

OIE Project

Building capacity for emergency management through transparency and solidarity

Final Report

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Acronyms

ADC	OIE Guideline for Animal Disease Control
AF	Africa (OIE Region)
AHS	African Horse Sickness
AMR	Antimicrobial Resistance
AP	Asia Pacific (Region)
ASF	African Swine Fever
BSE	Bovine Spongiform Encephalopathy
BT	Bluetongue
bTB	Tuberculosis (bovine)
BWC	Biological Weapons Convention (actual name <i>Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction</i>)
CBPP	Contagious Bovine Pleuropneumonia
CC	Critical Competency (of the OIE PVS Tool)
Code	Terrestrial Animal Health Code
COSALFA	Comisión Sudamericana para la Lucha contra la Fiebre Aftosa
CSF	Classical Swine Fever
EC	European Community
FAO	Food and Agriculture Organization of the United Nations
FMD	Foot-and-Mouth Disease
FU	PVS Evaluation Follow-up missions
GEMP	Good Emergency Management Practice
GS	General Session (of the OIE World Assembly of Delegates)
HIC	High Income countries
HPAI	Highly Pathogenic Avian Influenza
IHR	International Health Regulations (2005)
JEE	Joint External Evaluation
LIC	Low-income countries
LMIC	Lower middle income countries
LoA	Level of Advancement
LSD	Lumpy Skin Disease
ME	Middle East (OIE Region)
MERS-CoV	Middle East Respiratory Syndrome coronavirus
NCP	National (animal disease) Contingency Plan
NGO	Non-government Organisation
NHP	National Hazard Plan
OIE	World Organisation for Animal Health
PARC	Pan African Rinderpest Campaign (FAO)
PCP-FMD	FAO-OIE Progressive Control Pathway
PPR	Peste des Petits Ruminants
PVS	Performance Veterinary Services
RP	Rinderpest
RVF	Rift Valley Fever
SARS	Severe Acute Respiratory Syndrome
SIMEX	Simulation Exercise
SVD	Swine Vesicular Disease
TGE	Transmissible Gastro Enteritis
TSE	Transmissible Spongiform Encephalopathy
UMIC	Upper middle income countries
UN	United Nations
UNEP	United Nations Environment Programme
VLSP	Veterinary Legislation Support Programme
WAHIS	World Animal Health Information System
WB	World Bank
WHO	World Health Organisation
WNV	West Nile Virus
VS	Veterinary Services
VeS	Vesicular Stomatitis

Executive Summary

The World Organisation for Animal Health (OIE) is well placed to contribute to animal disease emergency management capacity at a global level. Emergency Management capacity is consistent with a key area in the OIE's 6th Strategic Plan in reducing biological risks, whether they are of natural, accidental or intentional origins. Capacity for animal disease contingency planning will be enhanced through transparency and solidarity by providing OIE Member Countries access to practical examples of national contingency plans on a web-based platform.

Each OIE Member Country is only as ready as its least prepared neighbouring country or the next link up in the supply chain of animal-source foods. Evidence in the past decade attests that disease emergencies such as Ebola, highly pathogenic avian influenza, Middle East respiratory syndrome and even antimicrobial resistant strains of common bacteria can very quickly become significant global political and scientific events. International global drivers increasingly include bioterrorism as genetic engineering can create powerful zoonotic strains from a variety of pathogens, such as highly pathogenic avian influenza.

Contingency planning for animal diseases is well advanced and while a number of guidelines exist, there are a lack of standards to reference when developing national contingency plans. It has previously been noted that the OIE is uniquely poised to take the global leadership role to support their Member Countries in this regard.

Of 181 Member Countries, 163 (90%) have some form of a national contingency plan, only 18 apparently do not (10%). Most of the 722 plans relate to ruminants (44.5%) and poultry (24.2%) diseases. These are followed by plans for diseases of pigs (15.7%), horses (5.8%) and for rabies (in dogs/domestic animals and wildlife) (3.2%). There are a very few national contingency plans for aquatic diseases (3.5%), wildlife diseases (1.7%), and diseases of bees (1.4%). It should be noted that in some countries, there are national programmes for control and/or eradication of specified diseases (for example, bovine tuberculosis, Brucellosis, peste des petits ruminants, rabies). Such established programmes may include multi-sectoral approach and provide a useful framework for the development of national contingency plans for other diseases that are not present in a country, or to deal with introduction after the specific disease has been eradicated.

Around 23% of OIE Member Countries have a generic national contingency plan (a few of these include supplementary disease specific national plans), while the remaining OIE Member Countries (77%) have only disease specific plans. Regional differences exist in the type of national contingency plans. Generic plans are more common in the Asia Pacific and Europe Regions whilst disease specific plans predominate in Africa, the Americas and the Middle East Regions.

Many Member Countries across the five OIE Regions have either single or fewer than five national contingency plans for specified diseases of importance to them (45% have 1 to 2; 24% have 3 to 5, 19% have 5 to 9 and 12% have 10 or more plans). The five most common specific national contingency plans are for highly pathogenic avian influenza (78% of the countries have a plan for this disease), followed by foot and mouth disease (58% of the countries have a plan for this disease), classical swine fever (27% of the countries have a plan for this disease), Newcastle disease (25% of the countries have a plan for this disease) and African swine fever (24% of the countries have a plan for this disease). The diseases for which national contingency plans exist varies by geographic risk and number of countries with plans in those OIE Regions. A bias exists for the OIE Europe Region because countries in this region submitted the greatest number of plans. It is likely that some countries have a single national

contingency plan for highly pathogenic avian influenza owing to concerns about the emergence of a pandemic strain of influenza from H5N1 highly pathogenic avian influenza in the mid-2000s. Significant international investment went into building capacity to respond to H5N1 and it is evident that some of these plans were written by external consultants (written style of some plans and author's experiences). Not all of these plans have been tested through national simulation exercises.

Following an official request to OIE Member Countries for national contingency plans to populate the OIE's web-based platform, 56 Delegates responded (a response rate of 31%). Of these 56 responses, 39 (70%) Delegates provided 269 NCPs in total. The other 17 Delegates (30%) indicated the existence of national contingency plans that were in the process of development or validation and would be made available to the OIE in due course. Most of the provided national contingency plans made available to the OIEs were for a single disease (84.7%), followed by a generic plan (8.6%), and a combined generic plan with supplemental single disease specific plans (6.7%).

We considered the content of 75 plans (around 28% of those submitted), of which 40% were generic and 60% disease specific, against specified criteria which we defined from the relevant OIE Guidelines and Food and Agriculture Organization (FAO) Good Emergency Management Practices. Of the 30 generic plans, 16 (53%) were very closely aligned, and 14 (47%) were aligned. Of 45 single disease plans, 28 (63%) were considered aligned and 17 (37%) to be of somewhat aligned. OIE Member Countries support this initiative and felt the official validation by the OIE of NCPs would be desirable before they are published on the OIE website.

Nearly 50% (72 countries) of the 163 Member Countries with national contingency plans have undertaken a simulation exercise during the past decade or so. Animal Welfare is included in about a half (50%) of the available 30 National Hazard Plans from four OIE Regions and in about 36% of the national contingency plans submitted by the responding OIE Delegates.

The use of OIE Performance of Veterinary Services (PVS) reports supplemented the official request and internet search for plans, and an analysis of the content of available PVS Pathway reports was used to determine the level of capacity for contingency planning by national Veterinary Services. Examination of two Critical Competencies, emergency funding and emergency response, yielded data on the levels of advancement in countries that had participated in the PVS Pathway. Using a United Nations socioeconomic index, it was noted that high income countries are less represented in the data gathered (25%) as opposed to over 80% for each of the other three socioeconomic groupings. Data is thus skewed to the other socioeconomic groups. The Africa Region had the greatest gap in emergency funding with 70% of countries having no or inadequate funding, followed by the Middle East Region (66%) and Americas Region (54%). The Europe and Asia Pacific Regions generally had limited or adequate funding. With respect to emergency response a significant proportion of countries in the Americas (54%), Europe (57%) and Asia Pacific (52%) had national contingency plans whether they were regularly updated/tested or not. Africa (81% of countries in the region) and Middle East (67% of countries in the region) Regions lacked the ability to detect an emergency disease outbreak or the necessary legal or financial support to respond.

It is recommended that the OIE leverage off previous successful collaborations with the FAO and World Health Organization (WHO) to encourage a One Health approach where the inherent mandate of each organization defines roles. The OIE should establish common terminology and develop target standards for national contingency plans, including scheduled simulation exercises, which are already considered as part of the PVS Pathway Critical Competency on emergency response levels of advancement but not yet included in the *Terrestrial Animal Health Code* (Code) along with other modern emergency management concepts such as an Emergency Operations Centre. An analysis of

content of national contingency plans will help build the criteria for standards through a bottom-up participatory approach and a web-based platform for sharing plans will allow countries to share best practices. The FAO and OIE could assist countries to develop 'fit for purpose' sustainable plans using complementary capacity building tools that suit different regional needs and characteristics. Working with the World Health Organization under the International Health Regulations Monitoring and Evaluation Framework will encourage development of multi-sectoral plans with all implicated Competent Authorities engaged and encourage greater political buy-in by both national governments and international donors. Monitoring of the integration of such planning can be through the already operational OIE Performance of Veterinary Services Pathway and World Health Organization Joint External Evaluations.

1. Background

An animal disease risk (including zoonoses and food-borne diseases) always originates at a local level and is directly influenced by complex interactions between continually changing political, natural, human, animal and plant health related aspects as well as socio-economic domains and determinants. In many cases, these risks or events quickly gain attention of responsible international organisations as well as the scientific community and, in some cases, political (e.g. highly pathogenic avian influenza -HPAI, Severe Acute Respiratory Syndrome-SARS, Middle East respiratory syndrome-MERS-CoV, antimicrobial resistance-AMR).

This work is in support of the OIE activities which aim to strengthen the national capacities for animal disease contingency planning of the OIE Member Countries through transparency and solidarity by providing countries with access to practical examples of national contingency plans. It also serves as an additional resource for guiding standard/guidelines settings.

2. Objectives

This work focuses on the two key areas aimed at national Veterinary Services' (VS) capacity to prevent, detect and respond to outbreaks of animal diseases, including recovery:

- a) National Contingency Plans (NCPs) - to (i) collect and analyse national contingency plans (NCPs) whether generic and/or disease specific, including welfare aspects); (ii) analyse NCPs, including available National Hazard Plans (NHPs) to assess whether the animal health sector/national VS is included in the broader multi-sectoral approach; and (iii) to populate a web-access OIE database,
- b) OIE Performance of Veterinary Services (PVS) Pathway - to review PVS Pathway reports to describe level of capacity for management of disease emergency by national VS relating to critical competencies (CC)s specifically (i) CC I-9 Emergency Funding; (ii) CC II-6 Emergency response; (iii) any other critical competency identified relevant to capacity to respond to disease emergencies; and (iv) identify association of emergency management capacity with socio-economic and geo-political factors.

The expected outputs are:

- a) NCPs: (i) a preliminary analysis of the current trends in global capacity for contingency planning in animal health and preparedness for emergency response which will help to target capacity building, (ii) a preliminary analysis of the involvement of animal health sector in multi-sectoral national contingency plans for natural disasters
- b) OIE PVS Pathway: Identify gaps in national VS capacity for emergency management which may benefit from capacity building assistance.

The outputs will contribute to:

- a) Identifying issues and challenges at policy and operational level that may need to be addressed to aid evidence and risk-based policies that are fit for purpose at international and national level;
- b) Informing OIE standard/guideline setting by providing a valuable initial resource of NCPs that can contribute to OIE and FAO planning and that can also be further updated on a regular basis as the new plans become available;
- c) Improving the OIE's publicly available web-based platform that provides for solidarity through open and transparent sharing of tested and validated national animal disease contingency plans between OIE Member Countries; and

- d) Planning of practical and fit for purpose training in the development of NCPs in line with the Food and Agriculture Organization (FAO)'s Good Emergency Management Practice (GEMP).

3. Methodology

3.1 Data collection

We have received from the OIE the official information on the OIE Member Countries and their Regional affiliation as a spreadsheet. On this basis we developed our working spreadsheet where all relevant information we gathered from various sources was inserted and combined.

In terms of the initial sampling frame, it was decided at an early stage of the work to approach all OIE Member Countries for information using the up to date membership list as we also wanted to get the information on the potential interest from the members on this type of OIE activity. Hence, the OIE Director General (DG) officially introduced this project and requested support from all 181 OIE Delegates and copying in OIE Regional Offices and National Focal Points (Annex 1 - the OIE official letter and two subsequent follow-ups by the project team as explained in Section 3.1.1 below).

The working spreadsheet was regularly updated to incorporate the responses received from the OIE Member Country Delegates following the OIE (see below) our official request.

3.1.1 NCPs

To collect information for NCPs, we:

- a) Requested all 181 Member Countries to submit the available NCPs (i.e. whether publicly available or not) and indicate whether they would be prepared to share the plans publicly on the OIE website;
- b) Used the internet to access the OIE Member Countries official websites;
- c) Used the OIE website for publicly available NCPs;
- d) Used the OIE website for simulation exercises (SIMEX);
- e) Used the NCPs listed in PVS Evaluation Reports.

3.1.2 International general and specific criteria for NCPs

To collect information relevant to the content of NCPs and its alignment with international guidance we:

- a) Used publicly available documents from the official websites related to:
 - The OIE Codes and Standards (Terrestrial and Aquatic) (OIE, 2017; OIE, 2017a);
 - The OIE World Animal Health Information System (WAHIS) (OIE, 2018);
 - OIE Guidelines for Animal Disease Control, 2014, (including wildlife and on Animal Welfare) (OIE, 2014);
 - OIE Guidelines on Disaster Management and Risk Reduction in Relation to Animal Health and Welfare and Veterinary Public Health, May 2016 (OIE, 2016);
 - Draft OIE Chapter 4. Y. (Annex 25): Official Control of Emerging and Listed Diseases (in draft and not publicly available);
 - FAO/OIE/WHO the Tripartite's Commitment: Providing multi-sectoral, collaborative leadership in addressing health challenges (October 2017) (FAO-OIE-WHO, 2017);
 - World Health Organization (WHO) Joint External Evaluation Tool (JEE) (WHO, 2018);

- OIE website: SIMEX (OIE, 2018a);
- OIE website: Official disease status (OIE, 2018b);
- OIE website: Disease Emergency Preparedness (OIE, 2018c);
- WHO International Health Regulations (WHO, 2016);
- OIE Global Animal Welfare Strategy (OIE, 2017);
- OIE Biological Threat Reduction Strategy – strengthening global biological security (OIE, 2015);
- FAO Good Emergency Management Practices (GEMP) (FAO, 2011);
- FAO Biosecurity Tool (FAO, 2007);
- OIE, FAO Global Strategy for the control and eradication of PPR (OIE-FAO, 2015);
- UNEP – Disaster Risk Reduction (UNISDR, (2017);
- UN - Country classification – WESP 2012 (UN, 2012);
- Specific legal requirements for EC Member States (i.e. EC 92/119, Annex 4 – criteria for NCP's (EC, 1992).

