to clarify the implications of notifications
	Work proactively with trading partners to prevent unjustified trade restrictions
	Emphasize the use of WOAH standards and principles to support fair international trade
Strengthen government processes	Develop clear and consistent processes for information sharing across relevant organizations
	Improve coordination among government agencies to ensure a unified response to disease notifications
	Ensure timely follow-up actions to address issues raised by notifications
Member support	Clear guidance and technical support from WOAH to help countries manage notifications effectively
	Offer recommendations for risk management tailored to the reporting country's circumstances
	Facilitate training for focal points on handling notifications and associated risks.

WOAH assistance

Survey respondents were asked to identify the single best thing that WOAH could do to assist their country to make immediate notifications. Subject areas of the responses included capacity building and training, WAHIS system enhancements, recognition and incentives, guidance on risk mitigation, and advocacy and engagement with decision-makers (Table 16).

Table 16. Summary of respondent suggestions for the single best thing that WOAH could do to assist their country to make immediate notifications.

Subject area	Assistance measure
Capacity building and training	Training programs for focal points, field veterinarians, and lab personnel.
	Refresher courses and workshops on WOAH standards, the notification process, and using WAHIS
	Assist countries to strengthen surveillance and diagnostic capacities.
	Facilitate access to accredited laboratories for confirmation.
WAHIS system enhancements	Simplify WAHIS platform for easier navigation and data entry
	Improve the stability and user interface of WAHIS, including bug fixes.
	Integrate with other reporting systems (e.g. AMU)
Recognition and incentives	Recognize countries that demonstrate strong adherence to WOAH standards
	Share success stories and benefits of timely notifications to encourage compliance
Guidance on risk mitigation	Guidance for managing risks associated with notifications, such as trade
Advocacy and engagement with decision-makers	Engage with national authorities and ministers to promote awareness of notification obligations
	Advocate for policies that prioritize reporting and disease control
	Provide confidential advisory channels for countries uncertain about making notifications

Focus group workshops

Three focus group workshops were held on 5 December 2024 at three times that spanned business hours across the Asia-Pacific region. A total of 18 participants joined across the three workshops. The participant roles included one WOAH Delegate, seven Notification Focal Points, seven Aquatic Animal Focal Points, and three Laboratory Focal Points.

Each workshop group nominated a different subject area of barriers to notification that were identified through the online survey (refer to Table 13) for deeper consideration by the group. The chosen subject areas included 1) diagnostic delays and laboratory confirmation, 2) decision making and administrative issues and 3) surveillance and reporting system issues. Participants were invited to identify the root causes of barriers to notification within the chosen subject area, and to identify actions or strategies to address the barriers and their root causes. A summary of the results of the focus group discussions are provided in Table 17.

Within each of the three subject areas, the identified barriers aligned with those provided within the online survey (refer to Table 13); however, not all of the barriers identified through the survey were identified again through the focus group workshops.

Participants proposed actions or strategies to address the identified barriers across the three subject areas. For many of these actions and strategies the participants shared their experience and successful approaches. For example, for administrative and decision-making barriers, a participant shared their success in establishing an agreed workflow for notification to support inter-agency cooperation and to confirm responsibilities between different agencies. Another participant shared their success in utilising an offline template for immediate

notifications to collate information and seek approvals from different levels of government and different agencies (Table 17).

For diagnostic delays and laboratory confirmation, a lack of experience/capability for diagnosing exotic diseases was identified as a cause. Proposed actions to address this cause included enabling actions: access to positive control material, access to laboratory proficiency testing programs, and regional workshops for national reference laboratories to support improved diagnosis.

Table 17. Summary of three focus group workshops including identified barriers to notification and proposed actions to address the identified barriers.

Subject area	Barriers and their root causes	Actions or strategies to address barriers
Diagnostic delays and laboratory confirmation	Lack of experience diagnosing exotic diseases and emerging diseases Limited diagnostic capability for some diseases Multiple laboratories required to confirm result Responsibilities at different levels of government Transport time to get samples to laboratories for remote areas Lack of resources, economic crisis	Strengthen national laboratory capability Provision of positive control material to support adoption of methods for exotic diseases Regional laboratory proficiency testing programs for national reference laboratories Regional workshops for national reference laboratories to improve diagnosis of listed diseases of regional significance
Decision making and administrative	Approvals required across different agencies Approvals required at different levels of government Need for higher approvals (e.g. senior officials or ministers) Collecting, collating and then seeking approval for detailed information Need to simultaneously prepare media releases and holding statements	Establish relationships between responsible personnel in different agencies Make sure roles are understood and authority is clear (e.g. direct access to WAHIS for responsible staff in other CAs) Establish an agreed workflow between different agencies Use a template for immediate notification information to collate information and seek approvals
Surveillance and reporting system issues	Poor surveillance systems Poor reporting/communication systems Lack of laboratory testing capability Lack of awareness of reporting obligations Lack of trained human resources	WAHIS training Training to better manage notification, including simulation training Field veterinarian training Improve communication between farmers and governments Web based reporting platforms

Discussion

This study has aimed to identify and analyse key barriers to immediate notification of terrestrial and aquatic animal diseases and develop strategies and recommendations to overcome the identified barriers. The approach to data collection included an online survey that incorporated established theoretical approaches to explore factors that may influence Members making an immediate notification to WOAH. In addition to the survey, focus group workshops were conducted to explore the causes of barriers to disease notification and identify strategies and actions to address them.

Survey performance

The online survey was sent to a study population of WOAH Delegates and relevant WOAH focal points in the Asia-Pacific region that have a role in notification to WOAH. Eighty-two valid responses were received from a total study population comprising 136 unique individuals, providing a highly representative data set (60.3%). The survey included 19 measures, each comprised of multiple items (questions) to ensure reliability of the measures. The survey adhered to strict anonymity to encourage frank responses from participants that would be reflective of their experience and opinions.

Survey items performed well, with final internal consistency, measured by Cronbach's α, greater than 0.7 (acceptable) for 16 of 19 measures. For three items (importance-terrestrial, perceived behavioural control and subjective norms) final Cronbach's α was less than 0.7 but greater than 0.6 (Table 8). Internal consistency is a measure of reliability to determine that items contributing to a single measure are measuring the same construct. Cronbach's α greater than 0.7 is considered to indicate suitable internal consistency for research purposes (Nunnally, 1975). These results indicate that the survey items for 16 of the 19 measures performed reliably. However, some refinement of the items for perceived behavioural control, subjective norms and trust is warranted if this survey is to be used in other regions.

The survey results also indicate good construct validity, i.e. that the survey items measured the theoretical concept that they were intended to measure. Construct validity was supported by the utilisation of well-accepted theoretical approaches (the Theory of Planned Behaviour and the Integrative Model of Organisational Trust) with adaptation of validated scales for the purposes of this study. Construct validity was indicated by correlations between notionally similar measures (convergent validity). For example, past notification behaviour and intention to notify were strongly corelated. Exploratory factor analysis further indicated that they were related but two separate factors.

Importance does not predict intention to notify

A novel measure of the importance of animal industries and animal health was developed for this study. Subset measures (importance-terrestrial and importance-aquatic) were also drawn from the overall importance items. The importance measures were designed to be subjective (i.e. based on opinion) and relative to the characteristics of the country or territory, rather than objective (e.g. a single value or volume of production). This approach was expected to reflect the true importance of animal production and animal health relative to the circumstances of a country or territory.

Although importance did correlate with intention to notify ($r=0.258$, $p<0.05$; Table 9), further analysis could not find support for importance as a predictor of intention to notify. A binary logistic regression model approached statistical significance ($p=0.057$) for importance as a predictor of intention to notify, but it had poor predictive ability that was little better than chance.

Awada et al. (2017) found that the median aquaculture production of Members who had submitted their six-monthly reports (10,020 tonnes) was significantly greater than those who had not (991 tonnes). The results are

not directly comparable to the current study as the focus was on a different type of notification (six-monthly reports rather than immediate notification). Further, in the current study, importance was correlated with organisational capability, perhaps indicating that when animal industries and animal health are more important, they may be associated with stronger organisational capability (which is a predictor of intention to notify, see below).

The premise of importance as a possible predictor of intention to notify is that it could have a positive effect (e.g. because a country may have stronger incentives to protect its reputation and market access) or a negative effect (e.g. because the perceived risk of notification may be greater). There was some support for a positive impact of importance in this study, with importance positively correlated with attitudes to notification ($r=0.458$, $p<0.001$; Table 9). However, there was no significant relationship between importance and perceived risk ($r=0.002$, $p>0.05$).

Taken together, the results of this study and the limited published data available, indicate that importance of animal production and animal health have little effect on intention to notify.

Organisational capability and knowledge predict intention to notify

Novel measures for organisational knowledge and organisation capability relevant to notification were developed for this study. The measures were developed to encompass the scope of knowledge and capabilities required for notification, including the stages of the notification process described in Table 1.

