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Linking Epidemiology and Laboratory Research on Transboundary Animal Diseases and Zoonoses in EU and China

Descriptive analysis

FETPv Training session

Design and evaluation of animal health surveillance systems

25th and 27th April 2016, Qingdao, China

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LA RECHERCHE AGRONOMIQUE POUR LE DÉVELOPPEMENT

Why do we need descriptive analysis in the evaluation process?

- 1st step: understanding the system
- To assess system process attributes (organisational and functional attributes e.g. organisation and management; training provision)
- To identify corrective actions
- To prioritise corrective actions
- To help identifications of costs

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List of attributes and groups

- Evaluation attributes have been divided into four categories
  - **Organisational attributes** – assess the overall structure and processes of surveillance which will have an impact on the function, effectiveness and value of surveillance
  - **Functional attributes** – assess how well surveillance functions, the function of surveillance will influence its effectiveness and value
  - **Effectiveness attributes** – assess how effectively the surveillance achieves its objectives, the effectiveness of surveillance influences its value
  - **Value attributes** – assess the value of surveillance for stakeholders

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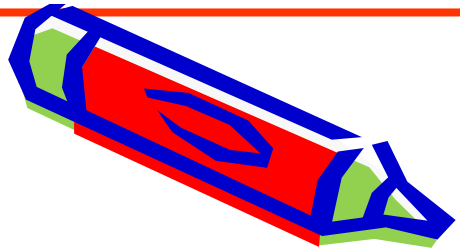
Brainstorming time



- Individually:
  - Look at the attributes and identify the most difficult to understand
- In groups
  - Look back at the definition that we will give you and comments
  - Look back at the 5 attributes to be evaluated (*Organisation/management ; Data storage ; Internal communication ; Stability and sustainability ; Acceptability and engagement*) and comments on the type of tools or methods that you could use to evaluate them

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Literature review + Expert opinion

- List of 38 attributes
- Listing of the existing methods used
- 24 types of methods
  - 10 quantitative
  - 14 qualitative and semi-quantitative
- Association of several methods/tools
- Identification of
  - their field of application (e.g. Syndromic surveillance)
  - the data required for the implementation
  - the outputs provided
- Identification of the main advantages and limits
- http://surveillance-evaluation.wikispaces.com/

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System organisation and management

Method type	References	Strengths	Limits
System mapping	KU Work Group for Community Health and Development, 2014	Provide a detailed description of the surveillance system network of actors and actions linking the different actors together.	No standard method available. Should be performed by people with very good knowledge of the system. Do not provide information on the strenghts and weaknesses, should be combined with SWOT/OASIS or SERVAL method
SWOT (Strenghts/Weaknesses/ Opportunity/ Threats)	KU Work Group for Community Health and Development, 2014	Easy and simple to be understood by all stakeholders, flexible. Promote exchange of information, better communication and the development of a joint consensual view of the situation.	Subjective method. The adequacy and effectiveness of the tool depends on the capacity of the contributors to be as objective as possible in the way they represent reality.
Structured questionnaire survey (OASIS)	Hendrikx et al., 2011	Ready to use questionnaire to describe the system organisation in details. Ready to use evaluation grid to assess the strenghts and weaknesses of the system. Allow to identify corrective action to target	The questionnaire should be filled in with expert of the surveillance system under evaluation. Evaluation criteria pre-defined which reduce the flexibility of the tool. Some results might not fit all systems. However, the scoring could be reviewed and amended.
SERVAL	*Drewe et al., 2015*	*Provides a series of questions to assess the organisation of the system and also provides an evaluation framework and workplan*	*Should be used by expert in the system and by people with knowledge on evaluation. The tool does not provide guidance on recommendations for corrective actions.*

System Mapping

- The system mapping is a visual description of the service technical organization: the different actors involved, their mutual links and the flows of samples, data and information through the system.
- Helps to identify the parts and relationships in that system that are expected to change and how they will change
- Powerful illustrations when presenting results to evaluation stakeholders.