3.1.3 PVS Pathway and Joint External Evaluation (JEE) missions

To collect information on PVS Pathway, we:

- a) Reviewed the *OIE PVS Tool Manual of the Assessor Experts' Manual* (2013);
- b) Reviewed the *PVS Manual for Experts Veterinary Legislation Support Programme Volume 1 Technical guidance* (2015);
- c) Extracted data on level of advancement (LoA) for emergency funding (CCI-9) and emergency response (CCII-6) and corresponding text from:
 - PVS Evaluation, Gap Analysis and Evaluation Follow-Up Missions reports publicly available on the OIE website (OIE, 2018d);
 - PVS Evaluation, Gap Analysis and Evaluation Follow-Up Mission reports in the OIE PVS File Manager for reports available to donors and partners (OIE, 2018e); and
 - Level of Achievement tables and corresponding texts for the two CCs copied from confidential PVS Pathway Mission reports by OIE staff.
- d) Reviewed Veterinary Legislation Support Programme reports and the Experts Manual (OIE, 2018f, OIE, 2015a);
- e) Reviewed PVS Gap Analysis or PVS Evaluation Follow-Up Mission reports and updated the LoA for CCI-9 and CCII-6 where appropriate;
- f) Extracted pertinent details from report text describing the two CCs translating from all OIE languages;
- g) Inserted specific contingency plans referenced in the text into the spreadsheet; and
- h) Inserted where a country also had a WHO Joint External Evaluation (JEE) to compare PVS LoA with the JEE scores for Emergency Response Capability.

3.1.4 Socio-economic Index

To assign a socio-economic index, we:

- a) Used a United Nations (UN) classification system reflecting level of development by gross national income per capita (expressed as US\$):
 - low-income countries (LIC)-less than \$1,035 per capita;
 - lower middle income countries (LMIC) between \$1,036 and \$4,085:

- upper middle income countries (UMIC) between \$4,086 and \$12,615; and
- high income countries (HIC)- more than \$12,615.

3.1.5 Confidentiality

We have made every possible attempt to maintain the confidentiality of the OIE Member Countries and our assessment and discussion is maintained at the OIE Regional level or higher throughout this document.

4. Results – NCPs and Management of Animal Health Emergencies

4.1 NCPs - OIE and International Context

Management of animal health and responses to contagious diseases through development and implementation of NCPs is primarily driven by national priorities and compliance with international standards and requirements. In this sense, national authorities rely on guidance provided by the OIE standards and strategies and FAO operational guidelines and manuals (Fig. 1). These support national governments and their capacity to deal with disease events that pose risk to animal health, public health (zoonoses) and environmental health.

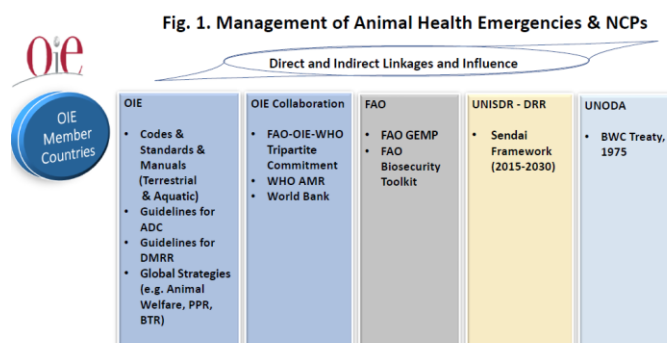
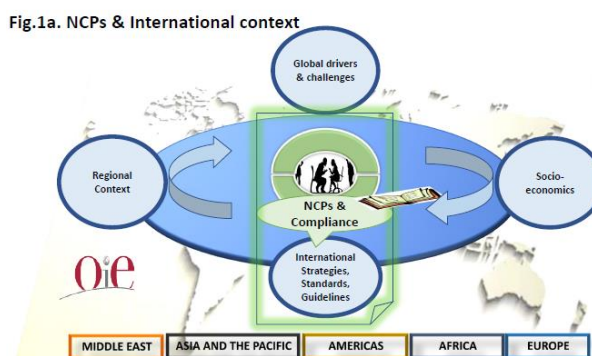


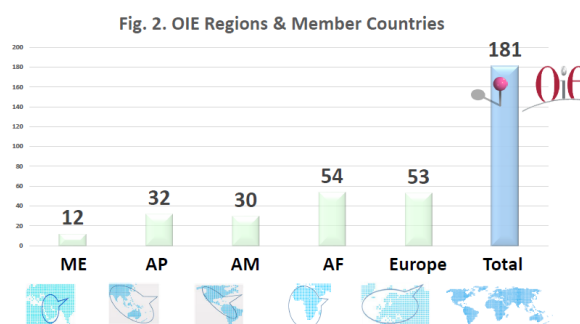
Fig. 1a summarises the global environment which have direct and indirect influence on a country's ability to develop and implement NCPs. It also highlights requirements for national governments NCPs to comply with required standards for reporting, communication and collaboration to mitigate the risks and potential for global impact. To directly assist the OIE Member countries' VS in the development of NCPs, the OIE has produced *A Guideline for animal disease control (OIE-ADC)* for strategic planning and implementation. The OIE has produced the *Guidelines on Disaster Management and Risk Reduction in relation to Animal Health and Welfare and Veterinary Public Health (guidelines for national veterinary services) (OIE-DMRR)*. These guidelines have not been endorsed by the World Assembly of Delegates as an OIE standard. The FAO, has produced the "*Good Emergency Management Practices*" Manual (GEMP). Our findings on NCPs in OIE Member Countries are discussed in the Section 4.2 below.



To improve the quality of VS, the OIE developed the *Performance of Veterinary Services' Pathway (OIE PVS Pathway)*, as a global programme for sustainably strengthening national VS to reach compliance with the OIE standards. Two Critical Competencies (CC) out of the 47 included in the PVS Tool used for PVS Evaluation were of significance to this project: emergency funding (i.e. CC I-9) and emergency response (i.e. CC II-6). These are discussed in detail in sections 4.3.1.1.1. and 4.3.1.1.2.

Fig. 2 shows the OIE Regions as outlined above. Currently, there are 181 OIE Member Countries (those with observer status were not compiled into the data). For graphical presentations in this report, we used the OIE acronyms for each of the five Region which are as follows:

- a) ME – the OIE Middle East Region with 12 OIE Member Countries;
- b) AP – the OIE Asia and Pacific Region with 30 OIE Member Countries;
- c) AM – the OIE Americas Region with 30 OIE Member Countries;
- d) AF – the OIE Africa Region with 54 OIE Member Countries;
- e) Europe – the OIE Europe Region with 53 OIE Member Countries.



4.2 NCPs - Preliminary findings

4.2.1 NCPs & Related international strategic documents and guidelines

All NCPs and related OIE strategic documents and guidelines reflect the recent OIE and international collaborative achievements in response to on-going animal disease challenge and changing needs of policy makers. The OIE strategic documents set the framework for the effective application of science, evidence and risk-based input into policy and decision-making to control animal diseases (and zoonoses) while taking Animal Welfare and environment into full consideration. These highlight the importance of having effective training and simulation exercises and open communication channels across different disciplines and between policy makers, operational implementation and the public.

It is, however, notable that the use of terminology is somewhat inconsistent in these documents (Table 1) which has the potential for confusion at the national administrations levels and hamper the consistency in the approaches to designing and developing new disease control plans.

Table 1. OIE ADC Guidelines, OIE DMRR strategy and FAO Good Emergency Management Practices (GEMP)

Terminology	OIE Guidelines - ADC	OIE guidelines - DMRR	FAO GEMP
Prepare	√	Preparedness	√
Prevent	√	Mitigation / Prevention	√
Detect	√	-	√
Respond	√	Response	√
Recover	-	Recovery	√

The socio-economic index of countries is outlined in the section 3.1.4 above. The ability of an OIE Member Country to deal with animal health and emergencies plans is greatly influenced by a complex international landscape of regulations, standards, strategies and guidelines, as well as, their political and socio-economic status, and availability of sufficient official capacity and budget for the development and implementation in conformance with the OIE international standards. This is discussed in more detail in relevant NCPs and PVS Pathway related sections (Section 4.2 and Section 4.3, respectively).

4.2.2 NCPs and OIE Member Countries

In this section, the outline of findings is following the two-fold approach outlined in the Methodology section. We consider the findings both globally and regionally.

We used the initial internet search to gather as much information on Member Countries NCPs that was available through the official websites. In parallel, we gathered the information on NCPs from the OIE resources. Our findings are discussed in the section 4.2.

When we officially approached 181 OIE Member Countries Delegates regarding their country's NCPs, we offered an option to either provide a direct link to their NCPs that is publicly available on their websites, or that they submit their NCPs to the official OIE email account set up for this project. Through this request we collected information from 56 responses (around 31 %) from all five OIE Regions. Their responses are discussed in detail the Section 4.2.2.4.

Following the methodology, we developed a comprehensive working spreadsheet to capture the wealth of information on different aspects of NCPs to aid our assessment and the preparation of this report. Hence, this report is a resource and sets a framework that could be further reviewed and improved as the existing and new NCPs are either updated or developed, respectively.

4.2.2.1 NCPs availability and Regional distribution

Fig. 3 shows that 163 countries (90%) in total appear to have NCPs. These reflect the NCPs that are either available publicly, or have been sighted during PVS Pathway missions, or countries which were willing to submit their NCPs to OIE following the official request, or a combination of all of these. Eighteen countries (10%) do not appear to have any NCPs as we did not manage to find any reference, either using the internet search or there was no reference to NCPs in PVS Pathway reports or they have not responded to the official request by sending NCPs.

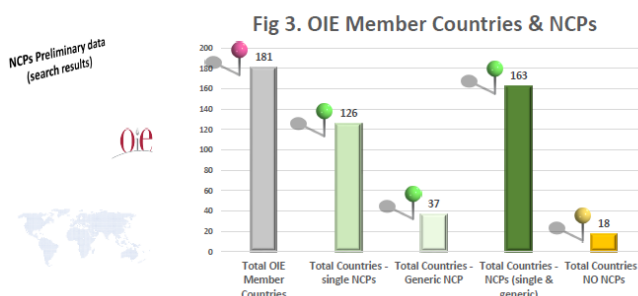
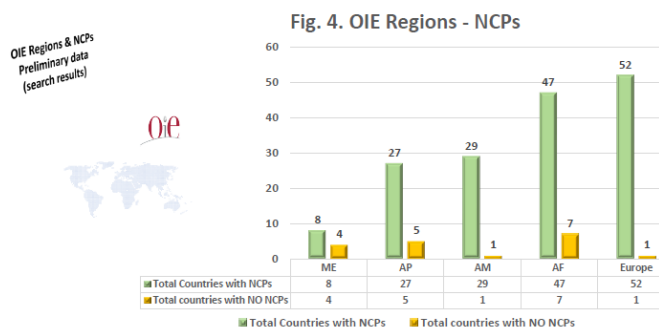


Fig. 4 shows the number of countries that have NCPs on the Regional basis. Most countries with NCPs are in the Europe (98% of countries) and AM (97% of countries) Regions. They are followed by countries in AF (87%), AP (84%) and ME (67%) Region. There may be an additional country in ME Region with NCPs. However, this country has not been included in the Fig 5 and the Fig 6 (see below) because this Member country's website refers to a national legislation on dealing with animal health emergencies for notifiable diseases, however, there was no reference or links to any NCPs that we could find.



The type and availability of NCPs (generic vs. disease specific) appears to vary greatly between regions. Fig. 5 shows that 37 countries (around 23% of the total countries) have a generic NCP. There appears to be at least one generic NCP available in all five OIE Regions.

OIE Regions & NCPs
Preliminary data
(search results)



Fig.5. OIE Regions: NCPs - Generic & Single disease

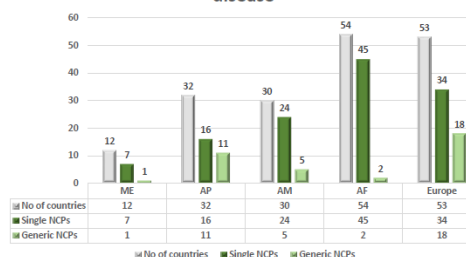


Fig. 5 also shows that in the AP Region and the Europe Region nearly a third (on average

34% for both Regions) have opted for a generic NCP in addition to single disease NCPs. Further assessment suggests different types of generic NCPs which can be broadly grouped into four categories:

- Generic NCPs that have a set of operational procedures for specified diseases that they apply to as a supplement. There are some examples of these in AP, AM and Europe Regions.
- Generic NCPs that outline the ways of cooperation between respective government departments and the types of crises as associated with different types of disease risks. There are some examples in the Europe Region.
- In addition to a generic NCP which refers to a set of specified single diseases, a NCP for a different disease may have been developed without a reference to the generic NCP. There are some examples in AP, AM, and the Europe Regions.
- More recently developed generic NCPs that refer to detailed contingency planning including multi-sectoral cooperation, public-private partnerships and required financial resources (i.e. modelled on a 'One Health' approach). Examples here are in AP and AF Regions.

This may highlight some inconsistencies in approach in the preparation of generic NCPs on a country by country basis and may reflect different priorities and political and operational environments. The increasing trend in the five Regions for developing generic NCPs may suggests the change in strategic planning and operational approach to animal disease emergencies (including zoonoses) in the countries in AP and Europe Regions. The key trend of a generic NCP in AP and Europe is that more emphasis is being placed on building up a 'system approach' with the aim of strengthening human and financial resources to deal with a range of diseases and including multi-sectoral collaborations.

In contrast, many countries in ME, AF and AM Regions seem to have remained with a traditional disease-specific NCPs approach. This ranges from around 58% in ME Region to around 80% of the countries in AM and AF Regions.

Fig. 6 and Table 2 summarise the number of 163 OIE Member Countries which may have NCPs, their distribution and the number of diseases that they cover.

NCPs Preliminary data
(search results)



Fig. 6. OIE Countries & NCPs

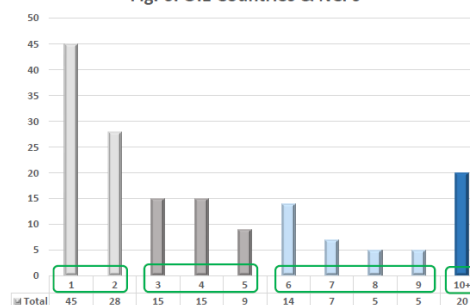


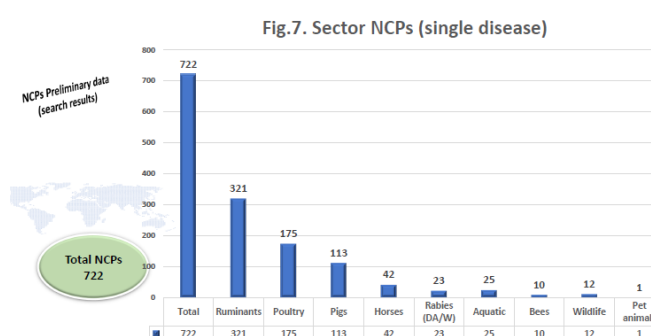
Table 2: OIE Regions - Total NCPs - Single Diseases (search result)

# Diseases covered	ME	AP	AM	AF	Europe
1	4	6	10	16	9
2	2	9	4	10	3
3	1	2	4	7	2
4	0	5	3	4	3
5	0	0	1	4	3
6	1	3	1	3	6
7	0	0	3	3	1
8	0	0	1	0	4
9	0	0	0	0	5
10+	0	2	2	0	16
Total Countries:	8	27	29	47	52

In this context, there are four likely country groupings:

- The first group would cover a total of 73 countries (around 45 % on aggregate) that have either a single NCP for a single disease along with countries that have NCPs covering two diseases.
- The second group would cover a total of 39 countries (around 24% on aggregate) that have NCPs for three to five diseases.
- The third group would cover a total of 31 countries (around 19%) on aggregate that may have NCPs to cover between six to nine diseases.
- The fourth group would cover a total of 20 countries (around 12% on aggregate) that may have NCPs that cover 10 or more diseases.