Organisational capability and organisational knowledge were found to be statistically significant predictors of intention to notify. Both predictors significantly contributed to a linear regression model. Organizational capability ($\beta = 0.410$, $p=0.001$) had a stronger influence than organizational knowledge ($\beta = 0.261$, $p <0.027$).

Organisational capability and organisational knowledge are modifiable factors, meaning that actions can be implemented to increase them and improve notification. From the data of this study, a one-unit increase in organizational capability could increase intention to notify by 0.479 units (holding organizational knowledge constant); and a one-unit increase in organizational knowledge could increase intention to notify by 0.326 units (holding organizational capability constant).

Member capability has been recognised as a possible factor determining intention to notify; however, most statements in this regard appear to be anecdotal and not supported by empirical data that encompasses relevant knowledge and capabilities (e.g. Ben Jebara et al., 2012; Lin et al., 2023; Thierman, 2010). Some partial evidence has been provided, for instance, Ben Jabara et al (2012) presented descriptive data indicating that Members with more experienced focal points may be more likely to submit six-monthly reports; however, no statistical analysis was presented to confirm an effect.

This study has been the first to provide comprehensive measures of organisational knowledge and organisational capability and to show that these do predict intention to notify. WOAH has a comprehensive tool for assessing Members' capabilities, the PVS Tool and the PVS Tool – Aquatic. PVS evaluations and gap analyses could be used to evaluate member capability relevant to notification; however, notification is currently addressed within a single item (IV-5, Transparency) that is not dedicated to notification of disease events to WOAH, and linkages to other related capabilities such as surveillance (II-4) are not explicit. Further, a review of some recent PVS evaluation reports available on the WOAH website (WOAH, 2025) indicates that there is variability in how this competency is evaluated.

The results of this study indicate that organisational knowledge and organisational capability are important, modifiable factors that influence intention to notify. These findings are supported by analysis of factors contributing to the Theory of Planned Behaviour (see below). Recommendations and strategies to improve these factors are provided in the conclusions and recommendations.

The theory of planned behaviour predicts intention to notify

Measures for the three factors of the Theory of Planned Behaviour were developed for this study following the theoretical approaches of Ajzen (1991). A linear regression analysis to evaluate the combined and individual contributions of attitudes, subjective norms and perceived behavioural control on intention to notify found the model was significant and explained 29.9% of the variance in intention to notify.

Perceived behavioural control significantly contributed to the model. Each one-unit increase in perceived behavioural control, increased intention to notify by 0.427 units (holding other factors constant). The coefficient for subjective norms was positive but marginally non-significant, indicating a possible role in influencing intentions. Attitudes did not contribute to predicting intentions in the model.

Perceived behavioural control reflects the perceived ease or difficulty of performing a behaviour, reflecting both past experience and anticipated impediments. In this respect, the factor is broader than organisational knowledge or organisational capability (see section above), encompassing all factors that may influence a behavioural outcome, i.e. contributing to an immediate notification.

This study has been the first to apply theoretical behavioural approaches to WOAH notification and as such there is no published comparative data.

The results of this study indicate that perceived behavioural control is an important factor that influences intention to notify. Perceived behavioural control is a measure of the perceived ease or difficulty of performing a behaviour and, compared to organisational capability and organisational knowledge, is more focussed at the individual rather than organisational level. Like organisational capability and organisational knowledge (see section above), perceived behavioural control is a modifiable factor, meaning that actions can be implemented to increase it and improve notification. Recommendations and strategies to improve perceived behavioural control are provided in the conclusions and recommendations.

Trust does not predict intention to notify

The threat of negative trade consequences as a reason for Members to delay or avoid making an immediate notification has been raised previously (e.g. Lin et al., 2023) but there is no published empirical evidence to support this association. The rationale for exploring trust as a possible predictor of intention to notify, is that Members may be more likely to take risk within a trust relationship (i.e. to make an immediate notification) if they perceive trading partners as trustworthy and if they trust them.

Three factors of the IMOT were investigated in this study, trustworthiness (comprised of the trustors perceptions of the trustee's ability, benevolence, and integrity), trust and perceived risk (of the trustor making a disease notification). Additionally, perceived benefit (of the trustor making a disease notification) was examined in accordance with the conceptual model of Scutt et al. (2023).

A linear regression analysis to evaluate the combined and individual contributions of trust, perceived benefit and perceived risk on intention to notify was not significant, indicating that none of these variables is predictive.

Survey respondents were asked to rank the single highset risk that may delay or prevent their country from making an immediate notification. The perceived risk ranked highest by respondents was "reduced access to international markets" (50% of responses); however, the second highest risk was "no risk" (16% of responses) (Table 11). Additionally, the mean score for perceived risk was low (mean = 2.866, SD = 1.067) and highly variable (Table 4; Figure 4); however, perceived benefit was uniformly high (mean = 4.090, SD = 0.520) (Table 4; Figure 4). These results indicate that Members have widely divergent views of risk, and that the necessary preconditions for a trust relationship (a degree of risk and interdependence between the trustor and trustee) may not be met for some Members.

It is important to note that trust is context specific (Mayer et al., 1995). In this study, the context of the trust relationship was between a WOAH Member making an immediate notification and their trading partners' actions based on that notification. Trust in trading partners was measured in the context of whether actions would be in accordance with WOAH standards. However, perceived risk was measured broadly as any risk arising from making an immediate notification, whether that impact was to arise from actions that were in accordance with the WOAH standards or not. The principal risk identified was reduced access to international markets (50% of respondents) but some of this risk will likely represent the legitimate actions of trading partners.

Although no relationship could be established between trust and intention to notify, other relationships within the IMOT were established. A linear regression analysis found the components of trustworthiness (ability, integrity and benevolence) explained 53.7% of the variance in trust. Integrity and benevolence contributed significantly to the model, but ability did not. The implication of this finding is that a Member wishing to improve trust with trading partners should focus on improving perceptions of their benevolence (the extent to which a trustee is believed to want to do good to the trustor) and integrity (the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable). These factors can be addressed through actions and communications to cultivate greater trustworthiness leading to improved trust.

This study measured trust in trading partners but did not measure trust in WOAH. This may be an informative factor to measure in any future study as WOAH plays a key role to receive, review and publish immediate notifications (see Table 1). Also, as trust is context specific, it is recommended that any similar studies in other regions measure trust as its importance may be influenced by many factors such as cultural issues, trade, social identity, and shared values.

Barriers to notification and strategies to address them

Survey respondents were asked to identify the principal barriers to notification. The three principal subject areas of barriers that were identified were: diagnosis and laboratory confirmation; decision-making and administrative issues; and surveillance and reporting system issues (see Table 13). These three subject areas corroborate the survey findings that organisational knowledge, organisational capability and perceived behavioural control are the principal factors that predict intention to notify. The three subject areas are modifiable, meaning that they can be improved and, as they are predictors of intention to notify, improvements are likely to lead to improved notification outcomes.

Several survey questions were relevant to the identification of actions and strategies to improve notification. Survey respondents were asked to identify ways of maximising the benefits of notification and also to reduce the risks associated with notification (see Table 14 and Table 15). A question also invited respondents to propose the single best way that WOAH could assist to address barriers to notification (Table 16).

Focus group workshops were held to further explore the barriers to notification that were identified through the online survey. Participants elaborated on the barriers identified through the online survey, identified root causes of the barriers and proposed actions and strategies to address them (Table 17).

Table 18 provides a synthesis of the survey results and focus group workshop outcomes to draw together information on barriers to notification, ways to address risks and maximise benefits, and proposed actions and strategies to address barriers and their causes. It has been developed with the consideration of the key survey findings, i.e. that organisational knowledge, organisational capability and perceived behavioural control are the principal factors that predict intention to notify. The actions included in the table are restricted to those that are considered to be defined and achievable, and it also encompasses those that are either strategic or tactical.

Table 18. Synthesis of survey results and focus group workshop outcomes on principal barriers to notification, ways to address risks and maximise benefits, and proposed actions and strategies to address barriers and their causes.