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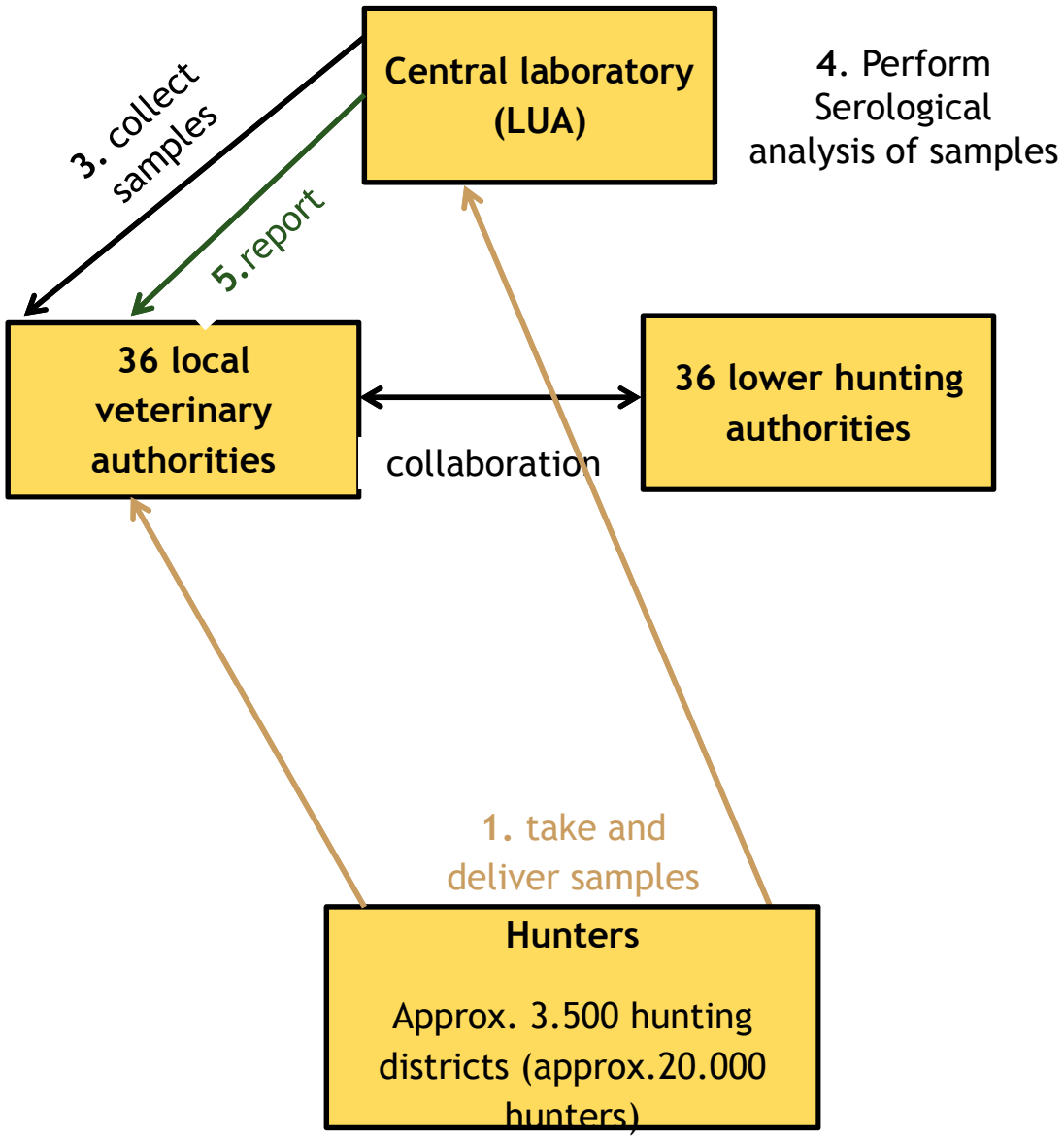
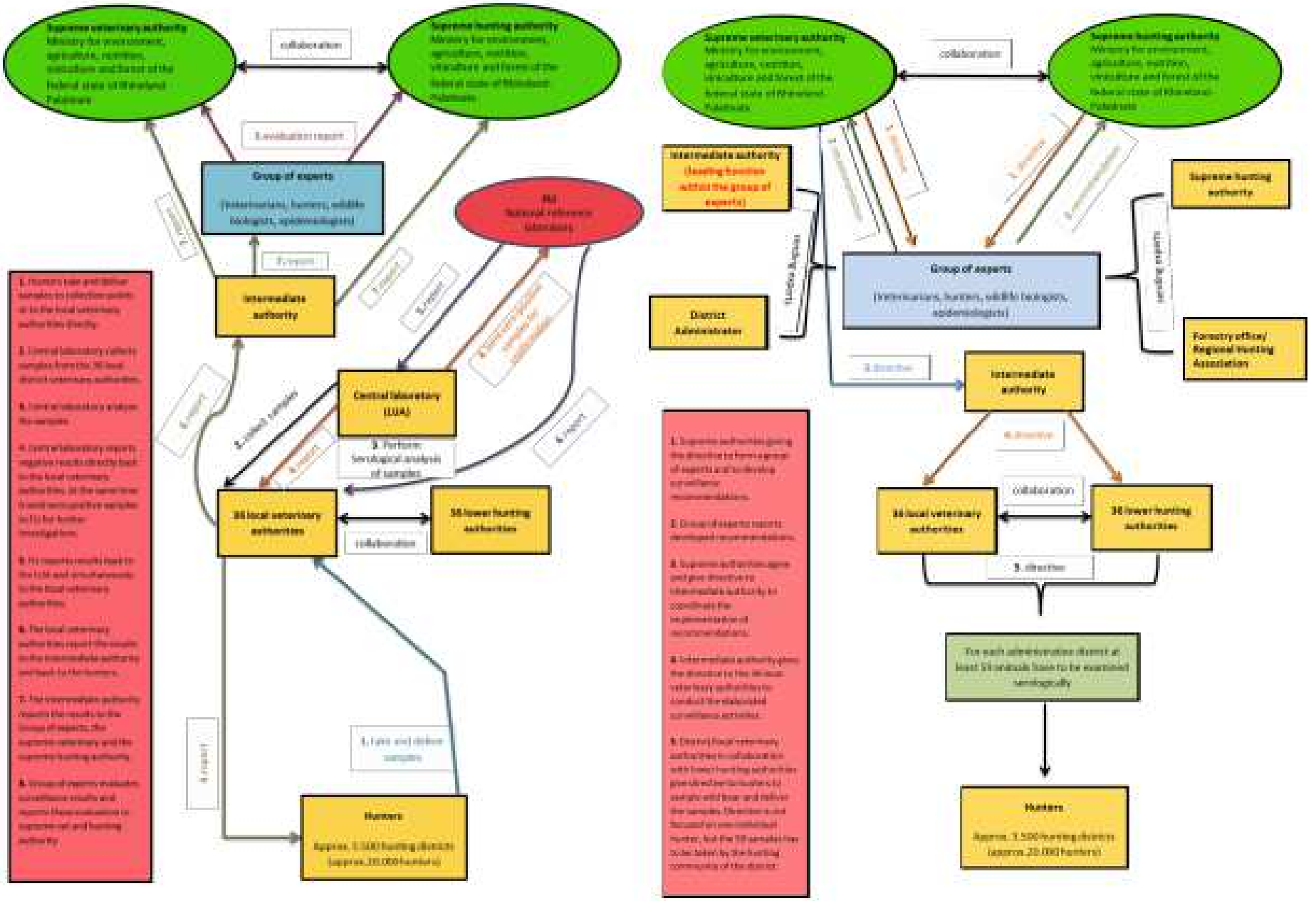