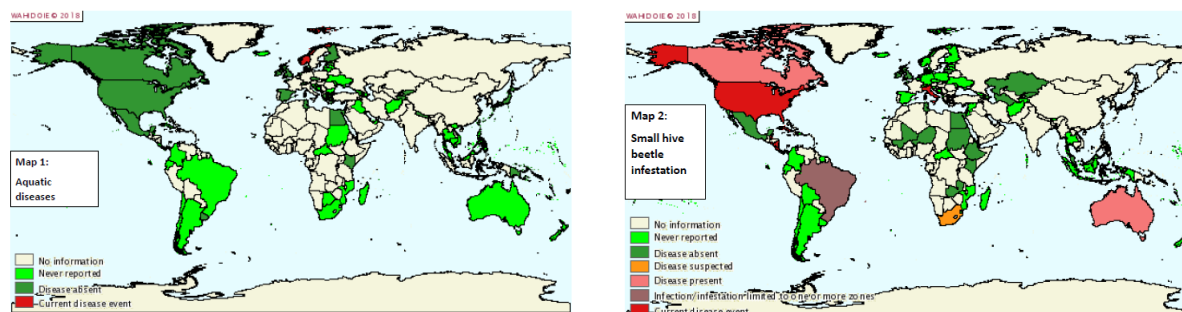
Overall, Fig. 7 shows the total of 722 NCPs for single diseases that may be available in 163 OIE Member Countries. It provides a total breakdown of single disease NCPs on a sector basis. It shows that most NCPs primarily relate large and small ruminants (44.5%), poultry (24.2%) followed by NCPs for pigs (15.7%), horses (5.8%), rabies (in dogs/domestic animals and wildlife) (3.2%), aquatic NCPs (i.e. freshwater fish, crayfish, molluscs) (3.5%), wildlife (1.7%), bees (1.4%) and a NCP for a bacterial disease in pet animals (0.1%).



At this point, it should be noted that there are 23 NCPs presented in Fig. 7 that relate to rabies in dogs, domestic animals and wild carnivores (e.g. foxes). For ease of presentation these are grouped with the NCPs for large and small ruminants in the relevant figure (Fig. 9) in the section 4.2.2.1.1 where a slight difference (albeit a very small) in percentages may appear to occur as a result. We consider that this will have no significant influence on our overall considerations and findings.

Fig. 7 also shows a small fraction of aquatic NCPs (3.5%), wildlife (1.7%) and bee (1.4%) diseases and a bacterial disease in pet animals (0.1%). These NCPs are not further elaborated in detail in this assessment and some general observations have been provided in the section 4.2.2.4.1.

On the other hand, our investigation of the World Animal Health Information System (WAHIS) ‘Country Information’ suggest that the number of countries reporting diseases in aquaculture, bees and wildlife may be higher, hence more NCPs may be available which were not available in our search or the WAHIS data is inaccurate. The WAHIS contains notification records for over 30 diseases (and a country status) for fish, crayfish and molluscs (Map 1) and for five (5) diseases (and a country status) of bees (Map 2 – an e.g. of ‘Small hive beetle infestation’ since 2006).



The WAHIS OIE also list some diseases of wildlife for which notification is required (e.g. HPAI infection of non-poultry including wild birds, West Nile Virus, rabies).

Fig. 8 shows the most common NCPs in the 163 OIE Member Countries. For further considerations, we have used a cut of point of minimum 10 NCPs for a specific disease (i.e. a ‘selected disease’, thereafter). Of the total of 626 NCPs for the selected diseases, 601 (96%) related to diseases of terrestrial animals, and 25 NCPs (4%) is related to diseases of aquatic animals (e.g. freshwater fish, crayfish, molluscs).

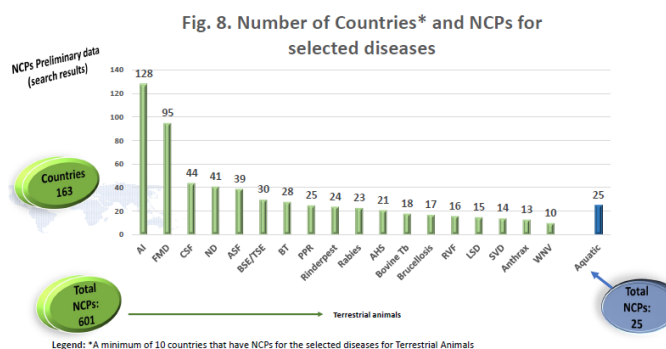


Fig 8 also shows that the most common NCP in the 163 OIE Member Countries is for HPAI (around 78% of countries), which is followed by NCPs for:

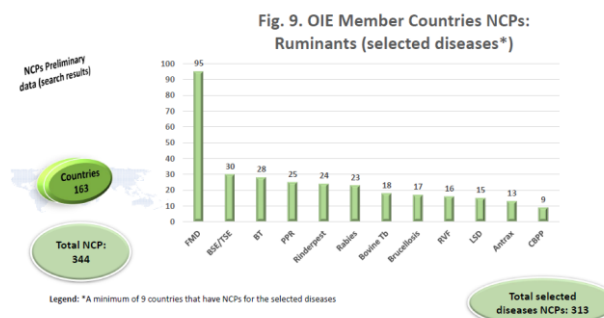
- Foot-and-Mouth Disease - FMD (58%)
- Classical swine fever - CSF (27%),
- Newcastle disease - ND (25%),
- African swine fever (ASF) (24%),
- Bovine spongiform encephalopathy/Transmissible spongiform encephalopathy – BSE/TSE (18%),
- Bluetongue - BT (17%),
- Peste des petits ruminants - PPR (15%),
- Rinderpest – RP (15%),
- Rabies (14%),
- African horse sickness - AHS (13%),
- Bovine Tb – bTb (11%),
- Brucellosis (Br) (11%),
- Rift Valley fever, Lumpy skin disease, Swine vesicular disease (SVD), anthrax and West Nile Virus (WNV) (with 10% or less).

This proportion of countries with NCPs for a disease or diseases is likely to reflect the response to outbreaks and spread of HPAI and the perception of public health/pandemic risk. This is in addition to the historic and recent disease control activities related to either the presence of, or outbreaks of, or control and eradication of selected diseases listed as above.

4.2.2.1.1 Ruminant Disease NCPs

The OIE Member Countries' 344 most common NCPs for selected large and small ruminants' diseases are shown in Fig. 9. We used a cut of point of at least 9 countries having NCPs for these diseases.

Of the total of 344 NCPs for ruminant diseases, the most common NCP is for FMD (28%), followed by NCPs for BSE/TSE (9%), NCP for BT (8%).

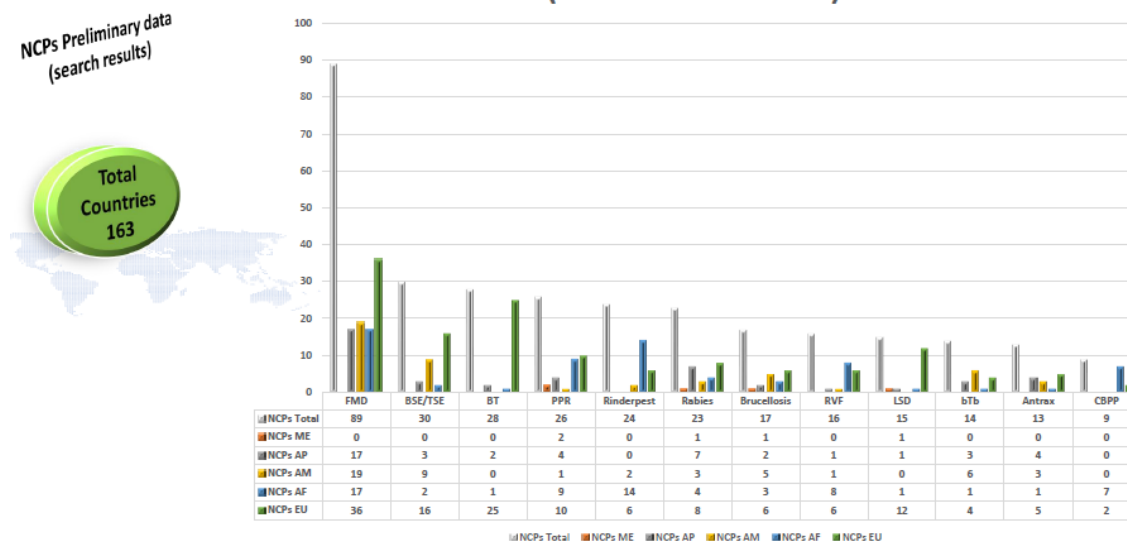


The NCPs for PPR, Rinderpest, rabies, bovine tuberculosis (bTb), brucellosis, RVF, LSD, anthrax, and CBPP are all less than 7.5% and declining respectively.

Of the diseases listed above, diseases such as BST/TSE, PPR, rabies, bovine tuberculosis (bTb), brucellosis are frequently subject to national programmes aimed at control and/or eradication.

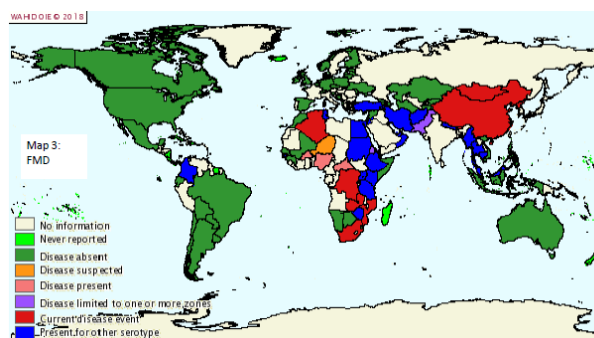
Fig. 10 provides a Regional outlook of the NCPs for the selected ruminant diseases.

Fig. 10. OIE Regions: NCPs – Ruminants (selected diseases*)



The NCPs for FMD, being the leading in number, reflects the prevalence or absence of different FMD serotypes around the currently affected parts of the world (Map 3: FMD distribution map (WAHIS, 2018)).

Regionally, the data from the ME Region are not available in WAHIS. While there is an indication that FMD NCPs may exist in two countries, we have not been able to sight these NCPs, hence, they are not included in Fig. 10.



As Fig. 10 shows, in other Regions the availability of FMD NCPs in Europe (70%), AM (67%), AP (53%) and AF (33%) reflects either the FMD absence or presence in the Regions.

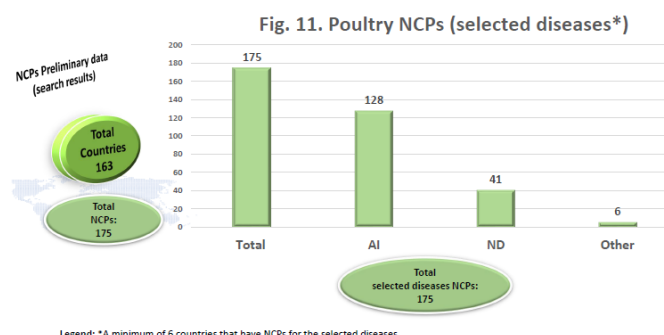
Some of these countries are engaged in the FAO-OIE Progressive Control Pathway (PCP-FMD) requiring a plan. It is notable that the least number of NCPs may be available in AF Region where the disease appears to be most prevalent.

Vaccines for FMD and other diseases, such as BT, PPR, rabies, brucellosis, RVF, LSD, anthrax and CBPP do exist. In NCPs, vaccination appears to be used differently depending on the country's approaches (e.g. routine vaccination, targeted vaccination) in response to an outbreak or gradual control and eradication as outlined in the FAO-OIE led global Progressive Control Program (PCP-FMD)

While the WAHIS interface contains a section aimed at collecting information related to FMD control and vaccination activities on a country by country basis, no such reports have yet been submitted by any Member Country.

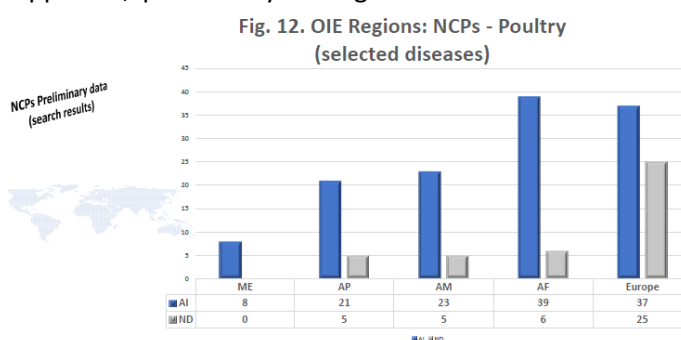
4.2.2.2 Poultry Disease NCPs

The OIE Member Countries' 177 NCPs for selected poultry diseases are shown in Fig. 11. We have used a cut of point of at least 10 countries having NCPs for these diseases.



The most common poultry NCPs are for highly pathogenic avian influenza (HPAI) (73.1%) and Newcastle disease (ND) (23.4%). The other poultry diseases (e.g. infectious bursal disease-IBD, infectious laryngotracheitis-ILT and salmonellosis) account for 3.5% of the total of poultry NCPs.

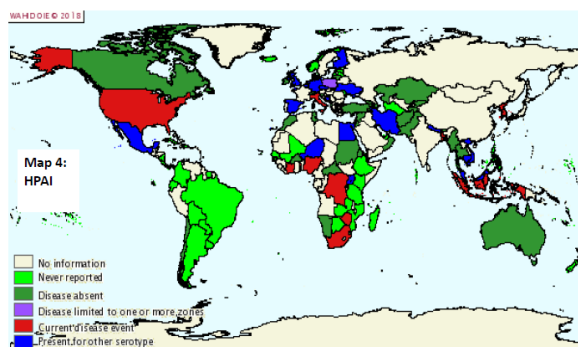
Fig. 12 provides a Regional outlook of the NCPs for the selected poultry diseases. The predominance of HPAI NCPs compared to ND NCPs is apparent, particularly in Regions other than the Europe.



Historically, before the outbreaks of HPAI in early-2000's, there was no fully developed standard in the OIE Code for HPAI but there was for ND. However, the initial HPAI outbreaks worldwide have resulted in a comprehensive OIE standard that set the basis for the current HPAI and have prompted many countries to develop an HPAI NCP.

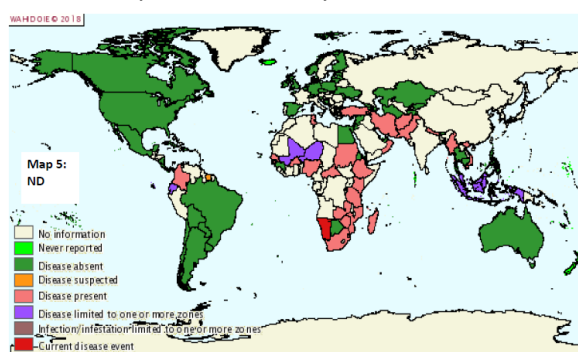
The WAHIS map (Map 4) shows the 2017 data for HPAI. HPAI has gained significant political and public attention worldwide as it causes devastating losses in poultry, as well as having zoonotic potential with high case fatality rate in humans, raising the fear of a global pandemic with high human case fatality rate.

Following the occurrence of HPAI H5N1 in late 1990's in SE Asia and a series of outbreaks in mid-2000's spreading across Asia and into Europe, fear of a pandemic spurred the development of collaborative NCPs for human and animal health. In many countries around the world, new virulent strains continue to emerge (e.g. H5N2, H7N3, H5N8, H7N8, H7N9) which pose a threat to poultry (and to humans to varying degrees). Around 15 countries have used vaccination against HPAI (in AP, Europe, and AF Regions) for control and sometimes eradication. A new generation of HPAI vaccines (e.g. sub-unit, recombinant, DIVA etc.) are being developed and tested.