Barrier	Causes	Defined actions / strategies to address barriers
Laboratory confirmation is not available or slow	• Diagnostic capability for some diseases is not available (e.g. exotic or emerging diseases • Delays if Reference Laboratory confirmation is required • Delays if multiple laboratories need to confirm result • Delays if further investigation or resampling are required • Delays due to sample transport time from remote areas to laboratories • Lack of resources, economic crisis	1. Provision of positive control material to support adoption of methods for exotic disease 2. Regional laboratory proficiency testing programs for national reference laboratories 3. Regional workshops for national reference laboratories to improve diagnosis of listed diseases of regional significance 4. Facilitate access to Reference Laboratories for confirmation
Decision-making and administrative processes prevent or delay notification	• High level approvals may slow notification (e.g. by senior officials or ministers) • Inter-agency approvals and communication (e.g. for aquatic and wildlife diseases) may slow notification • Collecting, collating and approval of detailed information may be slow • Need to simultaneously prepare media releases and holding statements • Slow decision making on whether an event meets the definition of a confirmed case or emerging disease	5. Use a template for immediate notification information to collate information and seek approvals 6. Establish an agreed workflow, division of responsibilities and authority between different agencies 7. Training for focal points and Delegates on notification responsibilities and WAHIS that is tailored to their knowledge and experience 8. Ensure WAHIS is developed to prioritise meeting user needs 9. Guidance developed on best practice for managing risks associated with notifications 10. WOAH engage with national authorities and ministers to promote awareness of notification obligations
Surveillance and reporting systems do not allow collection and communication of disease information to decision makers	• Producer reluctance to report delays or prevents event recognition • Poor communication systems delay or prevent event recognition • Lack of awareness of WOAH notification obligations can delay or prevent advice reaching decision makers • Lack of trained human resources delays field investigation	11. Provision of in-country web-based reporting platforms that can be adopted by Members 12. PVS pathway utilised to evaluate and develop surveillance systems and improve notification 13. Training to support surveillance systems and notification, including simulation training

Strengths-based approaches

This study has revealed many strengths regarding notification of disease events to WOAH in the Asia-Pacific region. These include that attitudes to notification are strongly positive, the social norms of notification are strong, and perceived benefits of notification are strong and greater than perceived risks. Additionally, the factors identified to influence notification are modifiable, providing opportunities for improvement. These findings can be used to guide the approach of any strategies to improve notification and build on existing strengths.

Strengths-based approaches have been developed from the field of positive psychology. They focus on identifying and maximizing strengths rather than addressing weaknesses (Seligman et al. 2000) and have been applied to several fields including education, health, leadership and organisational performance. Strengths-based approaches focus on what works well and enhance it, build confidence and engagement, encourage growth and

development and use positive reinforcement. Central to strengths-based approaches is moving from a deficit-dialogue (communicating about barriers, gaps, deficiencies) to strengths-based communication (communicating about opportunities and progress).

It is proposed that actions and strategies to improve notification draw on strengths-based approaches to build and encourage notification. The rationale for this approach is that:

1. This study has shown that the principal factors influencing notification are related to capability
2. Members approach notification positively (attitudes are uniformly high) and understand the benefits of it (perceived benefit is uniformly high)
3. It is the opinion of the author that communication about notification has on occasion tended to a deficit-dialogue (e.g. emphasis on non-compliance with reporting requirements rather than emphasising notification successes and their benefits) which may risk demotivation and disengagement.
4. Responses to the survey have emphasised a desire for WOAH to take a positive and supportive role. Some key words used in responses about what WOAH could do to assist include: support, assist, understand, promote, encourage, simplify.

The responses below are to a question about how WOAH could assist members to improve notification. These examples indicate the desire for a strengths-based approaches to notification:

"Provide assistance to members and understand their difficulties. Each member might have different reasons why notifications are delayed or not done".

"Promote and encourage notifications, support countries to make notifications and communicate the benefits of doing so (good news stories - recognising the challenges with this)".

A system for recognizing countries that demonstrate strong commitment to notifying in accordance with WOAH standards could be developed as a means for cultivating a strengths-based approach to notification. It is suggested that such a system be trialled in the Asia-Pacific region and approached developed to evaluate its success. Additionally, an approach for sharing stories, approaches and benefits of notification may help to cultivate a strong shared culture of notification.

Application of methodology to other regions

The methodology of this study is a novel approach to understand notification in the Asia-Pacific region and has revealed key insights on notification that apply to this region. However, the results may not apply to other regions because different sets of factors and circumstances may be relevant in those regions that could lead to different outcomes. If a deeper understanding of notification is required in other regions it is recommended that dedicated studies be undertaken on a regional basis.

Conclusions and Recommendations

This study has identified and analysed key barriers to immediate notification of terrestrial and aquatic animal diseases and proposed actions and strategies to overcome the identified barriers. Established theoretical approaches were used for the first time to explore factors that may influence Members making an immediate notification to WOAH. The survey methodology performed well and provides an approach that could be used to investigate notification in other regions.

The study has identified many positive aspects of notification in the Asia Pacific region including that attitudes to notification are strongly positive, the social norms of notification are strong, and perceived benefits of notification are strong and greater than perceived risks. Three factors were identified to influence notification including organisational knowledge, organisational capability and perceived behavioural control. Each of these factors is modifiable, providing opportunities for improvement.

Interestingly, trust in trading partners was not associated with notification intention. This is somewhat surprising given that trade consequences of making a notification are often proposed as a risk (and disincentive) of notifying. However, the lack of an effect of trust can be explained by wide variation in perception of risk among members.

The principal barriers to notification have been identified and actions to address them proposed. A strengths-based approach to implementation of the actions and for communication with Members is recommended. A strengths-based approach is warranted because the factors identified to influence notification are capability based, and a constructive and supportive approach to build them will be most effective.

The recommendations below have been developed following consideration of the broader study findings, including the survey findings and focus group workshops. The recommendations encompass the actions included in Table 18 and aim to present defined and achievable goals to improve notification.

Recommendations

Recommendation 1. Develop an action plan for supporting Members to enhance the diagnostic capability of national reference laboratories in the Asia-Pacific region.

Rationale: This study has found that diagnostic capability is a key barrier to notification and addressing this barrier is likely to lead to improved notification outcomes.

Four actions were identified to improve laboratory capability in the Asia-Pacific for regionally significant diseases of aquatic and terrestrial animals. The proposed actions include 1) provision of positive control material to support adoption of methods for exotic disease, 2) regional laboratory proficiency testing programs for national reference laboratories, 3) regional workshops for national reference laboratories to improve diagnosis of listed diseases of regional significance, 4) facilitate access to Reference Laboratories for confirmation.

Although these actions are likely to yield positive results, there are many existing activities that address these issues, either supported by WOAH or other organisations. For example, a new WOAH Collaborating Centre for Reference Materials of Molecular Diagnostic Techniques in Aquatic and Terrestrial Animal Diseases in Korea was established in 2024 and may be able to support action 1. Regional proficiency testing programs are in place regionally, but it is not clear if they are accessible to all Members and that all diseases of significance to the region are included. Regional workshops have been conducted for national reference laboratories (for example through the Asia-Pacific Laboratory Proficiency Testing Program for Aquatic Animal Diseases) but it is not clear whether such workshops are sufficiently frequent and inclusive to support diagnostic capability improvements across the region.

As several relevant programs are underway in the region, it is recommended that some initial scoping work be undertaken to determine what programs are underway, their coverage, any gaps and an approach to address the gaps. This work will inform development of an action plan that includes the four actions on laboratory capability identified through this study, and which is complementary to existing programs. The action plan should be outcome focussed, i.e. lead to improved diagnostic capability to improve notification.

Recommendation 2. Develop an action plan to support Members in the Asia-Pacific region to enhance their surveillance systems and capabilities.

Rationale: This study has found that surveillance capability is a key barrier to notification and addressing this barrier is likely to lead to improved notification outcomes.

Three actions were identified to improve surveillance and reporting systems to support collection and communication of disease information to decision makers. Two of the actions are addressed through this recommendation: 1) provision of in-country web-based reporting platforms that can be adopted by Members, 2) training to support surveillance systems and notification, including simulation training. The third action identified (PVS pathway) is addressed through recommendation 3 below.

Through this study, some participants indicated that they have limited surveillance and reporting systems within their country. In some cases, only paper systems are available for collecting and communicating surveillance information. For these countries, it is likely that basic web-based systems that have been adopted and proven to be capable by other countries (where available) or "off the shelf" solutions could be deployed to substantially enhance their capability. Respondents also sought training to support development of surveillance knowledge and capabilities.

Additionally, it is proposed that tools used for "rumour tracking", such as EIOS, be enhanced for use the Asia-Pacific region. This can be achieved by continuously improving local sources and categories within the EIOS system, recognising WOAH-listed diseases, and comparing gathered information with existing EIOS data. This process would involve regular contact with countries and territories at the ground level for information sharing and data input into EIOS. This activity would support Members by providing additional information sources to support their own surveillance systems.

It is recommended that a workplan be developed to implement this recommendation to ensure that it complements any existing activities, addresses gaps, is focussed on the Members with the greatest need, and is outcome focussed to ensure investments lead to demonstrably strengthened surveillance capability to improve notification.

Recommendation 3. Evaluate whether the WOAH PVS Pathway sufficiently emphasises notification capabilities to provide adequate guidance to Members for improving notification.

Rationale: This study has found that Member capability is a key determining factor that predicts reporting intention. WOAH's primary means for evaluating and supporting development of Members capabilities is the PVS Pathway which must adequately support capabilities relevant to notification.

Notification is currently addressed by a single item in the WOAH PVS tool (IV-5, Transparency). The item not only refers to notification of disease events to WOAH but also notification of other trade related information to the "WTO, trading partners and other relevant organisations". The item is not dedicated to notification of disease events and linkages to other related capabilities such as surveillance (II-4) are not explicit. Also, recent PVS

evaluation reports available on the WOAH website (WOAH, 2025) indicate that there is variability in how this competency is evaluated.