Central laboratory (LUA)
4. Perform Serological analysis of samples
3. collect samples
5.report
36 local veterinary authorities
collaboration
36 lower hunting authorities
1. take and deliver samples
Hunters
Approx. 3.500 hunting districts (approx.20.000 hunters)


Supreme veterinary authority
collaboration
Supreme hunting authority
Group of experts
(veterinarians, hunters, wildlife biologists, epidemiologists)
FLI
National reference laboratory
Intermediate authority
Central laboratory (LUA)
3. Performs serological analysis of samples
38 local veterinary authorities
38 lower hunting authorities
Hunters
Approx. 3.500 hunting districts (approx.20.000 hunters)
Intermediate authority (leading function within the group of experts)
District Administrator
Supreme hunting authority
Forestry office/ Regional Hunting Association
For each administration district at least 50 wildcats have to be examined serologically

SWOT Analysis

- Qualitative assessment technique that explores the external (forces and facts that are not under your control) and the internal (resources, activities, experiences) elements that may influence your system.
- Simple and easily understood by different stakeholders. It is flexible and can be applied to different types of organisations. Best used in a participatory way, to promote exchange of information, better communication and development of a joint consensual view of the situation.
- Subjective method. The adequacy and effectiveness depends on the capacity of the contributors to be as objective as possible in the way they represent reality.

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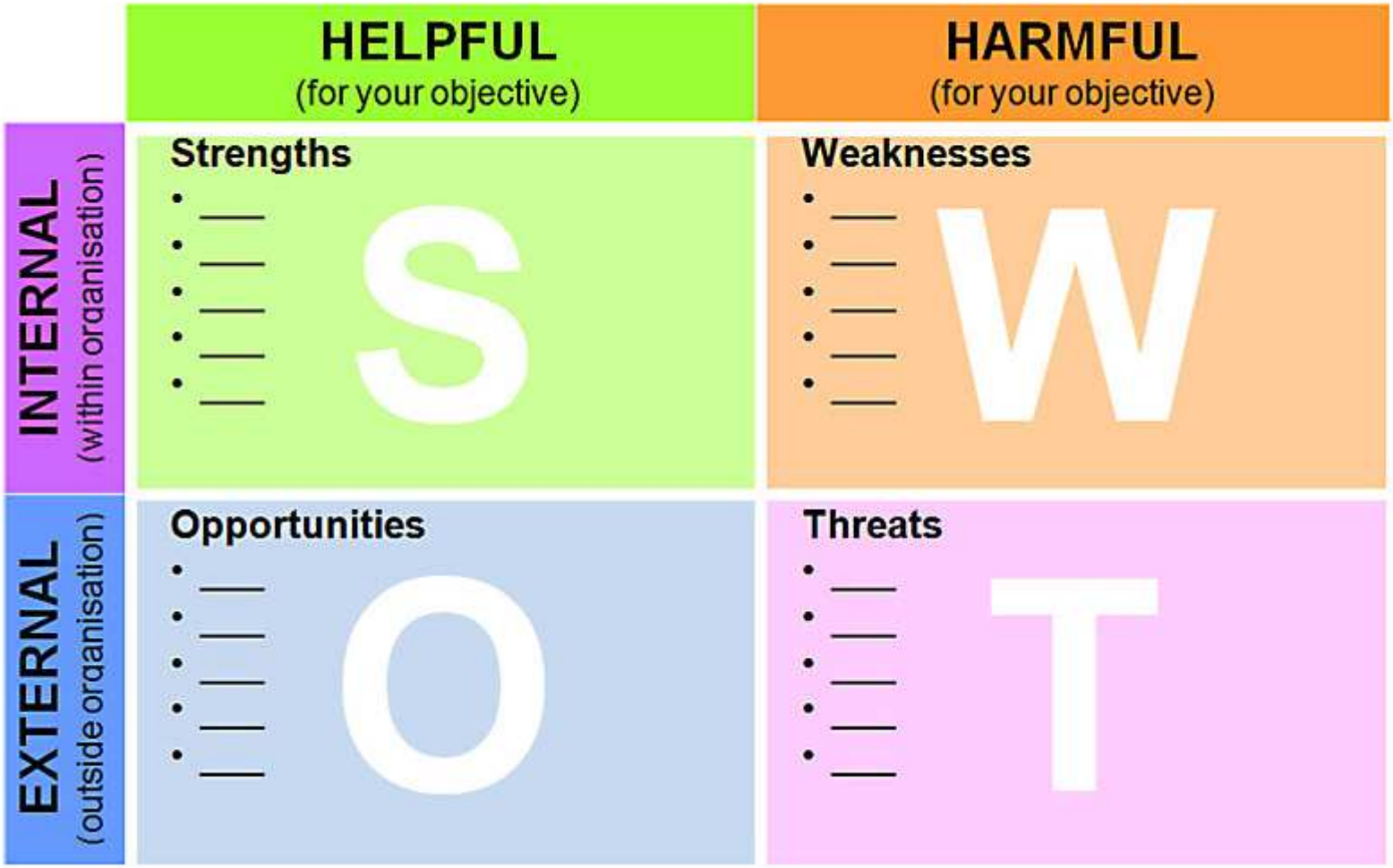
SWAT Matrix