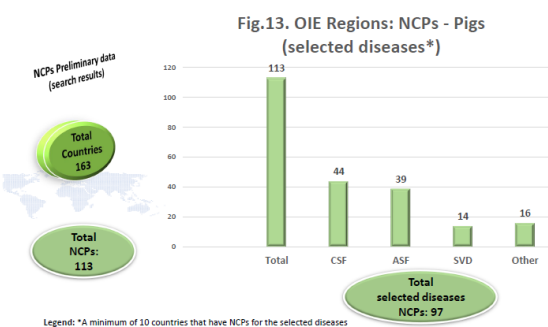
MAP 5 shows the WAHIS 2017 data for ND distribution. ND is present in many countries around the world and vaccination is the routine choice for the disease prevention and control in these countries.

While the WAHIS interface contains a section aimed at collecting information related to control and vaccination of HPAI and ND on a country by country basis, no reports have yet been submitted by any Member Country.



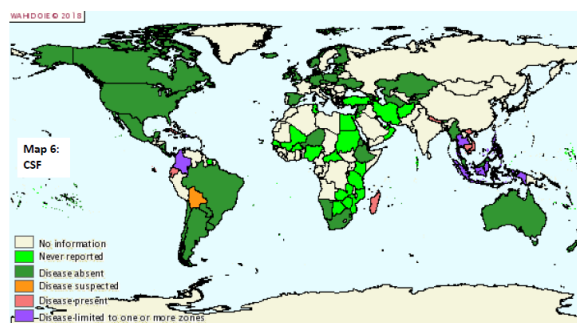
4.2.2.2.3 Pig Disease NCPs

The OIE Member Countries' 113 NCPs for pigs' diseases are shown in Fig. 13. We used a cut of point of at least 10 countries having NCPs for these diseases. The most common pigs NCPs are for Classical (39%) and African (35%) swine fevers (CSF and ASF) followed by SVD (12%). The total NCPs for other pig diseases (10%) include diseases such porcine reproductive and respiratory syndrome (PRRS), porcine diarrhoea (PD), transmissible gastro enteritis (TGE), trichinellosis and H1N1 swine influenza.



The WAHIS maps for 2017 (Map 6 and Map 7) shows disease distribution zones maps for CSF and ASF.

CSF (Map 6) is present in pig populations in many countries and outbreaks occur on a regular basis. Vaccination against CSF is practiced in many countries.



ASF (Map 7) was traditionally confined to many countries in AF Region and a part of a single country in Europe Region. Following the outbreaks of ASF in the northern Hemisphere in mid 2000s (i.e. Georgia), the disease has made a steady progress towards many countries with naïve pig population within the Europe Region, and the spread seem to be continuing.

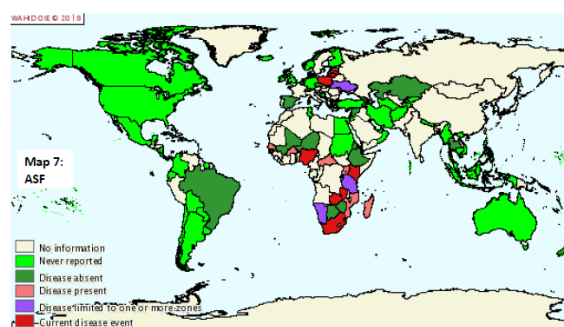
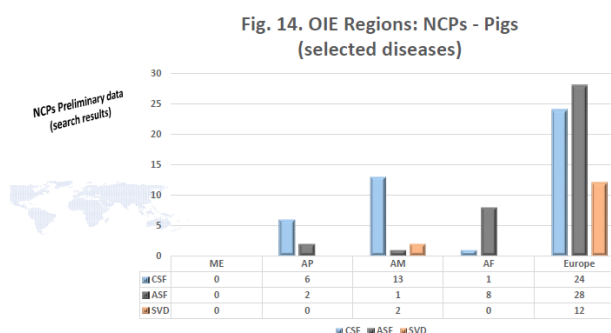


Fig. 14 provides a Regional outlook of the NCPs for the selected pig diseases. While the CSF is subject to control and eradication traditionally, an increase of in number of NCPs for ASF, particularly in Europe Region reflects the threat that the disease poses to the Region’s high dense pig population. ASF has also been detected in wild boar population in the affected countries in the Europe Region which adds to complexity of the disease control and eradication and highlights good biosecurity practices, which applies to other diseases too. There is no vaccine for ASF.



Some NCPs that we have sighted from the Europe Region refer to populations of feral pigs and wild pigs and specify activities in a case of suspicion on CSF or ASF, and the need for surveillance data.

While the WAHIS interface contains a section relating to control and vaccination activities on CSF on a country by country basis, no such reports have yet been submitted by any Member Country.

4.2.2.2.4 Horse diseases NCPs

The OIE Member Countries' 42 NCPs for horse diseases are shown in Fig. 15. We used a cut of point of at least 10 countries having NCPs for these diseases.

The most common horse NCPs are for AHS (50%) followed by NCP for West Nile Virus (23.8%) and vesicular stomatitis (VeS) (14.2%).

The NCPs for other diseases (12% on aggregate) such as, equine infectious anaemia, equine influenza, and Hendra virus.

The WAHIS maps for 2017 and 2014 (Map 8 and Map 9) shows disease distribution maps for AHS and VeS, respectively. WNV in horses (no WAHIS map included) was reported mainly from a few countries in Europe region during 2015-2018.

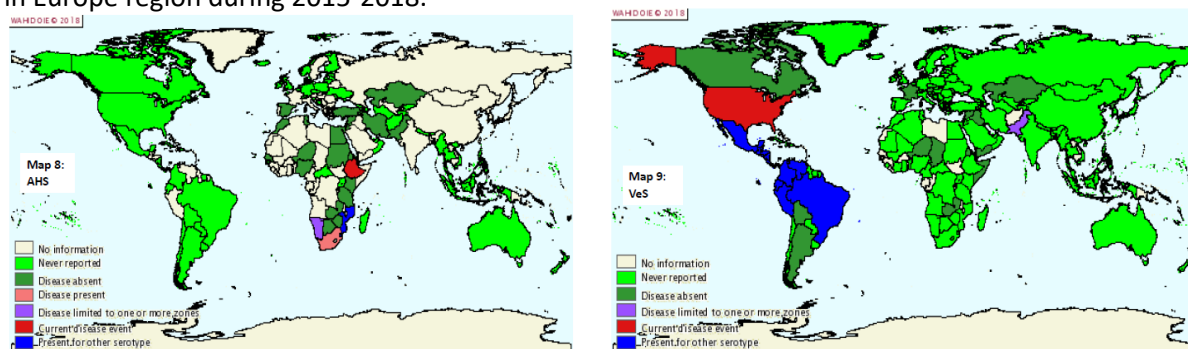
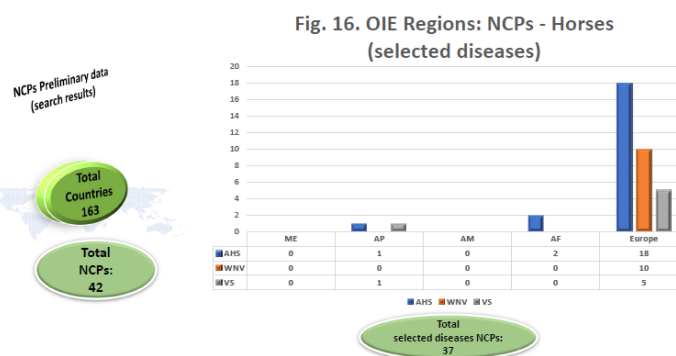
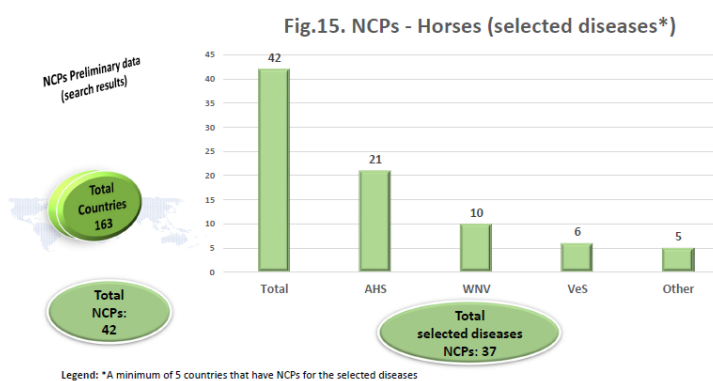


Fig. 16 provides a Regional outlook of the NCPs for the selected horse diseases. AHS NCPs are available in a few developed countries in AF and AP Region, and the majority are in the Europe Region. AHS vaccines for different serotypes and are used for control and eradication purposes. WNV NCPs are mainly available from a few countries in Europe Region. While VeS is confined to the AM Region, we have not been able to sight any evidence of a NCP for VeS being available from the AM Region. VeS NCPs are available from AP and Europe Region. Vaccines for VeS have been developed but none of them are approved for uses in horses, yet.

4.2.2.2.5 Aquatic, Bees, Wildlife and Pets NCPs – General observations

There are be examples of generic NCPs for aquaculture being available in the AP and Europe region with single disease NCPs being available in the AM and AF Region

There is an example of a Generic NCP for bee diseases in the Europe Region with single disease NCPs being available in other Regions



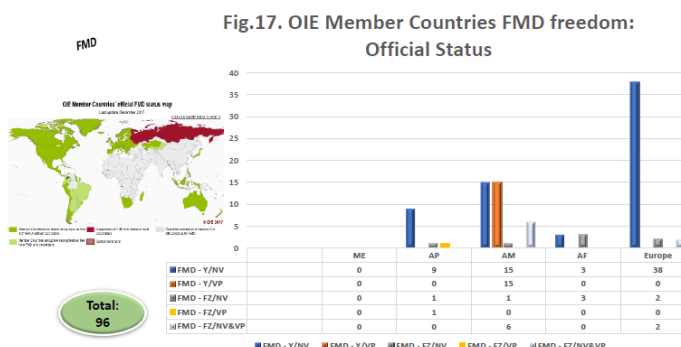
There are very few wildlife and pet-related NCPs available. With specific reference to NCPs for wildlife, detailed NCPs are available in four countries in the AP Region, the Europe Region and AM Region. In others, reference to wildlife (e.g. farmed deer and if there is a risk of a disease introduction from wildlife) is made within NCPs for specific diseases (e.g. HPAI, ND). With specific reference to pets, a detailed NCP for leptospirosis in dogs is available only in the Europe Region.

4.2.2.2 OIE Declarations of official disease freedom status

The OIE website refers to official disease freedom status. The procedure was initially requested for FMD at the GS in May 1994, and the request has been expanded since then to include RP, BSE, CBPP, PPR, CSF and AHS (Note: diseases as listed here are not listed in the order they have been introduced to the process). In total there are 515 declarations of OIE official disease freedom. During the application process countries must complete a questionnaire and submit documentation as requested. Depending on the disease, NCPs may need to be directly submitted to the OIE (i.e. for FMD, PPR, CBPP) or the questionnaire may ask if an NCP is present for that disease (without requesting submission); when submitted the NCPs remain confidential. At the next OIE General Session, a new version of the questionnaires will be proposed specifically requesting the NCP and the outcomes of the last SIMEX. This may result in additional NCPs being available to the OIE to populate the OIE public data base and to guide countries following a path towards officially declaring either a country or a zone freedom. Of course, countries may still elect to keep their NCP confidential.

In terms of submission of an NCP the requirements, as specified by the relevant OIE Code Chapters for each disease, are broadly summarised:

- a) FMD - relates to either disease freedom without vaccination, freedom with vaccination, zoning with and without vaccination and zoning with combined without and with vaccination. The OIE questionnaire requires a NCP for this recognition but these are not provided on the OIE



official website. Fig. 17 shows different types of FMD official freedom status on a Regional basis. In addition to official FMD country status, the OIE recognises, by endorsement, official control programmes for FMD.

- b) Rinderpest – All 181 OIE Member Countries are declared free following the OIE announcement on the global eradication of Rinderpest in 2011. This was formally declared through adoption of an OIE Resolution in 2011 which also required countries to take action to maintain global freedom, including maintaining NCPs for rinderpest. Therefore, the corresponding Figure is presented below. This is the first animal disease that has been eradicated globally due to sustained efforts of OIE, FAO and national VS of the OIE Member Countries.

c) BSE – the overall status is based on the OIE questionnaire and assessment of risk. Countries are assigned either status of negligible risk, controlled risk and a zone with negligible risk and a zone with controlled risk. Fig. 18 shows different types of official status on a Regional basis.

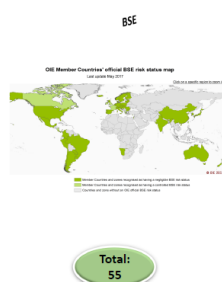
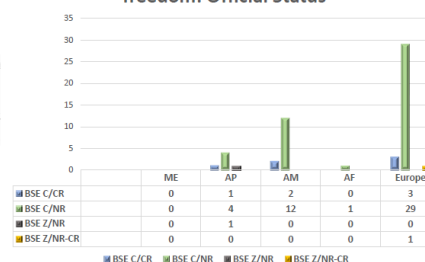


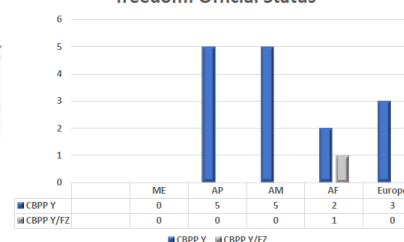
Fig. 18. OIE Member Countries BSE freedom: Official Status



d) CBPP - the official status is based on the OIE questionnaire and assessment. Countries are assigned either status of a country or a zone freedom. The OIE requires a NCP for this recognition however, these are not provided to the OIE official website. Fig. 19 shows different types of official status on a Regional basis.



Fig.19. OIE Member Countries CBPP freedom: Official Status



e) PPR - the overall status is based on the OIE questionnaire and assessment. The OIE requires a NCP for this recognition however, these are not provided to the OIE official website. The official status is assigned on a country or a zone freedom. Fig. 20 shows different types of official status on a Regional basis.

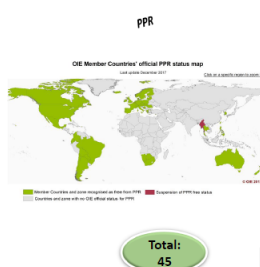
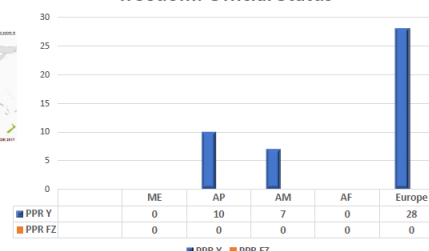


Fig. 20. OIE Member Countries PPR freedom: Official Status



f) CSF – the overall status is based on the OIE questionnaire and assessment. The OIE does not currently require official endorsement of control programmes for this recognition. The official status is assigned on a country or a zone freedom. Fig. 21 shows different types of official status for CSF on a Regional basis.

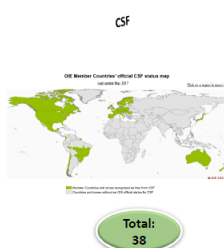
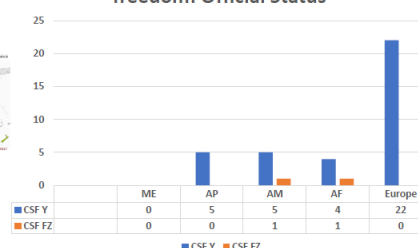
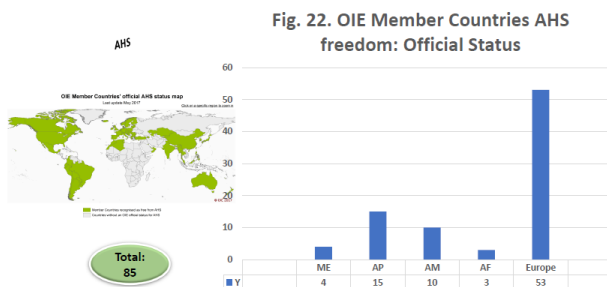


Fig. 21. OIE Member Countries CSF freedom: Official Status



g) AHS – the overall status is based on the OIE questionnaire and assessment. The OIE does not currently require official endorsement of control programmes for this recognition. The official status is assigned on a country freedom. Fig. 22 shows countries with the AHS free status on a Regional basis.