As transparency in the global disease situation is one of the key objectives of WOAH, it seems logical that PVS evaluations must emphasis Members' capabilities to comply with notification requirements. The evaluation of capabilities that supporting notification should extend beyond technical matters to encompass all factors relevant to notification.

Recommendation 4. Develop a plan for routine training of WOAH Delegates and relevant WOAH Focal Points in areas relevant to notification that is tailored to their experience and capabilities. The plan should include evaluation methodology so that return on investment can be measured.

Rationale: This study has found that knowledge and capability are key determining factors that predict reporting intention. As WOAH Delegates and Focal Points play a key role in notification, it is important that they are supported to have the knowledge and skills to undertake this role.

In person training has been held previously for Focal Points to support their them in their notification role. This has been provided principally for Notification Focal Points, but Aquatic Animal and Wildlife focal points have also participated in training. In person training has many benefits including increasing engagement, building confidence in communicating with WOAH, networking and sharing successes but it is resource intensive. Online training modules have also been made available.

Finding an efficient and effective approach to training requires balancing many factors including cost, the time requirements for participants and workshop convenors, addressing individual and group needs appropriately, and achieving the desired notification outcomes.

It is recommended that an optimal approach to training of WOAH Delegates and WOAH Focal Points be planned. The plan should include consideration of the frequency and content of in person and online training, how initial and ongoing training will be conducted, the competencies that will be developed, describe how the training will follow a strengths-based approach, and include the methods that will be used to evaluate the impact of training on notification outcomes.

Recommendation 5. Develop fit-for-purpose guidance materials, exemplars and resources to support notification.

Rationale: Participants of this study have proposed approaches that they have developed and applied to assist them to meet their notification responsibilities successfully. A set of resources including guidance materials and exemplars that draws on these approaches, could be developed and shared to support notification capabilities. The resources could also be used to raise awareness with senior officials and Ministers on notification obligations. Additionally, standard operating procedures (SOPs) should be developed to provide clear, consistent and user-friendly guidance on notification procedures. The SOPs could provide a basis for adaptation by WOAH members to include their internal procedures and responsibilities. The SOPs would complement existing guidance such as the WAHIS Notification Procedures that are available on the WOAH website (WOAH, 2024).

Some of the example resources proposed to support notification include:

- a template for immediate notification information to collate information and seek approvals
- guidance on best practices for managing risks associated with notifications
- describing the purpose and benefits of notification
- key components of a memorandum of understanding (or similar) between different agencies that describes agreed workflow, division of responsibilities and authority
- user friendly SOPs/guidelines to support notification which might also be adapted by Members to include their internal procedures and responsibilities.

Recommendation 6. Design and implement an approach for ongoing recognition of Members with strong notification performance.

Rationale: Recognition of countries with strong notification performance will create extrinsic incentives for conscientious notification. If developed and implemented appropriately it may provide an aspirational goal for members for recognition in a similar way that disease status recognition does.

There are currently few extrinsic incentives for notifying and few extrinsic disincentives for not notifying WOAH of disease events. An approach for recognising positive notification performance could be developed as a means for cultivating a strengths-based approach to notification. It is suggested that such a system be trialled in the Asia-Pacific region and its success evaluated to determine impact on notification.

Recommendation 7. Establish a system for notification performance to allow continuous analysis of the status of compliance with notification requirements

Rationale: Measuring the impact of interventions to improve notification (including those implemented through the recommendations above) will require performance metrics or indicators. It is also necessary to support recognition of strong notification performance.

Some performance metrics for immediate notifications and semestral reports can be gleaned from WAHIS; however, this data is not easily accessible or available in a summarised form. To access this information, WOAH staff must enquire the database, analyse data and collate the information on an ad hoc basis. This means that there is no ongoing or publicly available summary of real-time notification performance metrics on a global, regional or country/territory level. Such a system would complement Recommendation 6 by providing a mechanism for identifying strong notification performance. The WOAH Data Integration Department is currently working on the development of such a reporting performance indicator.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Alarcon, P., Wieland, B., Mateus, A. L. P., & Dewberry, C. (2014). Pig farmers' perceptions, attitudes, influences and management of information in the decision-making process for disease control. *Preventive Veterinary Medicine, 116*(3), 223–242. https://doi.org/10.1016/j.prevetmed.2013.08.004

Albarracín, D., & Wyer, R. S., Jr. (2000). The cognitive impact of past behavior: Influences on beliefs, attitudes, and future behavioral decisions. *Journal of Personality and Social Psychology, 79*(1), 5–22. https://doi.org/10.1037//0022-3514.79.1.5

Awada, L., Tizzani, P., Mapitse, N. J., & Cáceres-Soto, P. (2017). Global situation regarding reporting of aquatic animal diseases: Worldwide diagnostic capabilities. *OIE Panorama*, 2017(2), 13–18. https://doi.org/10.20506/bull.2017.2.2638

Ben Jebara, K., Cáceres, P., Berlingieri, F., & Weber-Vintzel, L. (2012). Ten years' work on the World Organisation for Animal Health (OIE) Worldwide Animal Disease Notification System. *Preventive Veterinary Medicine, 107*(3–4), 149–159. https://doi.org/10.1016/j.prevetmed.2012.08.008

Bosnjak, M., Ajzen, I., & Schmidt, P. (2020). The Theory of Planned Behavior: Selected recent advances and applications. *European Journal of Psychology, 16(3)*, 352–356. https://doi.org/10.5964/ejop.v16i3.3107

Cáceres, P., Tizzani, P., Ntsama, F., & Mora, R. (2020). The World Organisation for Animal Health: Notification of animal diseases. *Revue Scientifique et Technique de l'Office International des Epizooties, 39*(1), 289–297. https://doi.org/10.20506/rst.39.1.3082

Colquitt, J. A., Scott, B. A., & LePine, J. A. (2007). Trust, trustworthiness, and trust propensity: A meta-analytic test of their unique relationships with risk taking and job performance. Journal of Applied Psychology, 92(4), 909–927. https://doi.org/10.1037/0021-9010.92.4.909

Eloit, M. (2017). WAHIS is modernising: Be a partner in the project. *OIE Panorama, 2017*(2), 1–3. https://doi.org/10.20506/bull.2017.2.2636

Marjanovic, Z., Struthers, C. W., Cribbie, R., & Greenglass, E. R. (2014). The Conscientious Responders Scale: A new tool for discriminating between conscientious and random responders. *SAGE Open, 4*(3). https://doi.org/10.1177/2158244014545964

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review, 20*(3), 709–734. https://doi.org/10.5465/amr.1995.9508080335

Nunnally, J. C. (1975). Psychometric theory—25 years ago and now. *Educational Researcher, 4*(10), 7-21. https://doi.org/10.2307/1175619

Palmer, S., Fozdar, F., & Sully, M. (2009). The effect of trust on West Australian farmers' responses to infectious livestock diseases. *Sociologia Ruralis, 49*(4), 360–374. https://doi.org/10.1111/j.1467-9523.2009.00495.x

Sayers, R. G., Good, M., & Sayers, G. P. (2019). Cattle farmers' perception of biosecurity measures and the main predictors of behavior change: The first European-wide pilot study. *Transboundary and Emerging Diseases, 66*(3), 978–990. https://doi.org/10.1111/tbed.13935

Seligman, M. E., & Csikszentmihalyi, M. (2000). "Positive psychology: An introduction." *American Psychologist, 55(1),* 5-14.

Scutt, K., Walker, I., & Ernst, I. (2023). The influence of trust and social identity in farmers' intentions to report suspected emergency disease outbreaks. *Preventive Veterinary Medicine, 212*, 105855. https://doi.org/10.1016/j.prevetmed.2023.105855

Schoorman, F. D., Mayer, R. C., & Davis, J. H. (2007). An integrative model of organizational trust: Past, present, and future. *Academy of Management Review, 32*(2), 344–354. https://doi.org/10.5465/amr.2007.24348410

Stanton, J. M., Sinar, E. F., Balzer, W. K., & Smith, P. C. (2002). Issues and strategies for reducing the length of self-report scales. *Personnel Psychology, 55*(1), 167–194. https://doi.org/10.1111/j.1744-6570.2002.tb00108.x

Slovic, P. (1993). Perceived risk, trust, and democracy. Risk analysis, 13(6), 675-682. https://doi.org/10.1111/j.1539-6924.1993.tb01329.x

Thiermann, A. B. (2010). International animal health regulations and the World Animal Health Information System. In *Infectious disease movement in a borderless world: Workshop summary* (pp. 246–256). National Academies Press. Available at www.nap.edu/read/12758/chapter/7#246 (Accessed on February 4, 2025).