HELPFUL
(for your objective)
HARMFUL
(for your objective)
INTERNAL
(within organisation)
EXTERNAL
(outside organisation)
Strengths
S
Weaknesses
W
Opportunities
O
Threats
T

H5N1 Passive surveillance

INTERNAL	EXTERNAL
STRENGTHS Well-defined objectives Accurate tools designed for the surveillance (collection/suspicions forms, case definition…) Efficiency of the laboratory Collaboration with the MoH Regular management meetings at different level (Central, province, VAHWs...) Good geographic distribution (VAHWs)	**OPPORTUNITIES** FAO funded projects on surveillance USAID funded project Training opportunities (FAO, USAID, FETPv…) Support from IP for lab confirmation
WEAKNESSES No official coordinator of the network Lack of standardization for reporting No systematic/formalized feedback to farmers Heterogeneity of VAHWs level Sustainability of VAHWs Lack of incentives Few connection with VHWs	**THREATS** Lack of recognition of XX as Central Unit Lack of specific and sustainable budget Negative impact of control policy Lack of global approach of surveillance

OASIS (or SNAT/SNATrop): Surveillance Network Analysis Tool

- Standardised tool
- In depth analysis of the surveillance system **operational efficacy and quality**
- Adapted by CIRAD in English and for developing countries

Epidemiol. Infect., Page 1 of 11. © Cambridge University Press 2011
doi:10.1017/S0950268811000161

OASIS: an assessment tool of epidemiological surveillance systems in animal health and food safety

P. HENDRIKX[1*], E. GAY[2], M. CHAZEL[2], F. MOUTOU[3], C. DANAN[4], C. RICHOMME[5], F. BOUE[5], R. SOUILLARD[6], F. GAUCHARD[7] AND B. DUFOUR[8]

Evaluation of surveillance systems in animal health: the need to adapt the tools to the contexts of developing countries, results from a regional workshop in South East Asia.

M Pevre[1*], P Hendrikx[2], H Pahm Thi Thanh[1], D Do Huu[3], F Goutard[1], S Desvaux[1], F Roger[1]

Epidemiologie et Santé Animale, 59: 412-414

OASIS Process

1. **How to conduct the evaluation**: identification of resource persons
2. **Data collection on system process**: STRUCTURED QUESTIONNAIRE
3. **Scoring**: SCORING GUIDE
4. **Output 1**: SATISFACTORY LEVEL
5. **Output 2**: CRITICAL CONTROL POINTS (semi-quantitative assessment (*B.Dufour et al, OIE*))
6. **Output 3**: ASSESSMENT OF QUALITY CRITERIA of the network process (sensitivity; specificity etc… based on CDC and WHO quality criteria)

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Structured questionnaire

- **10 Sections**
- **Participatory approach**
  - Local coordinator / Independent expert
  - Adapted questionnaire
  - All evaluation steps (data collection / scoring / interpretation)
- **Discussions / Interview**
  - Coordinator/ Expert / Resource people at all level
  - Questionnaire to be completed in a second step

Section 1: Objectives and context of surveillance
Section 2: Central institutional organization
Section 3: Field institutional organization
Section 4 : Laboratory
Section 5: Surveillance tools
Section 6: Surveillance procedures
Section 7: Data management
Section 8 : Formation
Section 9 : Communication
Section 10 : Evaluation

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Section 2 CENTRAL INSTITUTIONAL ORGANISATION

☐ To tick the case just click on it. If it does not work you might need to activate the macros in Word.