4.2.2.3 NCP's, SIMEX and PVS Pathway

To test and practise their NCPs, countries undertake disease introduction simulation exercises (SIMEX). Fig. 23 summarises, on a Regional basis, the number of SIMEX exercises and PVS Evaluation missions (for the period from 2006 to 2017). The Member Countries officially notify their intention to undertake a SIMEX exercise which may include a single disease or multiple diseases (i.e. either diseases of terrestrial animals or aquatic) to test their NCPs. These exercises are voluntary.

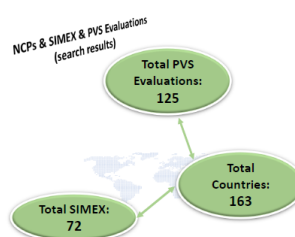
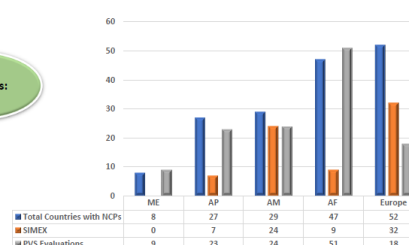


Fig. 23 OIE Member Countries - NCPs/SIMEX & PVS Evaluations (2006-2017)



PVS Evaluations are voluntary. They are carried out by OIE certified experts to improve and strengthen national VS. The PVS Pathway (and including elements of the WHO Joint External Evaluation which may be carried out with OIE participation) is discussed in detail in the section 4.3.3.

4.2.2.4 Animal Welfare - National Hazard Plans (NHPs) and NCPs

We have looked at the references to Animal Welfare in a two-fold way:

- Regarding the NHPs, we have used the UNEP website to; investigate whether the OIE Members that have NCPs also have a National Hazard Plan (NHP), and
- Whether their NHPs include reference to animal health/disease and Animal Welfare.

Fig. 24 provides a summary of our search.

Fig. 24. Countries with NCPs & NHPs

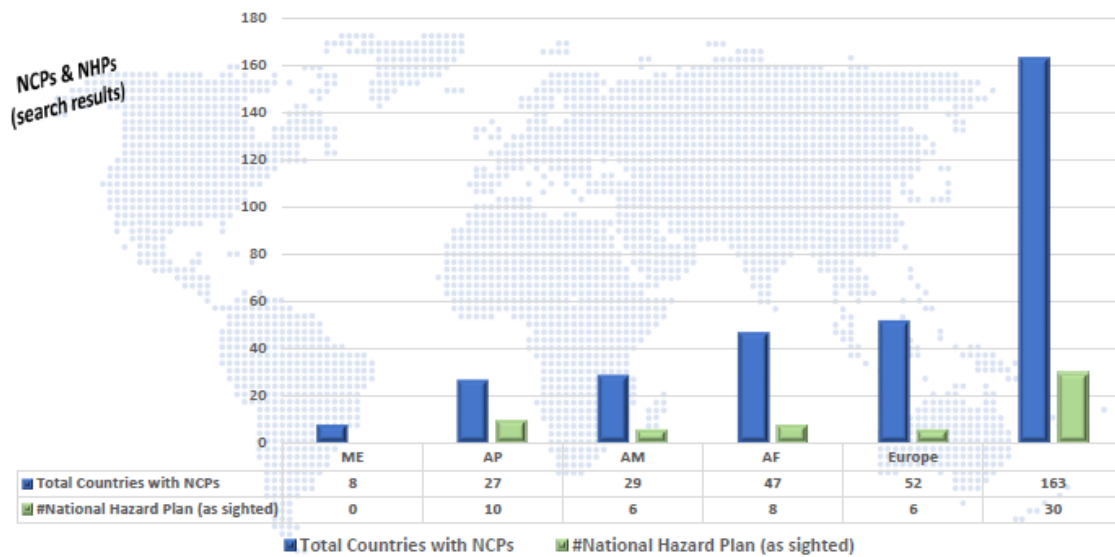
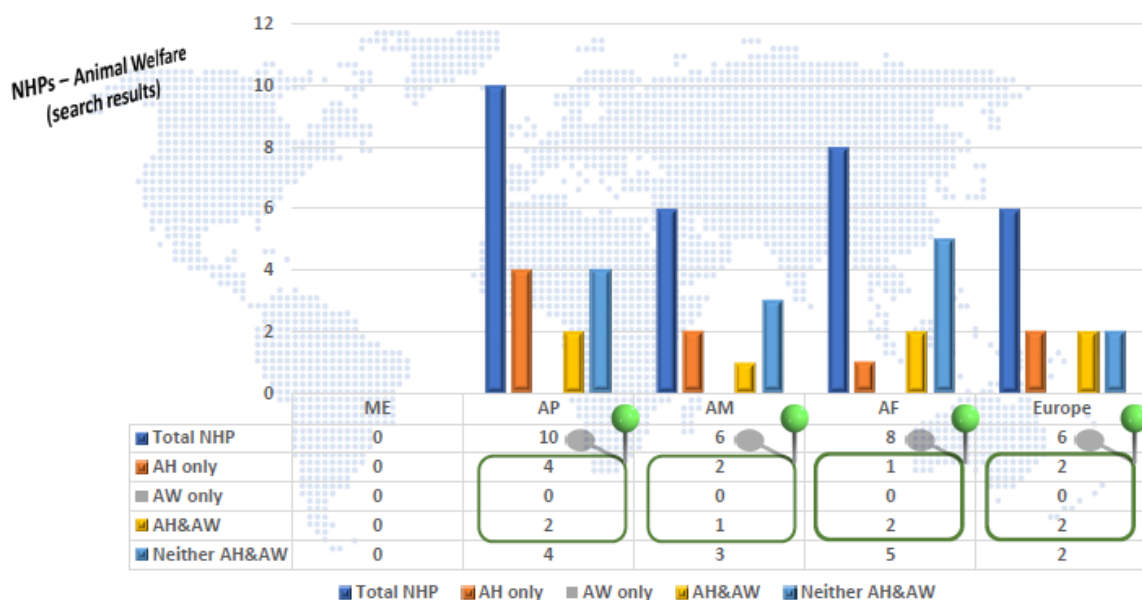


Fig. 24a shows that the inclusion of animal health and Animal Welfare in NHPs ranges from 66% in the Europe and 60% in the AP Regions to 50% in the AM Region and 30% in AF Region. There were no NHPs available from the ME Region.

Fig. 24a. NHPs - Animal Health and Welfare



- We have provided a simple analysis within the section 4.2.2.4.2.2 regarding the NCPs and inclusion of Animal Welfare in NCPs provided by the OIE Member Countries Delegates responding to our official request.

4.2.2.4 OIE Member Countries responses to request for NCPs

4.2.2.4.1 General observations

In response to our request to all 181 OIE Member Countries it should be noted that, using our methodology as described in Section 3.1:

- Our preliminary search (web search only) at the beginning of this work indicated that around 95 (60% of the Member Countries) may have NCPs, or reference to NCPs on their websites. While the remaining 86 (40%) may not have NCPs; this includes 18 Member Countries where their websites could not be found
- Through other searches, including the official responses from the OIE Delegates (see ‘c’ below), we have identified another 68 countries that have NCPs. This brought the total number of countries with NCPs to 163 which we used as a starting point in this report.
- We have received 56 responses (31% response rate) to our official request to 181 OIE Member Countries. (see Fig. 25 below) and a commentary for more detail. Of these, 39 (70%) provided NCPs while the remaining 17 (30%) countries indicated the existence of the NCPs, however, they are either in the process of development or validation and for that reason they have not been submitted. Furthermore, these 17 responding Delegates indicated that when their NCPs development and validation process is completed, their NCPs will be made available to the OIE.

It should be emphasised that all the responding Delegates expressed a high level of interest in this OIE initiative and are very open for collaboration to progress this type of OIE work. Furthermore, some of them also made a couple of points that need to be considered at some stage in the future.

For example, one Delegate noted that there is still debate on whether single or generic plans are more appropriate as we move forward. At the same time, another Delegate noted that there is a need to ensure that all plans that are going to be made available at the OIE website should be validated.

4.2.2.4.2 Response Rate from OIE Delegates

In total we received over 269 NCPs in a variety of languages. Around 57 % of the NCPs are in one of the three official languages of the OIE while the remainder (around 43%) of the NCPs was provided in over 10 different languages (mainly from Europe Region). Further detailed work, translation of the documents, and time for further detailed assessment would be required to take this analysis beyond the preliminary general observations expressed in this section of the paper with specific reference to received NCPs.

Overall, Fig.25 shows that of the received responses from the five OIE Regions, the lowest regional related response rate was from ME Region (8%) while the response from AP, AM and AF Regions was balanced (i.e. 25%, 27%, 24% respectively). The highest regional response rate was from the Europe Region (49%). Of these, 39 (70%) responding OIE delegates provided NCPs.

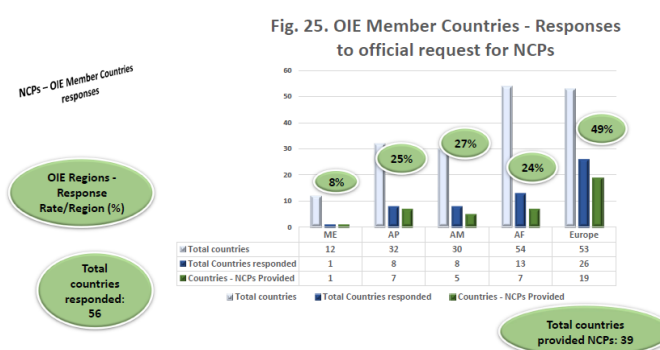
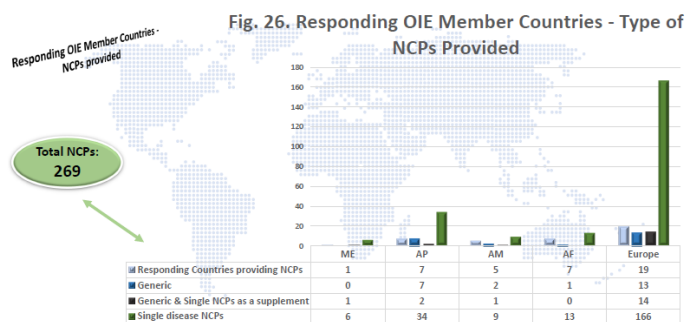


Fig. 26 shows that the majority of the provided 269 NCPs were for single disease NCPs (around 84.7%), followed by a generic NCP (around 8.6%) and a combined generic covering a number of single disease specific NCPs as a supplement (6.7%).

Most NCPs were received from the Europe Region (67%). The response from the ME region resulted in a very small number of NCPs. There appear to be a reasonable distribution of single NCPs between the AP and AM Region and AF Africa region.



A tendency to move towards more generic plans is noted in all Regions, most notably in the AP, AM and Europe Regions.

4.2.2.4.2.1 NCPs – Generic and Single diseases

Table 2 below summarises general observations of the submitted generic and single disease NCPs.

Therefore, at this stage of this project, some general preliminary analyses are outlined below as considerations for further OIE planning and assessment that should make these NCPs available on the OIE website for solidarity and transparency.

We considered 75 NCPs (around 28% of the submitted NCPs), both generic and disease specific. In addition to generic NCPs related to livestock, we also considered the provided Generic NCPs that apply to other species (i.e. aquatic, wildlife, bees, vectors, Animal Welfare). In the Table 3 and Table 3a below we use an Asterix (*) to indicate that the other species related generic NCPs have been considered. Among the generic NCPs, we focused primarily on the texts available in English language, while the texts on other official OIE languages (i.e. French and Spanish) and other languages (e.g. Croatian, Bulgarian, Norway, Sweden, Turkish) were scanned for certain relevant terms using Google translation.

Since one of the objectives of this work is to inform standards/guidelines settings, we assigned two ratings to the Generic NCPs which we considered based on the following general criteria:

- a) **Very closely aligned** – close to matching nearly all the elements as outlined in the OIE Guidelines for animal disease control (OIE-ADC) and detailed as in FAO GEMP manual on governance and management side and on technical requirements.
- b) **Aligned** - matching most of the elements as outlined in the OIE-ADC Guidelines and detailed as in FAO GEMP to a reasonable extent, with the focus on technical aspects mainly.

We have assigned two ratings to the disease specific NCPs which we considered based on the following general criteria:

- a) **Aligned** – close to matching certain elements of the OIE-ADC and FAO GEMP, provide for sound epidemiological approaches and outline detailed technical activities for a specified disease and include reference to governance and management, detailed technical and resources aspects, technical aspects of vaccination, education and training.
- b) **Somewhat aligned** – less close to matching certain elements of OIE-AHC and FAO GEMP, provide for sound epidemiological approaches and outline detailed technical activities for a specified disease with less or no reference to governance and management, detailed technical and resources aspects, technical aspects of vaccination, education and training other aspects as outlined in the ‘a’ above for aligned NCPs.

Table 3 and Table 3a summarise the results of our preliminary assessment.

Table 3 & Table 3a. Generic & Specific NCPs – status observations

Table 3. Generic NCPs - status assessment			
Regions	#Responding countries	Very Closely aligned	Aligned
ME	1	0	1
AP	4	3*	4*
AM	1	1	0
AF	1	0	1
EU	11	12*	8*

Table 3a. Single Disease NCPs – status assessment			
Regions	#Responding countries	Aligned	Somewhat aligned
ME	1	0	1
AP	2	3*	3
AM	4	2	3
AF	6	6*	1
EU	8	17*	9*

Legend: * indicate livestock and other species related NCPs (including vectors, wildlife, welfare)

4.2.2.4.2.1.1 Generic NCPs

Overall, 16 (53%) generic NCPs appear to be very closely aligned and cover all or most of the elements as outlined to an extent in the OIE ADC and FAO GEMP. One generic plan was developed nearly a decade ago and is used as a guide for further improvements, while others are the more recent as a reaction to outbreaks of various diseases outbreaks being experienced and lessons learned.

Generally, for Generic NCPs classified as **very closely aligned**:

- a) Most of the country's NCPs (75%), appear to be mainly focused on terrestrial animals. However, there are a relatively small number of countries with generic NCPs (25%) that also focus on aquatic diseases (AP and Europe Regions), Animal Welfare (AP and Europe Regions), wildlife (AP Region) and vector borne diseases (Europe Region).
- b) In terms of management aspects,
 - The vertical and horizontal operational aspects have been elaborated in detail. They also include communication with political structures through various type of Committees, which are primarily comprised from the government sector representatives to support the Chief Veterinary Officers in managing planning and emergency responses.
 - They also cover well the aspects of finances and training and to an extent the post-outbreak activities (Recovery).
 - Some inconsistencies in the NCPs may be noted in the approach to engaging with politicians for communication and awareness purposes during the 'peace' time and for strategic planning purposes. These are country specific and would be the reflection of the country's specific political circumstances and their socio-economic status.
- c) The inclusion of private sector in decision-making is also considered:
 - The recent trends in emergency management place an emphasis on collaboration with the private sector (e.g. either inclusion or a "responsibility and cost sharing" mechanism. There is at least one generic NCP in each of the AP and AM Regions and a couple of generic NCPs in Europe Region where private sector appears to have active

participation in the decision-making process through either direct involvement and/or through a 'responsibility and sharing' mechanism which establishes clear collaboration channels that operate during the 'peace' and emergency response time.