Vallat, B., Thiermann, A., Ben Jebara, K., & Dehove, A. (2013). Notification of animal and human diseases: The global legal basis. *Revue Scientifique et Technique de l'Office International des Epizooties, 32*(2), 331–335. https://doi.org/10.20506/rst.32.2.2234

Willis, R. S., Clark, C. C., & Jones, D. L. (2018). Dairy farmers' decision-making to implement biosecurity measures: A study in Great Britain. Transboundary and Emerging Diseases, 65(1), 123–134. https://doi.org/10.1111/tbed.12634

World Organisation for Animal Health (WOAH). (2019). *OIE tool for the evaluation of performance of veterinary services* (7th ed.). https://doi.org/10.20506/PVS.3428

World Organisation for Animal Health (WOAH). (2021). *OIE-WAHIS: A new era for animal health data*. https://www.woah.org/en/oie-wahis-a-new-era-for-animal-health-data/

World Organisation for Animal Health (WOAH). (n.d.). *WOAH Performance of Veterinary Services Information System.* Retrieved February 11, 2025, from https://pvs.woah.org/documents

World Organisation for Animal Health (WOAH). (2024). *Immediate notification procedures*. Accessed on 1 April 2025 from https://wahis-support.woah.org/support/solutions/articles/51000051185

Wright, B. K., Jorgensen, B. S., & Smith, L. D. (2018). Understanding the biosecurity monitoring and reporting intentions of livestock producers: Identifying opportunities for behaviour change. *Preventive Veterinary Medicine, 157*, 142–151. https://doi.org/10.1016/j.prevetmed.2018.07.007

Annex 1. Invitation letter to Delegates

Identifying barriers to notification of terrestrial and aquatic animal disease events

4 November 2024

Dear WOAH Delegate,

We are reaching out to request your assistance in nominating participants for an important project aimed at identifying barriers to the notification of terrestrial and aquatic animal disease events.

Project overview: WOAH is conducting research to understand barriers to notification of disease events in the Asia and the Pacific region. The project focuses on early warning of both listed and emerging diseases. It builds on previous studies and will engage personnel with roles in notification to better understand the root causes of barriers to notification and develop defined actions to address them.

Who should participate: We invite you to nominate personnel with roles in disease notification to participate. Multiple participants are requested from each country, reflecting the various notification roles such as:

- Yourself (WOAH Delegates)
- Chief Veterinary Officers (if not also a Delegate)
- National Focal Points for Animal Disease Notification
- National Focal Points for Aquatic Animals
- National Focal Points for Veterinary Laboratories
- National Focal Points for Wildlife
- Any other key personnel involved in notifications, including alternates or deputies for the above roles.

Project details:

The project will have two phases: 1) an online survey, and 2) online workshops.

Survey: The survey is expected to take 25 minutes. **Responses will be anonymous**. No participant or country identifiers will be linked to responses.

Workshops: Following the survey, participants will be invited to one of several workshops (approx. 1 hour). These will include presentation of preliminary survey results, undertake root cause analysis, and identify meaningful capacity building activities.

Outcome: Project findings will be compiled into a report, and a webinar will be held to present results in early 2025.

Requested action:

1. If you agree to participate in the anonymous survey, no further action is required. We will contact the relevant personnel by email (including yourself and your national focal points for notification, aquatic animals, veterinary laboratories and wildlife).

2. If you would like to nominate additional or alternate personnel, or deputies, for the roles listed at "who should participate" above, please fill out the table at the end of this email and return it by 12 November 2024.
3. If you would prefer that your country not participate, please advise by return email before 12 November 2024.

We appreciate your support in nominating participants for this project which will assist the project to achieve outcomes of greatest benefit to Members.

Thank you for your cooperation.

Sincerely,

Dr Hirofumi Kugita

Regional Representative for WOAH Asia and the Pacific region

Nomination of additional or alternate participants (if required)

Name	Role	Email address

Annex 2. Disease notification requirements

Disease notification requirements

A foundational requirement of WOAH Members

The disease notification obligations of WOAH Members were first set out in the OIE Organic Statutes, which is an appendix to the 1924 International Agreement for the formation of the OIE.

Article 5 of the Organic Statutes requires that OIE Members provide notification by telegram "the first cases of rinderpest or foot and mouth disease observed in a country or an area hitherto free from the infection." Article 5 also requires that Members give information "at regular intervals" on the presence and distribution of FMD, rinderpest and an additional 7 diseases. Article 5 gave provision for the list of diseases to be revised subject to the approval of Members.

In addition to information on disease presence and absence, Article 5 of the organic statutes also required that Members inform the OIE "of the measures adopted by them to control epizootics, especially such measures enforced at their own frontiers to protect their territory against imports from infected countries."

Articles 9 and 10 of the Organic Statutes provide further requirements on the means and frequency of notification.

These foundational requirements of OIE Members have since been elaborated in the standards set out in the WOAH Terrestrial Animal Health Code and the WOAH Aquatic Animal Health Code.

Terrestrial and aquatic animal health standards

Chapter 1.1. of the Terrestrial Code and Aquatic Code set out the requirements for Member countries to provide notification to WOAH. The requirements in each chapter are identical in intent with only minor editorial differences.

Chapter 1.1. clearly defines the role of the Veterinary Authority, under the responsibility of the Delegate, to send notifications to WOAH on behalf of the Member Country.

Article 1.1.2 of both codes defines a broad scope of notification requirements i.e.: *"Member Countries shall make available to other Member Countries, through WOAH, whatever information is necessary to minimise the spread of important [animal aquatic animal] diseases and their pathogenic agents and to assist in achieving better worldwide control of these diseases."*

Immediate notification for listed diseases

Point 1 of Article 1.1.3 of both codes describes the requirements of the Veterinary Authority to provide notifications to WOAH within 24 hours of a number of events occurring within a in a country, a *zone* or a *compartment*. These are termed "immediate notifications" and are integral to WOAH's early warning system for animal diseases.

The events related to listed diseases that require immediate notification include:

- the first occurrence of a *listed disease*
- recurrence of a *listed disease* following eradication

- first occurrence of a new strain of a *pathogenic agent* of a *listed disease*
- a sudden and unexpected change in the distribution or increase in *incidence* or virulence of, or morbidity or mortality caused by the *pathogenic agent* of a *listed disease*,
- occurrence of a *listed disease* in a new (Aquatic Code) or unusual (Terrestrial Code) host species.

Point 2 of Article 1.1.3 of both codes requires that weekly reports, subsequent to an immediate notification, be made on the evolution of the event until the disease has been eradicated or the situation has become sufficiently stable that routine (six-monthly) reporting (see below) will be satisfactory.

Routine reporting for listed diseases

Point 3 of Article 1.1.3 of both codes requires that Members provide reports on the presence or absence of listed diseases every six months. Listed diseases are included in chapter 1.1.3 in the Terrestrial Code and the Aquatic Code.

For the Terrestrial Code, 91 diseases of terrestrial animals (mammals, birds and bees) are listed. For the Aquatic Code, 31 diseases of aquatic animals (crustaceans, molluscs, fish and amphibians) are listed.

Notification of emerging disease events

Article 1.1.4 of both codes requires that events associated with emerging disease be notified. “Emerging diseases” are defined in the glossary of each code as a disease, other than listed diseases, which has a significant impact on animal or public health resulting from: a change of known pathogenic agent or its spread to a new geographic area or species; or a newly recognised pathogenic agent.

Article 1.1.4. does not specify a time frame in which a notification should be made to WOAH, however the immediate notification process for disease events through WAHIS is utilised for communication to WOAH.

Annex 3. Participant information sheet

Participant Information Sheet

Identifying barriers to notification of terrestrial and aquatic animal disease events

WOAH is conducting research to identify barriers to notification of terrestrial and aquatic animal disease events. WOAH has engaged Dr Ingo Ernst to support delivery of the project.

Purpose:

This project aims to identify the barriers to notification of terrestrial and aquatic animal disease events in the Asia and the Pacific region. The project will focus on the early warning of listed diseases and emerging disease events through immediate notifications to WOAH in accordance with the standards of the WOAH Terrestrial Animal Health Code and WOAH Aquatic Animal Health Code.

The identified barriers will inform the development of targeted strategies and recommendations to improve notification and inform capacity building investments. The project builds on previous surveys and workshops to further understand the relevant issues that may affect notification. Through this improved understanding, it is expected that support can be provided to WOAH Members that better addresses their respective needs.

Participants:

You have received this survey because you have been identified as having a role in notification of disease events to WOAH. Personnel with an active role in notification (either to prepare, approve or submit reports) are invited to participate, including:

- WOAH Delegates,
- Chief Veterinary Officers (if not also the WOAH Delegate),
- WOAH National Focal Points for Animal Disease Notification to WOAH,
- WOAH National Focal Points for Aquatic Animals,
- WOAH National Focal Points for Wildlife,
- WOAH National Focal Points for Veterinary Laboratories,
- Any other personnel that have a significant role in notification, including deputies or alternate.

Participation will be role based (not representative), meaning that multiple responses are sought from each participating WOAH Member country. Multiple responses can also be provided for a particular role, where that role is performed by multiple personnel.