		Commentary/response
2.1 CREATION OF THE NETWORK		
Date of creation of the network		
Did the network function in a non-formal manner prior to being established	☐ Yes ☐ No	*If yes, since when :*
2.2 INSTITUTION RESPONSIBLE FOR SURVEILLANCE		
2.2.1 *General information*		
Name (establishment)		
Relevant Ministry		
Address		
Telephone		
Fax		
E-mail		
2.2.2 *Human resources (precise if the information are covers the entire system, including data collectors or if it covers only a part which will need to be defined)*		
Number of Engineer / Researchers / Manager		
Part of Veterinarians (DVM)		
Number of technicians *(technician with 2 or 3 years of training)*		
Number of other staff *(Secretary, driver, etc.)*		
2.3 CENTRAL UNIT		
Existing	☐ Yes ☐ No	
Operational	☐ Yes ☐ No	*If yes, what form :*
2.3.1 Composition		
Formalized composition	☐ Yes ☐ No	*If yes, what form :*
Composition *(Number of staff and duties)*		
Human resources in the central unit (in full time equivalent)		
Coordinator		
Name		
Organization		
Time allocated *(% compared to full time)*		
Coordinator task definition		
Animation manager		
Name		
Organization		
Time allocated *(% compared to full time)*		
Animation manager task definition		
2.3.2 *Roles and responsibilities*		
Defined *(people know what to do but it is not written down)*	☐ Yes ☐ No	
Formalized *(people know what to do and it is written down)*	☐ Yes ☐ No	*If Yes, in what kind of document :*
Central Unit activities	Describe :	
Material means specific for the Central Unit	☐ Yes ☐ No	
Financial means	☐ Yes ☐ No	
If yes :		
Specific to the Central Unit (Animation unit)	☐ Yes ☐ No	
Integrated into the general budget	☐ Yes ☐ No	
Adequacy of material and financial means	☐ Yes ☐ No	
2.4 STEERING COMMITTEE OR EQUIVALENT (BODY GIVING STRATEGIC ORIENTATION TO THE SYSTEM)		
Existing	☐ Yes ☐ No	
Operational	☐ Yes ☐ No	
When there is no steering committee, who or what structure decides the principal orientation of the system?		
2.4.1 Composition		
Formalized composition	☐ Yes ☐ No	
List		
Veterinarian services	☐ Yes ☐ No	*Specify :*
Livestock farmers	☐ Yes ☐ No	*Specify :*
Other professionals *(for example merchants, associations, etc.)*	☐ Yes ☐ No	*Specify :*
Govt ministries (departments)	☐ Yes ☐ No	*Specify :*
Livestock projects	☐ Yes ☐ No	*Specify :*