- At the same time, it should be noted that a different type of 'responsibility and cost sharing' mechanism is also in existence (i.e. Europe Region through the shared European Commission Veterinary Fund related to shared finances) and is referred to in the generic plans of the European Union members countries of the Europe Region.
- d) Technical and laboratory approaches and training elements are elaborated in detail
 - e) They well include Animal Welfare aspects and to a lesser extent National Hazard Plan(NHP)s
 - f) They lack a section on the Recovery phase.

Generally, for Generic NCPs classified as **aligned**:

- a) They are defined and designed well, however, the scope is less aligned as they do not cover the governance and management aspects and the private sector involvement to the extent that the very closely aligned generic NCPs do.
- b) Their primary focus seems to be more on the technical side of managing an animal disease emergency for detecting the occurrence of animal diseases in the country to enable early intervention.

4.2.2.4.2.1.2 Disease specific NCPs

With respect to the disease specific NCPs, the general observation would be there is a relatively good balance between aligned and somewhat aligned single NCPs in the AP, AM and AF Regions. They also seem to reflect the engagement in the disease control activities for specified diseases. These plans are mainly for HPAI, FMD and RVF and PPR and reflect Regional priorities.

Generally, for specific NCPs classified as **aligned**:

- a) The balance of the aligned and somewhat aligned NCPs may be slightly skewed in favour of aligned NCPs in the Europe Region which has experienced recent outbreaks of diseases (mainly in European Union Member States) such as HPAI, CSF, ASF, BT among others.
- b) The European Union Member States follow the relevant European Commission legislation which proscribes the elements of contingency planning that includes some 15 elements starting with, for example, the legislation, finances, resources, technical requirements, diagnostics, training. This approach is also standardised by the relevant European Commission legislation.
- c) None of the NCPs appear to address any of the elements related to Recovery.

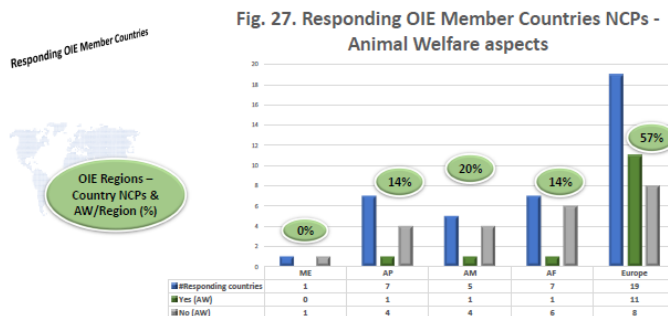
Generally, for NCPs classified as **good quality**:

- a) They are technically sound and focused. However, they may reflect disease events that have happened in relatively distant past (i.e. a decade or so) and may need to be reviewed and updated.

4.2.2.4.2.2 Animal Welfare – Responding countries NCPs

Fig. 27 shows that Animal Welfare is considered to a certain extent in region related NCPs ranging from 0% in ME Region, to 14% in AP and AF Region, and to 57% in Europe Region.

It should be noted that all NCPs refer simply to ‘stamping out using approved methods’ as one of the disease control measures. However, more attention to the methods and dealing with different type of requirements for slaughter during emergencies (e.g. approved movements to slaughter from approved areas) seems to be covered to a varying extent in nearly 36% of the NCPs and these are mainly NCPs from the European Union (EU) Member States within the Europe Region.



4.3 Analysis of PVS Pathway Data

4.3.1 PVS Pathway

The OIE PVS Pathway is shown in Fig. 28 below illustrating its progressive stages of engagement.

The initial PVS Evaluation examines four Fundamental Components within which CCs are grouped:

- Fundamental Component I *Human, Physical and Financial Resources* has 11 CCs, including CCI-9 Emergency funding.
- Fundamental Component II *Technical Authority and Capability* has 13 CCs, including CCII-6 Emergency response.
- Fundamental Component III *Interaction with Interested Parties* has 6 CCs (not part of this study); and
- Fundamental Component IV *Access to Markets* have 6 CCs and 8 CCs respectively (not part of this study).

We were specifically tasked to examine CCI-9 and CCII-6 as they are directly relevant to a country’s capacity to respond to disease emergencies.

Fig. 28. OIE PVS Pathway



The OIE collaborates with governments, donors and other stakeholders

4.3.1.1 PVS Pathway Mission Reports Reviewed

The total number of countries for which PVS Pathway reports were available to us was 125. As there was only one Aquatic PVS Evaluation of the Aquatic Animal Health Services report available, no aquatic data was included in the analysis.

The breakdown where the report was accessed, type of PVS Pathway mission report (# reports) is as follows:

- a) OIE website (publicly available) - PVS Evaluation (26), PVS Gap Analysis (22) and PVS Evaluation Follow-Up (14);
- b) OIE PVS Pathway File Manager (available to donors/partners)- PVS Evaluation (76), PVS Gap Analysis (35) and PVS Evaluation Follow-Up (5); and
- c) Confidential files had Levels of Advancement (LoA) tables and corresponding text for CC I-9 and CCII-6 extracted from PVS Evaluation (23) and PVS Evaluation Follow Up (3).

The number of PVS Pathway reports as outlined above differs slightly from “the status of missions” on the OIE website as we did not include missions in progress or prior to the finalisation and publication of the report. We acknowledge that the PVS Pathway sections of OIE website were updated in early March 2018 when analysis for this project was already underway. We consider that these small discrepancies do not impact on the overall outcomes of this project.

Fig. 29 shows that following the introduction of the PVS Pathway in 2006, the programme experienced a surge in PVS Evaluation missions in 2007 and 2008. Thus, approximately 55% of the total 125 PVS Evaluation missions (69) data available for this project were generated between 2006 and 2008. PVS Evaluation Follow Up missions are increasing as the cycle begins again in some countries.

Fig. 29. Total: PVS Evaluations and PVS Evaluation Follow Up

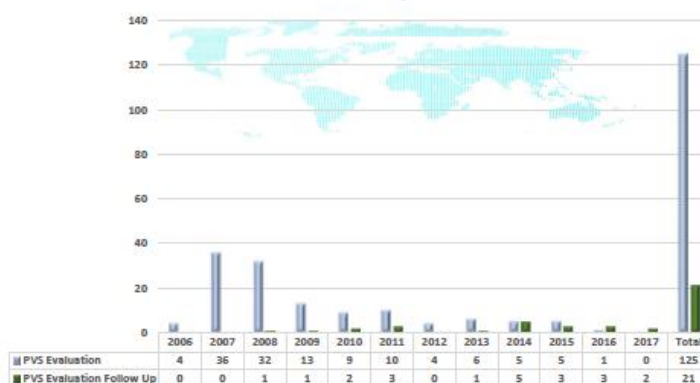
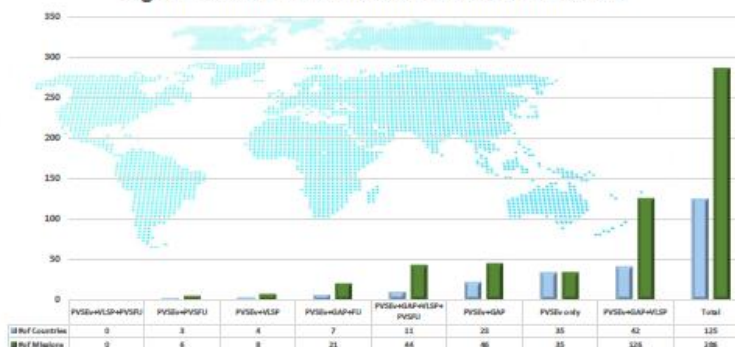


Fig. 30 shows that PVS Pathway is continuing to gain momentum as evidenced by the number of all PVS Pathway missions (i.e. 286 missions) to the countries with 72% of those which started, continuing to undergo through the various steps of the PVS Pathway (see Fig.28).

Fig. 30. Total PVS Evaluation & Related Missions



Fewer than a third (i.e. 35 of the countries) had undertaken a PVS Evaluation mission only. This may reflect more recent engagement in the PVS Pathway. Developed countries are now undertaking PVS Evaluations, while previously most of missions were in developing countries (see discussion under socioeconomic index below).

In addition to a PVS Evaluation mission, 66% of the countries have also had Gap Analysis, 46% a VLSP mission, 11% a PVS Laboratory Missions and 17% have undergone a PVS Evaluation Follow-Up mission. repeat evaluation with a Follow-Up Evaluation mission (PVSFU) either before or after the Gap Analysis.

PVS Evaluation Follow-Up missions occurred an average of 7 years after the original PVS Evaluations. However only 22% of countries that had an initial PVS Evaluation missions from 2006 to 2008 have had a PVS Evaluation Follow-Up mission (19/69).

Data for CCI-9 and CCII-6 was updated in the comprehensive spreadsheet using the PVS Gap Analysis or PVS Evaluation Follow-Up mission LoA where those subsequent missions changed the initial LoA.

4.3.1.1.1 CCI-9 Emergency Funding

This CC measures *“the capability of the VS to access extraordinary financial resources to respond to emergency situations or emerging issues; measured by the ease of which contingency and compensatory funding (i.e. arrangements for compensation of producers in emergency situations) can be made available when required”*. These are, as follows:

- a) Level 1 indicates no contingency or compensatory funding arrangement.
- b) Level 2 had limited resources deemed inadequate for emergencies.
- c) Level 3 also has limited resources with additional funds through a political process.
- d) Level 4 has adequate resources with additional funds through a non-political process on a case-by-case basis.
- e) For level 5, adequate resources are available with rules or operation agreed with (all) stakeholders.

The exact wording for the LoA is given in Table 3 below which summarises the results of the Emergency Funding analysis.

Over all OIE Regions, the majority of CCI-9 emergency funding LoAs are levels 1 to 3 (84%) (no or inadequate resources for emergencies or if limited resources only with extra funding subject to a political process). Only 14% of the countries are at level 4 (adequate resources but for emergencies subject to case-by-case by a non-political process) with merely 4 % at level 5 (adequate resources and rules for additional funds previously agreed with interested parties). However, for CCI-9, the same phrase *“Available from the Ministry of Finance and released in response to emergency situations”* was rated 1 through 3 by different Experts.

Fig. 31 shows that ME Region has nine countries with PVS Pathway data. Nevertheless, it is not easy to draw informed conclusions as, generally emergency funding is not readily available. The majority have been rated as 2 with inadequate resources. The supporting text in the actual reports for the two countries with level 4 do not support the assigned LoA.

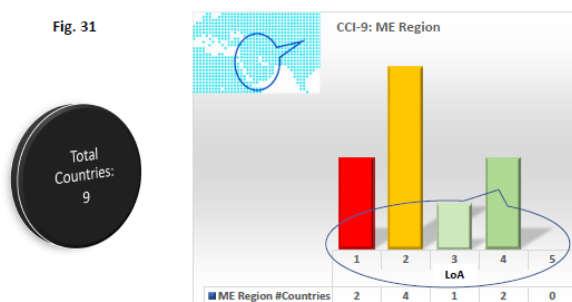


Fig. 32 shows that AF Region has the greatest number of countries with no or limited contingency and compensation funding. As with ME Region, there are no 5 LoAs. Of the five countries with a 4 LoA, the text for two countries (PVS in 2007 & 2008) support a lower rating than the one given. Similarly, several of the countries given a 3 LoA (PVS Evaluation missions in 2007 & 2008) had text that did not support the rating. In some instances, the supporting text for LoAs of 1, 2 or 3 was almost identical.

Fig. 32

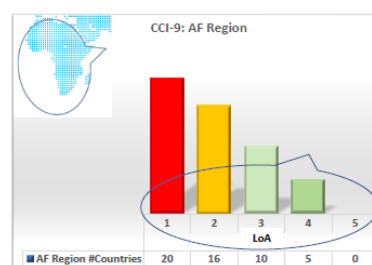
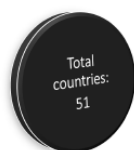


Fig. 33 shows that AM Region also have countries with a 5 LoA and the majority are still mostly with no or uncertain emergency funding. There appeared to be very little difference in text for the single country rated as 4 which appears to have private funding support for emergency funds through a 12% tariff on animal exports (PVS Evaluation in 2007). When going back to the original data, an error was found and the CC-9 was 5 evidenced in a PVS Follow-Up Evaluation in 2014 but it was too late to change the graphic. Half of the countries rated 2 had a law enabling emergency funding. For all countries rated as 1 the text supported the lack of emergency funding.

Fig. 33

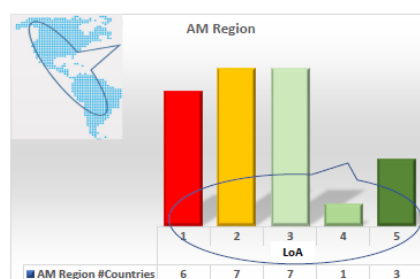
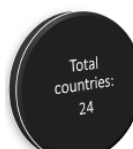


Fig. 34 shows that in AP Region most countries had limited or uncertain emergency funding. Only two countries had a 1 level of advancement. One of these though had a new National Disaster Management Office responsible for emergencies. It appears that as the VS itself had lost funding, a LoA of 1 was assigned which does not appear to be the intent of the LoA text. Two of the countries with a level 2 LoA relied on donor funding for contingency funding. Two also had legal provision for contingency funding. Most of the countries in the AP had a LoA of 3 for emergency funding. Two LoAs stand out as anomalies with the text not supporting the 3 LoA (PVSs in 2008). One reads, *“There was not enough information made available to the Team to comment on this competency”* while the other states, *“No documented procedure to apply and implement contingency funds; no legislation for compensation”*. Three countries had a LoA of 4 but one limited compensation only for specific diseases. The two countries with a 5 LoA have very different socioeconomic standings but both appeared to have contingency arrangements well in place.

Fig. 34

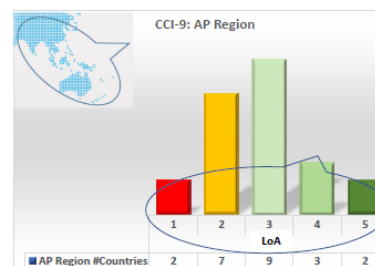


Fig. 35 shows that Europe Region had the greatest proportion of countries with a 4 LoA but none at level 5. This likely reflects the influence of EC standards for some of the countries in the Europe Region. One country has no emergency funding, only funds for vaccine purchase for five specified diseases. Of the five countries with a 2 LoA, three had laws in place but had not elaborated compensatory or contingency funding. One had no funding but appears to have been rated as a 2 rather than 1 because compensation for HPAI had been covered by an international donor. For the six countries with a 3 LoA, one had advanced from a previous 2 on a PVS Follow-Up Evaluation mission and passing of a Regulation. All appeared to meet 3 LoA's requirements, apart for one for which the text read, "no policy for compensation and no funds allocated for this purpose exist...allocations for some emergency issues are available..." (PVS Evaluation in 2013). All level 4 LoAs appear to be well in place often with supporting legislation.

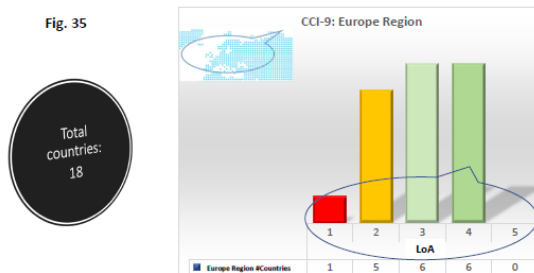


Table 4 summarises the above Regional results for CCI-9. There are some discrepancies in the LoAs assigned and the corresponding text as noted above. This will be further explored in the discussion below.