Use of Data and Feedback:

The data will be used to produce a report and to prepare summary articles and presentations to be shared with Delegates and participants. At the end of the project, a webinar will be provided to share results with participants. It is expected that final results will be available from early 2025.

Participant Involvement:

Confidentiality. Your participation in this study will be anonymous, which means you will not be providing any personal details that can link your survey responses to you personally, or to your country. Results will only be reported in aggregate. There are opportunities in the survey for you to provide written comments if you have additional information to share. Please do not include your name or any personal information in these sections.

Voluntary participation & withdrawal. Your participation is voluntary. You may decline to take part or withdraw without providing an explanation at any time until you submit your survey response. Once your survey response is submitted, your data will be unattributable to you amongst the other data and will not be able to be removed.

What does participation in the research entail? The survey that will ask questions about your views on notifying WOAH of disease events; for example, about risks and benefits of providing notifications. You will not be identifiable in the information that you share. Following completion of the survey, participants will be invited to participate in short online workshops where they will be provided with preliminary results and be invited to discuss the findings.

Location and Duration. The survey will be conducted online and should take no more than 20 minutes for you to complete.

Risks. As participation is anonymous, there is no identifiable risk of participation.

Benefits. There is no personal benefit from participating in this research, but it does offer an opportunity for you to voice factors important to you when it comes to notification of disease events to WOAH. In addition, the project will inform the development of capacity building activities which may support participants in their professional roles associated with notification.

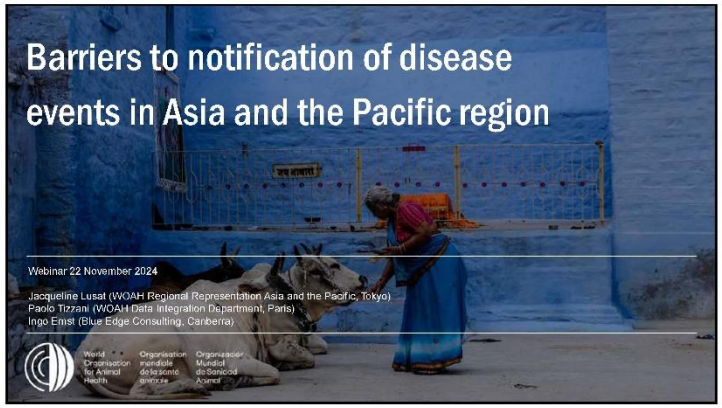
Privacy Notice:

This research will be conducted in accordance with the WOAH Privacy Policy (https://www.woah.org/en/privacy-policy/). By participating in this research you are agreeing to the terms of the policy.

Contact details for more information:

If you have any questions about this project, you can contact Ingo Ernst (consultant; ernstingo2@gmail.com), Jacqueline Lusat (WOAH project manager; j.lusat@woah.org), or Paolo Tizzani (WOAH project manager; p.tizzani@woah.org).

Annex 4. Introductory presentation



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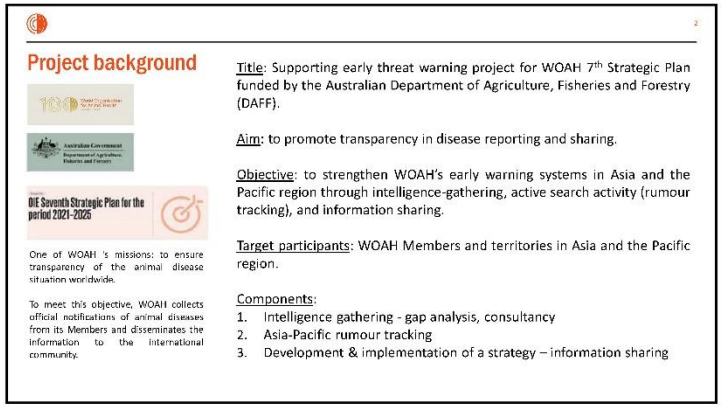

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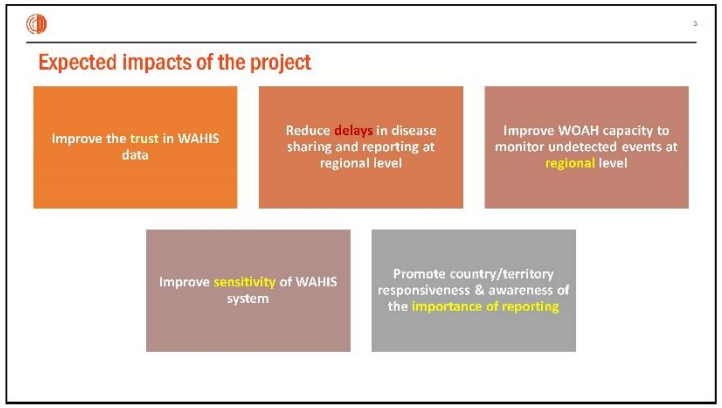

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Purpose of notification system

- Transparency of the animal health situation
- Early warning of health threats
- Reduce risk of disease spread
- Improve awareness of health status in countries/territories on presence and absence of diseases.

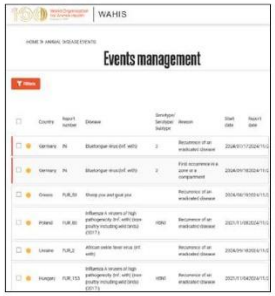
5

What has been done?

Analysis
- Survey of Notification Focal Points
- Analysis of WAHIS reporting

Systems
- Rumour tracking
- Redevelopment of WAHIS

Support
- Training of focal points
- PVS pathway



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EIOS – key figures

EIOS EPIDEMIC INTELLIGENCE FROM OPEN SOURCES

Daily screening of the web for all listed and emerging diseases

15,000 sources

500 disease categories

15 languages

100,000 – 150,000 news/year

Communication between WOAH and its Members

7

Current situation

Strengths
- Satisfactory reporting accuracy for some priority diseases
- Improved communication with Members
- Increased capacity of detecting and verifying unofficial information

Weaknesses
- Delay in notification of exceptional epidemiological events
- Incomplete submission of mandatory reports
- Low accuracy / sensitivity of reporting for some diseases

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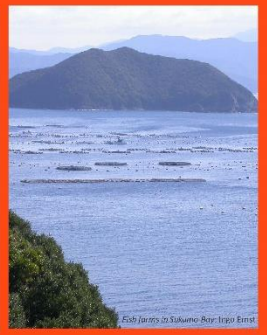
2. Current project



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Why is it needed?

- Notification of disease events is a fundamental obligation of WOAH members since 1924
- The purpose (transparency of global animal disease situation) is a shared benefit among members.

Article 5

The Governments shall forward to the Office:

1. By telegram, notification[1] of the first cases of rinderpest or foot and mouth disease observed in a country or an area hitherto free from the infection.

2. At regular intervals, bulletins prepared according to a model adopted by the Committee, giving information on the presence and distribution of the following diseases:

BUT…

- In practice, obligations are not met consistently
- Notification practice does not align with its purpose and importance.

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Project objectives

1. Identify and analyse key barriers to disease notification for both terrestrial and aquatic animals, and
2. Develop strategies and recommendations to overcome the identified barriers.

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Scope

1. Immediate notifications for listed diseases (in accordance with article 1.1.3 of the Aquatic Code and Terrestrial Code)
2. Immediate notification for emerging diseases (in accordance with article 1.1.4 of the Aquatic Code and Terrestrial Code).

Out of scope:

- Semestral reporting
- Annual reports.

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Methodology

1. **Online survey** to explore the key elements of the notification process.

2. **Focus group workshops** to share preliminary survey results, validate findings, and explore root causes.

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Methodology - Survey

- Anonymity - responses not linked to any person or country
- Participants include delegates and focal points (notification, aquatic, wildlife and laboratories)
- Person centred approach – the opinions and perspectives of people involved in notification are important

  !! There are no wrong answers !!
- Several measures included to identify key factors affecting notification
- Draws on validated survey design approaches.

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Methodology – Focus groups

- Several focus group meetings to be held in early December
- Participants will receive preliminary results of survey
- Focus group meeting aims:
  - ✓ Validate survey findings
  - ✓ Undertake root cause analysis
  - ✓ Discuss meaningful activities to address barriers.

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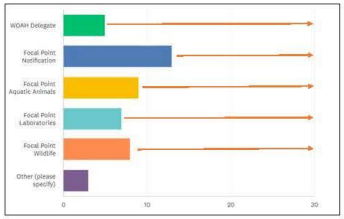
3. Opportunities to contribute

16

1. Survey

- Opportunity to share views anonymously
- Project success relies on sufficient response rate
- Responses needed from all categories of participant
- Survey closes 29 November (next Friday)



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3. Project webinar

- Presentation of final project results
- To be held in Feb 2025

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2. Focus groups

- Will receive early results of survey
- Discuss root causes of any identified barriers
- Opportunity to validate results and contribute to shaping the project recommendations
- Will be opportunities to share views anonymously if preferred
- Three focus groups to be held on 5 December.

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4. Conclusions

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Summary

- Notification is an important and fundamental requirement of the standards
- The system is working but not adequately meeting its purpose
- This project takes a person-centred approach to identifying barriers, their causes and meaningful solutions
- Your participation is essential for project success and to achieve beneficial outcomes for our region.

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Next steps

- ✓ Please complete the online survey by 29 November (next Friday)
- ✓ Please register for focus group workshops
  - To be held 5 December at 3 times – 12pm, 3pm, 6pm (Sydney time)
  - Up to 20 people per time
  - Registration link to be sent early next week.

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Thank you

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Organisation mondiale de la santé animale
Organización Mundial de Sanidad Animal

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Annex 5. Survey questions

Barriers to disease notification in terrestrial and aquatic animals in Asia-Pacific

1. Introduction

WOAH is conducting research to identify barriers to notification of terrestrial and aquatic animal disease events and strategies to address them. We would be grateful for your participation.

Purpose:
This project aims to identify the barriers to immediate notification of terrestrial and aquatic animal disease events in Asia and the Pacific region. The project focuses on the early warning of listed disease events and emerging disease events through immediate notifications to WOAH in accordance with WOAH standards.

The identified barriers will inform the development of targeted strategies and recommendations to improve notification and inform capacity building investments. The project builds on previous surveys and workshops to further understand the relevant issues that may affect notification. Through this improved understanding, it is expected that support can be provided to WOAH Members that better addresses their respective needs.

Participants:
You have received this survey because you have been identified as having a role in notification of disease events to WOAH and your Delegate has agreed to your participation. Personnel with an active role in notification (either to prepare, submit, authorise or otherwise support reports) have been invited to participate, including:

- **WOAH Delegates,**
- **Chief Veterinary Officers (if not also the WOAH Delegate),**
- **WOAH National Focal Points for Animal Disease Notification,**
- **WOAH National Focal Points for Aquatic Animals,**
- **WOAH National Focal Points for Laboratories,**
- **WOAH National Focal Points for Wildlife,**
- **Any other personnel that have a significant role in notification, including deputies or alternate staff for the roles above.**

Participation is role based (not representative), meaning that multiple responses are sought from each participating WOAH member country or territory. Multiple responses can be provided for a particular role, where that role is performed by multiple personnel.

Click "next" to proceed.

Barriers to disease notification in terrestrial and aquatic animals in Asia-Pacific

2. Participant Information

Please read the below information carefully as it provides you with important information about this survey. Once you have read the information, please click the "next" button at the bottom of the page to agree and commence the survey.

Use of Data and Feedback:
The survey data will be used to produce a report and to prepare summary articles and presentations to be shared with delegates and participants. At the end of the project, a webinar will be provided to share results with participants. It is expected that final results will be available from early 2025.

Participant Involvement:
Confidentiality. **Your participation in this study will be anonymous, which means you will not be providing any personal details that can link your survey responses to you personally, or to your country/territory. Results will only be reported in aggregate. There are opportunities in the survey for you to provide written comments if you have additional information to share. Please do not include your name or any personal information in these sections.**

Voluntary participation & withdrawal. **Your participation is voluntary. You may decline to take part or withdraw without providing an explanation at any time until you submit your survey response. Once your survey response is submitted, your data will be unattributable to you amongst the other data and will not be able to be removed.**

What does participation in the research entail? **The anonymous survey will ask questions about your views on notifying WOAH of disease events; for example, about risks and benefits of providing notifications. You will not be identifiable in the information that you share. Following completion of the survey, all nominated participants will be invited to participate in short online focus group meetings where they will be provided with preliminary results and be invited to discuss the findings.**

Location and Duration. **The anonymous survey will be conducted online and should take about 25 minutes for you to complete.**

Risks. **As participation is anonymous, there is no identifiable risk of participation.**

Benefits. **This research offers an opportunity for you to voice factors important to you about notification of disease events to WOAH. In addition, the project will inform the development of capacity building activities which may support participants in their professional roles associated with notification.**

Privacy Notice:
This research will be conducted in accordance with the WOAH Privacy Policy. By participating in this research, you are agreeing to the terms of the policy.

Contact details for more information:
If you have any questions about this project, you can contact Ingo Ernst

(consultant; ernstingo2@gmail.com), Jacqueline Lusat (WOAH project manager; j.lusat@woah.org), or Paolo Tizzani (WOAH project manager; p.tizzani@woah.org).

Click the "NEXT" button if you agree and wish to proceed with the survey.

Barriers to disease notification in terrestrial and aquatic animals in Asia-Pacific

3. Your role

Instructions: the following questions are about your role in preparing, submitting, authorising or otherwise supporting immediate notifications to WOAH in accordance with Article 1.1.3 (listed diseases) or Article 1.1.4 (emerging diseases) of the Terrestrial Code or Aquatic Code.

* 1. In what role(s) do you contribute to providing immediate notifications to WOAH? Please choose only those that apply to you.

- [ ] WOAH Delegate
- [ ] WOAH National Focal Point for Animal Disease Notification
- [ ] WOAH National Focal Point for Aquatic Animals
- [ ] WOAH National Focal Point for Laboratories
- [ ] WOAH National Focal Point for Wildlife
- [ ] Other (please specify)

* 2. For which of the following are you responsible for preparing, submitting, authorising, or otherwise supporting immediate notifications? Choose all that apply.

- [ ] aquatic animal disease events
- [ ] terrestrial animal diseases events
- [ ] wildlife disease events

* 3. From which organisation do you perform your role to provide immediate notifications to WOAH?

- ◯ Veterinary Authority
- ◯ A competent authority other than the Veterinary Authority
- ◯ Non-government organisation

Barriers to disease notification in terrestrial and aquatic animals in Asia-Pacific

4. Sector importance

Instructions: the following questions are about your opinion of the importance of different industry sectors or issues in your country or territory. We are interested in your opinion so please provide your best view based on any factors that may be important to you (e.g. economy, food security, culture, environment).

Note that some questions in the survey may ask you to respond in a certain way—these are for quality control.

* 4. In your opinion, how important are the following sectors to your country/territory?

	Not important	Somewhat important	Moderately important	Very important	Extremely important
Terrestrial animal production	○	○	○	○	○
Aquatic animal production	○	○	○	○	○
Terrestrial animal exports	○	○	○	○	○
Aquatic animal exports	○	○	○	○	○

* 5. In your opinion, how important is management of the following issues to the overall goals of your organisation.

	Not important	Somewhat important	Moderately important	Very important	Extremely important
Terrestrial animal health	○	○	○	○	○
Aquatic animal health	○	○	○	○	○
Wildlife health	○	○	○	○	○

* 6. To answer this question, please choose “moderately important.”

Not important	Somewhat important	Moderately important	Very important	Extremely important
○	○	○	○	○

Barriers to disease notification in terrestrial and aquatic animals in Asia-Pacific

5. Organisational knowledge and capability

Instructions: the following questions are about your organisation's knowledge and capabilities relevant to making immediate notifications to WOAH in accordance with Article 1.1.3 (listed diseases) or Article 1.1.4 (emerging diseases) of the Terrestrial Code or Aquatic Code. Please provide your opinion based on your own experience and perspectives. All of your responses are anonymous and will not be attributed to you or your country/territory.

Note that some questions in the survey may ask you to respond in a certain way—these are for quality control.

NOTE - in this survey, "immediate notification" refers to notifications made to WOAH under the following circumstances:

Listed diseases. In accordance with Article 1.1.3, notifications are required within 24 hours for the following listed disease events: first occurrence in a country, zone or compartment; recurrence in a country, zone or compartment; first occurrence of a new strain of a listed disease; a sudden and unexpected change in distribution, or increase in incidence, morbidity or mortality; occurrence in a new host species.

Emerging diseases. In accordance with Article 1.1.4, notifications are required when an "emerging disease" has been detected. "Emerging diseases" are defined in the glossary of the Terrestrial Code and Aquatic Code.

* 7. Within my organisation there is a clear understanding of the Terrestrial Code and Aquatic Code requirements for making immediate notifications to WOAH.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 8. Within my organisation there is a clear understanding of the purpose of providing immediate notifications to WOAH.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 9. I understand my individual responsibilities for preparing, authorising, submitting or otherwise supporting immediate notifications to WOAH.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 10. Within my country/territory, there are effective systems and communication channels for reporting animal disease events at all steps until received by the national veterinary authority.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 11. Within my country/territory, animal disease events are investigated promptly.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 12. Within my country/territory, efforts are made to diagnose animal disease events promptly.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 13. Within my country/territory, decisions on whether to make an immediate notification are made promptly following confirmatory diagnosis.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 14. Within my country/territory, it is clear who has the authority to decide if an animal disease event meets the requirements for providing an immediate notification to WOAH.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 15. Within my country/territory, the knowledge and capabilities in questions 10 to 14 are generally stronger for terrestrial animal diseases than for aquatic animal diseases.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 16. Choose the first option—"strongly disagree"—in answering this question.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

Barriers to disease notification in terrestrial and aquatic animals in Asia-Pacific

6. Importance of notification

Instructions: the following questions are about your views on the importance of making immediate notifications to WOAH and the expectations of others. Please provide your opinion based on your own experience and perspectives. All of your responses are anonymous and will not be attributed to you or your country/territory.