Table 4. Summary of Regional results for Emergency funding (CC I-9)

I-9. Emergency funding	Advancement Levels	Total	ME	AF	AM	AP	Europe
<i>The capability of the VS to access extraordinary financial resources in order to respond to emergency situations or emerging issues; measured by the ease of which contingency and compensatory funding (i.e. arrangements for compensation of producers in emergency situations) can be made available when required</i>	1 No contingency and compensatory funding arrangements exist and there is no provision for emergency financial resources.	31 (25)	2 (20%)	20 (39%)	6 (25%)	2 (9%)	1 (6%)
	2 Contingency and compensatory funding arrangements with limited resources have been established, but these are inadequate for expected emergency situations (including emerging issues).	39 (31%)	4 (44%)	16 (31%)	7 (29%)	7 (30%)	5 (28%)
	3 Contingency and compensatory funding arrangements with limited resources have been established; additional resources for emergencies may be approved but approval is through a political process.	33 (26%)	1 (11%)	10 (20%)	7 (29%)	9 (20%)	6 (33%)
	4 Contingency and compensatory funding arrangements with adequate resources have been established, but in an emergency situation, their operation must be agreed through a non-political process on a case-by-case basis.	17 (14%)	2 (22%)	5 (10%)	1 (4%)	3 (13%)	6 (33%)
	5 Contingency and compensatory funding arrangements with adequate resources have been established and their rules of operation documented and agreed with stakeholders.	5 (4%)	0	0	3 (13%)	2 (9%)	0
		125	9	51	24	23	18

4.3.1.1.2 CCII-6 Emergency Response

This CC measures "the authority and capability of the VS to respond rapidly to a sanitary emergency (such as a significant disease outbreak or food safety emergency)".

- a) Level 1 indicates no field presence to detect a sanitary emergency.
- b) Level 2 has a field presence but lacks legal and financial support to respond.

- c) Level 3 have legal and financial support to respond with some NCPs but these are not tested/updated.
- d) Level 4 have procedures, legal and financial support to respond rapidly with NCPs that are regularly tested/updated.
- e) For level 5, NCPs exist for all diseases of concern, coordination with other Competent Authorities that are regularly tested/updated.

The exact wording for the LoA is given in Table 4 below which summarises the results of the following analysis.

Overall, the OIE Regions, 80% of the CCII-6, emergency response LoAs are equal to or less than 3. This indicates that most countries may have some national contingency plans for some exotic diseases but they are not updated/tested. This is consistent with our findings above for NCPs from data from other sources.

Only 18% of countries have a level 4 LoA where countries have plans for some exotic diseases that are regularly updated/tested. There are a few at level 5 (3%), that have contingency plans for all diseases of concern, coordination with stakeholders and regularly updated, tested and audited.

Fig. 36 shows that ME Region had no countries with level 4 or 5 LoAs. Only one of the three level 3 countries had contingency plans for exotic diseases other than HPAI. That country also had plans for Rinderpest (RP) and Foot and Mouth Disease (FMD). Two of the five countries with a LoA of 2 had plans for HPAI. The situation in the single level 1 country was unclear but the country had experienced HPAI three years previous to the PVS Evaluation mission.

Fig. 36

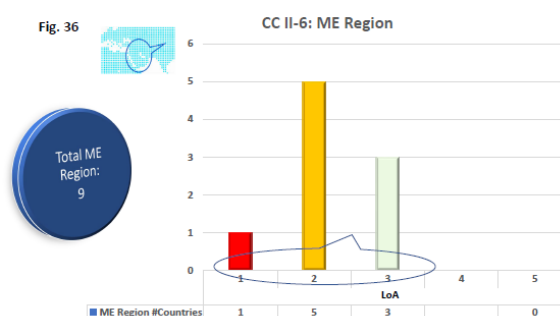


Fig. 37 shows that over 90% of the countries in AF Region had a level 3 LoA or less. One country was rated at level 5 for having NCPs for HPAI, FMD, PPR, BT and AHS. Of the four at level 4, three had NCPs for FMD and HPAI. No plans were listed in the PVS Evaluation report for a few level 3 and 4 countries. NCPs for level 3 countries include FMD, RVF, RP, HPAI and ASF. HPAI and RP NCPs are mentioned in level 1 and 2 countries (66%) which lack the capacity to detect or respond. One country was rated at level 5 for emergency response having comprehensive well documented plans for HPAI, FMD, PPR, BT and AHS. Of the four at level 4, three had plans for FMD and HPAI while one also had a plan for rabies. No plans were listed in the PVS Evaluation report for one of the four level 4 countries nor for two of the level 3 countries. One report indicated that contingency plans were not available during the mission and sent to the OIE after the mission.

Fig. 37

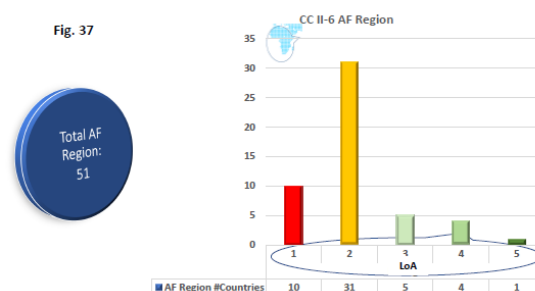


Fig. 38 shows that AM Region has a greater preponderance of LoAs in the middle range than other Regions with only two countries with a 1 and two with a 5 LoA. The two level 5 countries have multiple contingency plans. One recently went to level 5 on a PVS Evaluation Follow-Up mission. Level 4 countries list multiple contingency plans although one country had no NCPs listed. Similarly, diseases are not listed for half of the level 3 countries (PVS Evaluation in 2007 & 2009). Both level 1 countries were evaluated early (PVS Evaluation in 2006 & 2008) with little supporting text.

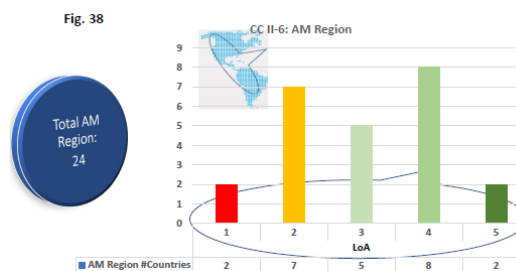


Fig. 39 shows that in AP Region almost three-quarters of the countries have LoAs of level 3 or below. Only one country has a level 5 LoA. Countries with a level 4 LoA have text suggesting a broad range of NCPs. Level 3 countries often have a HPAI NCP but no others listed. Level 2 countries generally have no NCPs although HPAI is listed for one of them. The only one level 1 country has NCPs for HPAI and rabies procedures.

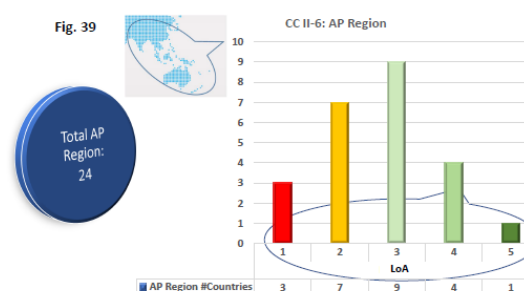


Fig. 40 shows that Europe Region has the greatest proportion of countries with a 4 LoA but none listed with a 5 LoA. Most level 4 countries list multiple NCPs and one has none. Level 3 countries have a broad range with no NCPs to a generic NCP with multiple diseases. Similarly, level 2 countries have a range of text but only one with a NCP for HPAI. Level 1 countries differ in that one has no NCPs whereas the other claims six drafted but not yet approved.

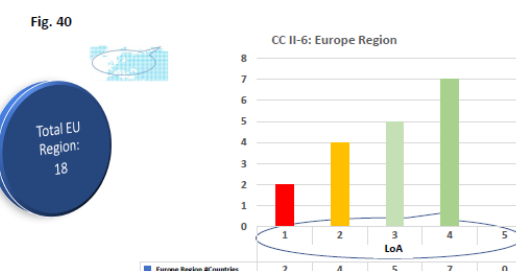


Table 5 summarises the above Regional results for CCII-6. There are fewer differences in the LoAs assigned and the corresponding text than for CCI-9. This will be further explored in the discussion below.

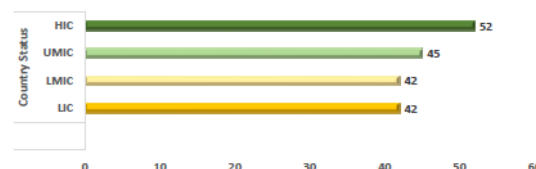
Table 5. Summary of Regional results for Emergency response (CC II-6)

II-6. Emergency response	Advancement Levels	Total	ME	AF	AM	AP	Europe
<i>The authority and capability of the VS to respond rapidly to a sanitary emergency (such as a significant disease outbreak or food safety emergency)</i>	1 The VS have no field network or established procedure to determine whether a sanitary emergency exists or the authority to declare such an emergency and respond appropriately.	18 (14%)	1 (11%)	10 (20%)	6 (8%)	3 (13%)	2 (11%)
	2 The VS have a field network and an established procedure to determine whether or not a sanitary emergency exists, but lack the necessary legal and financial support to respond appropriately	54 (43%)	5 (56%)	31 (61%)	7 (29%)	7 (30%)	4 (22%)
	3 The VS have the legal framework and financial support to respond rapidly to sanitary emergencies, but the response is not coordinated through a chain of command. They may have national contingency plans for some exotic diseases but they are not updated/tested.	27 (22%)	3 (55%)	5 (10%)	5 (21%)	9 (59%)	5 (28%)
	4 The VS have an established procedure to make timely decisions on whether or not a sanitary emergency exists. The VS have the legal framework and financial support to respond rapidly to sanitary emergencies through a chain of command. They have national contingency plans for some exotic diseases that are regularly updated/tested.	22 (18%)	0	4 (8%)	8 (33%)	3 (13%)	7 (39%)
	5 The VS have national contingency plans for all diseases of concern, including coordinated actions with relevant Competent Authorities, all producers and other interested parties through a chain of command. These are regularly updated, tested and audited.	4 (3%)	0 (2%)	1 (2%)	2 (8%)	1 (4%)	0
		125	9	51	24	23	18

4.3.2 Analysis of Socio-economic index (LIC, LMIC, UMIC and HIC)

Part of the project brief was to examine identify associations between national capacity for emergency management and other factors (e.g. geographical, political, economic or disease situation). A socioeconomic index was thus used and applied to all OIE member countries. Fig. 41 shows that the uniform distribution of OIE member countries within each of the LIC, LMIC, UMIC and HIC classifications is not unexpected as 94% of countries globally are OE members.

Fig. 41. OIE Member Countries & Socio-economic Index



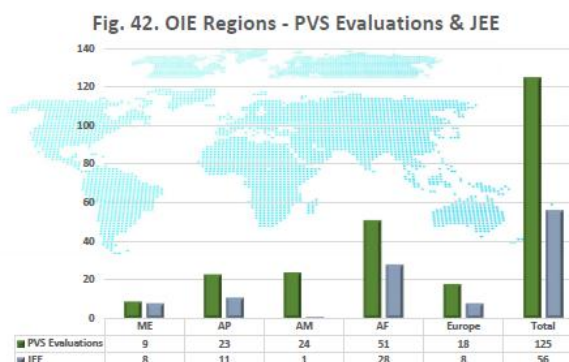
In the context of socio-economic index and PVS Pathway dynamics, Table 6 shows that the greatest interest for PVS Evaluations comes from LIC countries (88%), followed closely by UMIC and LMIC countries (majority of LC countries (88%) had PVS Evaluations carried out. This is closely followed by UMIC (87%) and LMIC countries (80%). In contrast, only 25% of HIC countries have requested a PVS Evaluation mission.

Table 6. Socio-economic Index & Engagement in PVS Pathway

Socioeconomic Index	Total # Countries	No PVS	PVS pathway	% PVS	OIE Regions				
					ME	AF	AM	AP	Europe
LIC	42	4	37	88%	0	25	1	9	2
LMIC	42	6	36	80%	2	16	7	8	3
UMIC	45	7	39	87%	3	10	12	3	11
HIC	52	39	13	25%	4	0	4	3	2
totals	181	56	125	69%	9	51	24	23	18

4.3.3 Country Engagement in PVS Pathway and JEE

Fig. 42 shows that a correlation exists between countries that participate in the PVS Pathway and those which have experienced a JEE under the International Health Regulations (IHR) Monitoring and Evaluation Framework of the WHO. This is likely attributable to developing countries seeking to improve their health security as a result of the 2014 West Africa Ebola outbreak. Both the PVS Pathway and the JEE seek sustainable improvement in VS and health security respectively. Both reports provide baseline data against which improvements can be assessed and measured.



Similar to the PVS Pathway, the JEE measures emergency response capability but combines surge capacity as illustrated in Table 7 below. Both have their merits with the JEE rooted in a generic multi-hazard approach appropriate to the One Health approach adopted by WHO.

Table 7. JEE – PVS Pathway LoA with the JEE scores for Emergency Response Capability.

PVS Pathway		IHR JEE	
CC II-6. Emergency response	Level of Advancement	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented	
<i>The authority and capability of the VS to respond rapidly to a sanitary emergency (such as a significant disease outbreak or food safety emergency)</i>	1 The VS have no field network or established procedure to determine whether a sanitary emergency exists or the authority to declare such an emergency and respond appropriately.	1. No capacity	National public health emergency preparedness and response plan is not available to meet the IHR core capacity requirements. (Annex 1A Article 2)
	2 The VS have a field network and an established procedure to determine whether or not a sanitary emergency exists, but lack the necessary legal and financial support to respond appropriately	2. Limited Capacity	A multi-hazard national public health emergency preparedness and response plan to meeting IHR core capacity requirements has been developed. (Annex 1A Article 2)
	3 The VS have the legal framework and financial support to respond rapidly to sanitary emergencies, but the response is not coordinated through a chain of command. They may have national contingency plans for some exotic diseases but they are not updated/tested.	3. Developed Capacity	National public health emergency response plan(s) incorporates IHR related hazards and Points of Entry AND Surge capacity to respond to public health emergencies of national and international concern is available.
	4 The VS have an established procedure to make timely decisions on whether or not a sanitary emergency exists. The VS have the legal framework and financial support to respond rapidly to sanitary emergencies through a chain of command. They have national contingency plans for some exotic diseases that are regularly updated/tested.	4. Demonstrated Capacity	Procedures, plans or strategy in place to reallocate or mobilize resources from national and intermediate levels to support action at local response level (including capacity to scaling up the level of response)
	5 The VS have national contingency plans for all diseases of concern, including coordinated actions with relevant Competent Authorities, all producers and other interested parties through a chain of command. These are regularly updated, tested and audited.	5. Sustainable Capacity	The national public health emergency response plan(s) is implemented /tested in actual emergency or simulation exercises and updated as needed.

5. Discussion and Conclusions

The key in animal disease contingency planning is a broad understanding of international regulations and policies and practical implementation of ‘fit for purpose’ NCPs at a national level which are in

compliance with OIE standards and guidelines. Such NCPs should consider a country's needs, priorities, socio-economic status and regional characteristics.

The findings of this report highlight the need for a greater standardisation in terminology that is clearly understood by all involved at all levels, from international level to community. At the same time, the role of donors, the private sector, public-private partnerships, non-government organisations (NGO)s, civil society and local communities together with collaboration and communication at those levels is still not defined to a sufficient level of clarity in standards and guidelines to ensure coherence in approach and avoid duplication in achieving common public goals. There is a clear need for consistency in the approach. This could be covered by an integrated OIE guideline for national authorities on key reference OIE and other relevant international documents (i.e. strategies, guidelines) that should be considered when developing NCPs to maximise the use of resources and avoid potential for confusion. This also applies to terminology where a concordant table would clarify the terminology equivalents in relevant OIE and international strategies and guidelines.