Note that some questions in the survey may ask you to respond in a certain way—these are for quality control.

* 17. I believe it is important for my country/territory to provide immediate notifications to WOAH for the following **listed disease** events in accordance with Article 1.1.3 of the Terrestrial Code or Aquatic Code.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Terrestrial animal disease events	○	○	○	○	○
Aquatic animal disease events	○	○	○	○	○
Wildlife disease events	○	○	○	○	○

* 18. I believe it is important for my country/territory to provide immediate notifications to WOAH for the following **emerging disease** events in accordance with Article 1.1.4 of the Terrestrial Code or Aquatic Code.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Terrestrial animal disease events	○	○	○	○	○
Aquatic animal disease events	○	○	○	○	○
Wildlife disease events	○	○	○	○	○

* 19. When my country/territory provides immediate notifications to WOAH, it helps to:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
limit the international spread of animal diseases	○	○	○	○	○
maintain the confidence of our trading partners	○	○	○	○	○
maintain acceptance of our broader disease-free status by other countries	○	○	○	○	○

* 20. Within my organisation, it is generally expected that we will make immediate notifications to WOAH in accordance with the WOAH standards.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 21. Ministers and senior government officials in my country/territory would generally accept that we need to make immediate notifications to WOAH in accordance with the WOAH standards.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 22. To respond to this question, please choose the fifth option "Strongly agree".

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 23. Our trading partners would disapprove if we delayed making an immediate notification.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 24. Other countries/territories in my region do their best to make immediate notifications in accordance with WOAH standards.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

Barriers to disease notification in terrestrial and aquatic animals in Asia-Pacific

7. Factors that facilitate or impede notification

Instructions: the following questions are about factors that may influence your organisation's ability to make immediate notifications to WOAH in accordance with Chapter 1.1 of the Terrestrial Code or Aquatic Code. Please provide your opinion based on your own experience and perspectives. All of your responses are anonymous and will not be attributed to you or your country/territory.

* 25. I am confident my organisation would know about any disease events occurring in our country/territory that might require an immediate notification to WOAH.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 26. My organisation has the resources it needs to make immediate notifications to WOAH in accordance with the WOAH standards.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 27. I have the necessary authority to carry out my responsibilities for making an immediate notification to WOAH in accordance with the WOAH standards.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 28. There are some issues in my country/territory that make it difficult to make immediate notifications to WOAH in accordance with the WOAH standards.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 29. For a **listed** disease event of **terrestrial** animals, what single issue would be most likely to prevent or delay your country/territory from making an immediate notification to WOAH?

* 30. For a **listed** disease event of **aquatic** animals, what single issue would be most likely to prevent or delay your country/territory from making an immediate notification to WOAH?

* 31. For an **emerging** disease event, what single issue would be most likely to prevent or delay your country/territory from making an immediate notification to WOAH?

* 32. My country/territory would notify WOAH within 24 hours of confirmation of the following disease events that met the requirements for an immediate notification:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a listed disease of terrestrial animals	○	○	○	○	○
a listed disease of aquatic animals	○	○	○	○	○
an emerging disease	○	○	○	○	○

* 33. In the past, my country/territory has provided timely immediate notifications to WOAH in accordance with the WOAH standards for:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
listed disease of terrestrial animals	○	○	○	○	○
listed disease of aquatic animals	○	○	○	○	○
emerging diseases	○	○	○	○	○

* 34. For a confirmed disease event that met the requirements for making an immediate notification, how likely is it that the following would occur:

	Very unlikely	Unlikely	Neither likely nor unlikely	Somewhat likely	Very likely
we would notify WOAH within 24 hours	○	○	○	○	○
we would take several days to consult with relevant officials or stakeholders before making a notification	○	○	○	○	○
we would focus on the disease response and make an immediate notification when we had time	○	○	○	○	○

* 35. My country/territory always tries to make immediate notifications to WOAH for disease events in accordance with WOAH standards.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

Barriers to disease notification in terrestrial and aquatic animals in Asia-Pacific

8. Benefits and risks of notification

Instructions: the following questions are about your views on the benefits and risks of notification, which may include trade, economic, political or reputational issues. Please provide your opinions based on your own experience and perspectives. All of your responses are anonymous and will not be attributed to you or your country/territory.

Note that some questions in the survey may ask you to respond in a certain way—these are for quality control.

* 36. I believe that making an immediate notification to WOAH would present **risks** for:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
my country (or territory)	◯	◯	◯	◯	◯
the Veterinary Authority in my country (or territory)	◯	◯	◯	◯	◯
animal industry sectors in my country (or territory)	◯	◯	◯	◯	◯

* 37. In your opinion, what would be the single greatest **risk** from making an immediate notification to WOAH? (choose only one)

- ◯ Reduced access to international markets
- ◯ Reduced trading partner confidence in our animal disease management
- ◯ Reduced confidence of our politicians in our animal disease management
- ◯ Reduced confidence of our animal industry in our animal disease management
- ◯ Domestic consumer behaviour is negatively impacted
- ◯ Increased workload for the Veterinary Authority
- ◯ No risk
- ◯ Other (please specify)

* 38. Please answer this question by choosing the second option, "Disagree".

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
◯	◯	◯	◯	◯

* 39. I believe that making an immediate notification to WOAH would present **benefits** for:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
my country (or territory)	◯	◯	◯	◯	◯
the Veterinary Authority in my country (or territory)	◯	◯	◯	◯	◯
animal industry sectors in my country (or territory)	◯	◯	◯	◯	◯

* 40. In your opinion, what would be the single greatest **benefit** from making an immediate notification to WOAH? (choose only one)

- ◯ Limiting the international spread of animal diseases
- ◯ Maintaining our international reputation for transparency and compliance with WOAH standards
- ◯ Controlling the accurate communication of disease information to our trading partners
- ◯ Providing detailed disease information to avoid unnecessary/unwarranted trade impacts
- ◯ Maintaining political confidence in the professionalism of our Veterinary Authority
- ◯ Maintaining our industry's confidence in the professionalism of our Veterinary Authority
- ◯ No benefit
- ◯ Other (please specify)

Barriers to disease notification in terrestrial and aquatic animals in Asia-Pacific

9. Trading partners

Instructions: The following questions are about trading partners considering or implementing new sanitary measures for commodities in response to an immediate notification made by your country/territory. Please provide your own opinions based on your overall experience and perspectives of trading partners. All of your responses are anonymous and will not be attributed to you or your country/territory.

Note that "commodities" is used here as defined in the Terrestrial Code and Aquatic Code.

Note that some questions in the survey may ask you to respond in a certain way—these are for quality control.

* 41. When considering or implementing changed import measures for commodities from my country/territory, trading partners:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
have the expertise to consider new disease information and make changes that are in accordance with WOAH standards	○	○	○	○	○
have the right systems and processes to implement changes in accordance with WOAH standards	○	○	○	○	○
would set their import measures very well	○	○	○	○	○

* 42. When considering or implementing changed import measures for commodities from my country/territory, trading partners:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
approach my country/territory in a sincere way	○	○	○	○	○
try to apply the WOAH standards appropriately	○	○	○	○	○
are honest	○	○	○	○	○

* 43. When considering or implementing changed import measures for commodities from my country/territory, trading partners:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
would treat us in the same way that they would like to be treated	○	○	○	○	○
would act in the best interest of our overall bilateral relationship	○	○	○	○	○
would act fairly	○	○	○	○	○

* 44. If our trading partners changed import measures for our commodities based on an immediate notification from us, I am confident that those changes would be in accordance with the WOAH standards.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 45. To respond to this question, please choose the third option, "Neutral".

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 46. If our trading partners strengthened import measures for commodities from my country/territory, I am confident that their changes would not go beyond the level necessary to protect their animal health or human health.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

* 47. I wish there was independent oversight of our trading partners' decisions to change import measures for our animal commodities.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

Barriers to disease notification in terrestrial and aquatic animals in Asia-Pacific

10. Strategies to improve notification and member support

Instructions: the following questions are about your views on how the benefits of notification might be maximised, the risks minimised and on the support that WOAH could provide to assist you or your country/territory with notification. Please provide your opinions based on your own experience and perspectives. Your responses are anonymous so please do not include any information in these answers that can identify you or your country/territory.

48. In your experience, what are the best ways to **maximise any benefits** of making immediate notifications?

49. In your experience, what are the best ways to **minimise any risks** of making immediate notifications?

50. In your opinion, what is the single best thing that WOAH could do to assist your country/territory to make immediate notifications in accordance with the WOAH standards?

You have now completed the survey.
Click the "Prev" button to review any of your answers or click the "Done" button to submit.

Thank you for your participation!