Of 181 OIE Member Countries, 163 countries have some form of a NCP, only 18 countries apparently do not have NCPs. This could indicate that countries without NCPs may either have various resource and financial constraints or a lack of incentives for trade in livestock and livestock products and organised industry associations to drive improvements. These could be further investigated to determine the countries' NCP status and their needs and incentives for development of NCPs.

Overall, most countries with NCPs are in the Europe and AM Regions followed by countries in AF, AP and ME region. The type and availability of NCPs (generic vs. disease specific) appears to vary greatly between Regions with 37 countries having a generic NCP and around 126 countries having disease specific NCPs. There is a trend in some Regions, AP and Europe, to place emphasis on developing generic plans to cover a range of diseases. In the other Regions, a disease-based approach seems to be a preferred option. The OIE could investigate both trends in all five Regions in more detail which would help to guide determining the training needs accordingly and strengthening the global capacity for animal disease emergencies.

Many Member Countries across the OIE Regions have fewer than five NCPs. Most NCPs primarily relate to ruminants and poultry. These are followed by NCPs for pig diseases, NCPs for horse disease, NCPs for rabies (in dogs/domestic animals and wildlife). There are very few NCPs for aquatic animal diseases, wildlife diseases, or for diseases of bees. However, it is more important to note that there appears to be a similar proportion of specific disease NCPs for terrestrial animals that are available from the AP, AM, AF and Europe Regions (in proportion to the Member Countries). This reflects each Region's animal disease situation and efforts related to the animal disease contingency planning.

The five most common NCPs in OIE Member Countries are for highly pathogenic avian influenza, followed by foot and mouth disease, classical swine fever, Newcastle disease and African swine fever, although this also varies by geographic risk of various diseases and the number of countries with NCPs in those Regions. RP is notably absent in spite of the adoption of an OIE Resolution in 2011 requiring actions to maintain global RP freedom, including maintaining NCPs for RP. A surge in contingency planning worldwide occurred in the mid-late 2000s as the world faced the possibility of an influenza pandemic when human susceptibility to HPAI (H5N1) Asian lineage was realised. While the emergence of new strains of potentially zoonotic HPAI strains has occurred since, it remains difficult to ascertain how many of these countries that have initially developed plans for HPAI (H5N1) have reviewed the existing plans and updated them accordingly.

It should be noted that in some countries, there are national programmes for control and/or eradication of specified diseases (for example, bovine tuberculosis, brucellosis, PPR, rabies). Such established programmes may use a multi-sectoral approach and provide a useful framework for the development of NCPs for other diseases that are not present in a country, or to deal with introduction after the specific disease has been eradicated.

With respect to the 56 OIE Member Countries Delegates responding to our official request to provide their countries' NCPs, all Delegates were appreciative and supportive of the OIE project on NCPs and consider it as a way forward to ensure mutual support and transparency. While 70% of them provided either generic or single disease NCPs or a combination of both, the remaining 30% of Delegates indicated that plans are in development and/or validation and not available at this stage. This exchange has also highlighted a couple of aspects of importance to NCPs and general criteria to publishing the NCPs on the OIE website. That is, one of them commented that there is still debate on whether single or generic NCPs are the way to move forward in animal disease contingency planning. The other one commented that any NCPs to be published at the OIE website should be validated. These are two points for OIE to further consider at appropriate fora and provide advice to Member Countries on these aspects.

A considerable number (269 NCPs) of generic and single disease NCPs were received from the responding Delegates in a variety of languages. Around 50 % of the documents are in the three official languages of the OIE with the remaining 50% of NCPs being in more than 10 different languages (mainly from Europe Region). This is another consideration for the OIE when publishing NCPs on its website.

With respect to animal welfare, it is very encouraging to see a high level of inclusion of animal health and/or welfare in the 30 national NHPs that we have sighted. When considering animal welfare in the NCPs provided by the responding Delegates, it is notable that all NCPs do include reference to a 'stamping out using approved methods' as one of the standard disease control measures. In these, different type of requirements for slaughter during emergencies (e.g. approved movements to slaughter from approved areas) seems to be covered to a varying extent in nearly 36% of the NCPs which were received mainly from certain countries within the Europe Region. In reviewing, updating and validating NCPs, aspects such as animal welfare should be encouraged by the OIE at appropriate fora and advice provided to Member Countries.

It is notable that many of the recently developed generic NCPs or specific disease NCPs were very closely aligned or aligned with the general principles as comprehensively outlined in FAO GEMP (and in FAO *Biosecurity Toolkit*). It is understandable that some countries may have resources to implement these, while other countries may not have resources for various reasons (i.e. political environment, lack of perceived need, low prioritisation of animal health, lack of incentives, and/or socio-economic development). A number of specific disease NCPs are of good quality and may benefit from being reviewed and updated. In any case, the OIE and FAO are considering the development of a toolbox which may provide guidance on a staged process ('a Pathway') that would allow countries to embrace the FAO GEMP (and FAO *Biosecurity Toolkit*) in development of a 'fit for purpose' and practical NCPs and improve them through SIMEX exercises. This would also incentivise countries to undertake SIMEX and respond in compliance to PVS Tool CCs on emergency funding and response.

The PVS Pathway is ten years old and written prior to FAO GEMP and more current and relevant strategies and guidelines published by OIE. It is primarily based in Section 3 *Quality of Veterinary Services* in the Code. The PVS Pathway is designed for monitoring sustainable improvement of the VS and follows the Chapter 3.2 *Evaluation of Veterinary Services* in the Code. The LoAs are sufficiently

broad that assessment of modern NCPs can be incorporated into the relevant PVS Pathway CCs. Capacity building for NCPs could be tailored to the LoA of a country, targets for improvement could be set, and progress monitored through PVS Pathway. OIE participation and training in such a proposed staged process (Pathway) is independent of the PVS Pathway, just as the PVS Pathway is independent of the Joint OIE FAO *Global PPR Control and Eradication Programme* and, previous to that, the Joint OIE FAO *Progressive Control Pathway for FMD*.

It is notable that AM and AP Regions are the only Regions where some countries have a PVS LoA of 5 for one of both CCs relevant to emergency management. This may demonstrate a greater political commitment to international trade in livestock and livestock products as well as availability of resources to respond to market forces and meet consumer needs. Many HIC within the Europe Region have greatly advanced their contingency planning following outbreaks of CSF in late 1990s and FMD and HPAI outbreaks in early to late 2000s as evidenced by EU decision documents. Some countries in other Regions have advanced contingency planning to protect disease free status and/or zoning (such as in AM and Europe Region) and for integrated island biosecurity approaches (such as in AP Region). These are all examples of good practice and these NCPs could be very useful to other Member Countries which may be working towards developing their NCPs for their country's purposes.

While the PVS Pathway yield data (i.e. from CCs on emergency funding and emergency response) that can describe the level of capacity for emergency management by the national VS, there is a danger of over-interpreting the results. There is an inherent problem with using data for a different purpose than what was originally intended. This study was primarily to determine whether OIE Member Countries had NCPs and sufficient funding for emergency response. The five LoAs contain more detail than necessary for this study as they were designed for progressive increments of improvement in achieving OIE VS quality standards.

The following sources of systematic bias/ unsystematic error must be acknowledged:

- LIC, LMIC and UMIC countries strongly participate in PVS Pathway (80-88% of OIE Members);
- HIC have generally not participated in the PVS Pathway (25% of OIE Members);
- The PVS Pathway is 10 years old with 55% of the CC data generated in the early days of this programme (2006-2008);
- PVS Evaluation Follow-Up missions have updated only 22% of 2006-2008 missions;
- The same disease may have a domestic programme in one country and a NCP in another and thus not listed as a NCP;
- Supporting text does not always support the LoA assigned;
- Inevitable human variability in assigning LoAs;
- Inevitable human variability in the amount/quality of supporting text; and
- Participation in PVS Pathway varies geographically by OIE Regions (AF-95% to Europe Region-34%).

Discrepancies in text and individual ratings, can be overcome by grouping the levels of advancement more broadly suited to the purpose of this preliminary assessment. Even though HIC countries have limited participation in the PVS Pathway, they responded most strongly to the official request for NCPs (49%).

With respect to emergency funding (CCI-9), LoA of 5 is not frequently assigned and is a target that is likely unachievable in all but the most politically stable HICs where all stakeholders (private and public) agree rules of operation. In the AM Region, such countries have been engaged for over 50 years in private/public partnerships to eradicate FMD from the continent through COSALFA (*Comisión*

Sudamericana para la Lucha contra la Fiebre Aftosa). In AP, both countries have strong private sector engagement in agriculture. OIE Regions with most ratings in adequate or limited resources are Europe and AP. These Regions also have a greater proportion of UMIC. The greatest capacity gap occurs in the AF Region with most of countries having no emergency funding or inadequate funding followed closely by the ME and AM Region. It is unlikely that even the few NCPs held in these OIE Regions could be operationalised without donor funding.

Similarly, with respect to emergency response (CCII-6), LoA 5 reflects the same HIC countries as emergency funding for similar reasons. These four HIC countries have a history of private/public partnerships with the agricultural interests represented at the political level. A single level 5 country in the AF Region is a UMIC with political stability and trading ties to the European Union and USA. The AM, Europe and AP Regions have a significant proportion of countries with some NCPs whether updated/tested or not. In contrast, AF and ME Regions have either no mechanism to detect an emergency disease outbreak or the necessary legal or financial support to respond.

Many of the NCPs in the latter OIE Regions are for HPAI and a few list RP. The AF Region was actively engaged in the FAO's Pan African Rinderpest Campaign (PARC). It is suspected that RP plans were not listed in more recent PVS Evaluation mission reports with RP global eradication in 2011. Although not always stated in reports, the existence of a single NCP for HPAI may reflect the out-reach programme by the FAO in the mid to late 2000s. This was in the wake of the global pandemic concern with the emergence of H5N1 globally. Internalisation of such NCPs by the supported country with inadequate resources remains an issue.

VLSP reports do not update CCs in terms of level of advancement although both emergency response related to contingency plans (CC II-6) and emergency funding (CC I-9) are incorporated in Questionnaire Part II Section 5, Animal Diseases where 5.3 b) asks specifically, *"Does the legislation provide a basis for contingency plans, for use in disease responses..."* and 5.3 c) *"Does the veterinary legislation provide for the financing of animal disease control measures....owner's compensation... or other things"*. It would have been useful to know what countries have legislation which requires the development of NCPs and legislation supporting financing of compensation and emergency response.

As outlined in the Results Section, JEE reports, publicly available on the WHO website (WHO, 2018) also assess emergency funding and emergency response using slightly different criteria called 'scores'. It was not within the mandate of this project to extract JEE Tool scores and compare them with PVS Tool CC LoAs, and such a comparative exercise could be considered particularly for Veterinary Public Health emergencies and zoonoses. This combined One Health approach is likely what exists in OIE Regions such as AF where HPAI NCPs written by consultants are frequently held collectively by both Ministries of Health and Agriculture.

A focus on emergency management is inherent in the OIE's 6th Strategic plan where it identifies reduction of biological risk, whether they are natural, accidental or deliberate outbreak. Effective emergency management is the mechanism to reduce the impact of disease outbreaks. The Ebola crisis in 2014 was a wake-up for global village concept even more so the HPAI (H5N1) outbreaks in mid 2000s. Nevertheless, current genetic engineering has already created highly lethal zoonotic strains of HPAI (a concern with bioterrorism).

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7. Annex

Annex 1. Official OIE Request & Follow up

From: Stéphanie Beau [<mailto:s.beau@oie.int>]
Sent: 03 January 2018 14:53
To: Stéphanie Beau <s.beau@oie.int>
Cc: Keith Hamilton <k.hamilton@oie.int>; Mariana Marrana <m.marrana@oie.int>; Tianna Brand <t.brand@oie.int>; Francois Caya <f.caya@oie.int>; John Stratton <j.stratton@oie.int>
Subject: Building capacity for emergency response through solidarity and transparency

Director General
 Our Ref.: KH/SB 30.141

Paris, 31 December 2017

Dear OIE Delegate,

Building capacity for emergency response through solidarity and transparency

It is only a matter of time before the international community is faced with another infectious disease emergency involving animals.

Recognising this, and the fact that an effective and timely response by national veterinary services is critical, the OIE is undertaking a project which aims to build global capacity in emergency management by encouraging Member Countries to share experiences and best practices in national animal disease contingency planning.

Specifically, the project aims to:

1. Populate a web-based platform with animal disease emergency contingency plans (generic and specific for selected diseases) which will serve as examples for other countries
2. Review the content of national contingency plans in different OIE regions to inform 'fit for purpose' guidance and training on contingency planning (including FAO's Good Emergency Management Practices (GEMP))
3. Identify opportunities for building capacity in emergency management at international level
4. Raise awareness to the importance of including National Veterinary Services in multi-sectoral National Disaster Management plans

The project is due to start in January 2018 and will be implemented by a consultant (Dr Mirzet Sabirovic) who will be working closely with OIE Headquarters staff, specifically Drs Keith Hamilton and Mariana Marrana. After an initial web-based search, the team may contact you to collect additional information about your national contingency plans. The OIE is particularly sensitive to the demands on your time and will work efficiently to minimise this, whilst maximising the benefits for OIE Member Countries.

Although OIE Member Countries will be encouraged to share their plans through a public available web-based platform, there is also the option to share the plans confidentially with the OIE.

A final report describing global trends in availability of national contingency plans and their content will be shared with all OIE Member Countries later in 2018.

I very much hope that you will be able to participate in this initiative and benefit from the results which will improve our ability to prepare, prevent, detect and respond to new emergencies.

Yours sincerely,

Dr Monique Eloit

Copy to: National Focal Points for disease information; Regional/Sub Regional Representatives; Regional Actions Department, Programmes Department

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De : Contingency Plan

Envoyé : vendredi 19 janvier 2018 14:46

À : Contingency Plan

Objet : FW: Building capacity for emergency management through transparency and solidarity

Dear OIE Delegate,

I am following up on the letter sent by Dr Monique Eloit, OIE Director General, on 3 January 2018 (see below). The letter makes reference to an OIE-led project which aims to build capacity for emergency management through transparency and solidarity.

The OIE is encouraging member countries to share their national contingency plans with the OIE, so that:

1. The content of these plans will be available to inform and contribute to the development of relevant OIE standards and FAO guidance on Good Emergency Management Practices (GEMP).
2. The plans are available to share with other OIE Member Countries through a web-based platform. This will allow countries to compare and use other national contingency plans as a template when developing their own. The platform already exists on the OIE website, but it is not complete.

To contribute to this project, I should be most grateful if you would

- a) Let us know if your country has a generic national disease contingency plan and/or disease-specific contingency plans. Please specify for which diseases your country has a disease specific plan.
- b) Provide us with a copy or a link to your national contingency plans (either generic or disease specific) by email, indicating whether you agree (or do not agree) for the OIE to make the contingency plan publicly available on the OIE website.

Because we are working to a very tight timeframe we would very much welcome your response before 5 February 2018.

On behalf of the OIE team, I would like to thank you so much for taking the time to consider this request and look forward to hearing from you.

Yours sincerely

Dr Mirzet Sabirovic

OIE Consultant - National Contingency Plans Project

From: Contingency Plan [mailto:contingency_plan@oie.int]

Sent: Monday, 05 February 2018 16:18

To: Contingency Plan <contingency_plan@oie.int>

Subject: FW: Building capacity for emergency management through transparency and solidarity

Dear Delegate

This is a kind reminder to the email that was sent to you on 16th January and inviting you to respond **before 16th February 2018**.

Yours sincerely

Dr Mirzet Sabirovic

OIE Consultant - National Contingency Plans Project