Scoring guide

Section 1: Objectives and context of surveillance

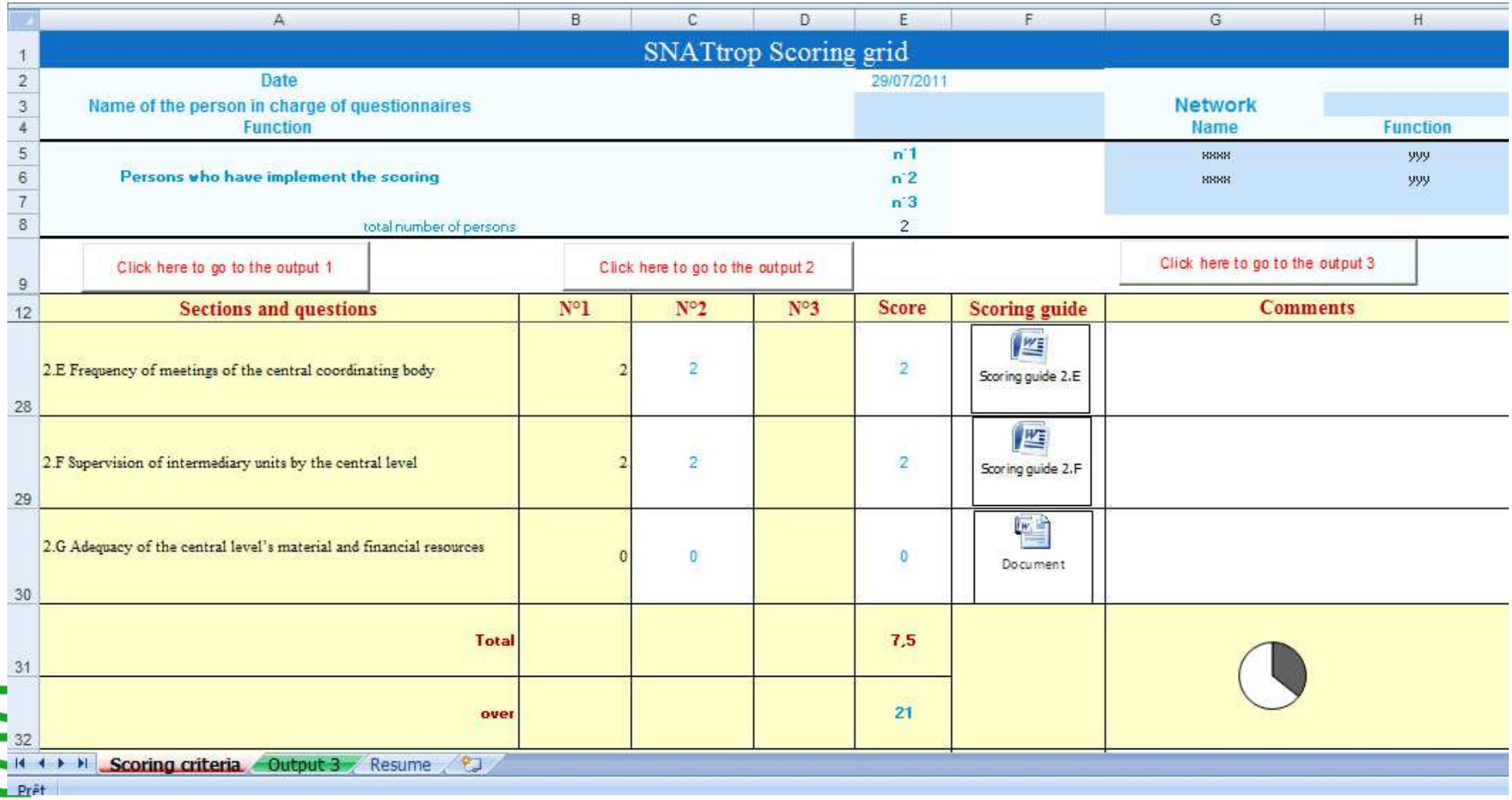
A. Relevance of surveillance objectives

⇨ For this criterion is necessary to analyze the answers in the questionnaire.

See Section 1 question 1	*See section 1 question 3*	Score of
The objectives of the network are relevant? *They are relevant if their aim is to:* - *Measure the importance of a disease* - *OR Evaluate the control measures* - *OR Organize the diseases in priority order* - *OR Detect the emergence of disease (or outbreak in a new area)*	**The objectives are in accordance with the context of the disease?** *For example:* - *If the disease is exotic and the objectives are the description of the disease: it's no in accordance* - *If the disease is exotic and the objectives are the early detection of outbreak, it's in accordance.*	
Yes	The objectives are in accordance with the context of the disease	3
	The objectives are in accordance with the context of the disease but with minor deficiencies	2
	The objectives are not in accordance with the context of the disease, there are major deficiencies	1
	The objectives are not in accordance with the context of the disease,	0
No	X	

X ➔ represents all the answer possible for the question.

Scoring spreadsheet



SNATtrop Scoring grid

Date				29/07/2011			
Name of the person in charge of questionnaires						Network	
Function						Name	Function
Persons who have implement the scoring				n°1		xxxx	yyy
				n°2		xxxx	yyy
				n°3			
total number of persons				2			

Click here to go to the output 1 | Click here to go to the output 2 | Click here to go to the output 3

Sections and questions	N°1	N°2	N°3	Score	Scoring guide	Comments
2.E Frequency of meetings of the central coordinating body	2	2		2	Scoring guide 2.E	
2.F Supervision of intermediary units by the central level	2	2		2	Scoring guide 2.F	
2.G Adequacy of the central level's material and financial resources	0	0		0	Document	
Total				7,5		
over				21		

Scoring criteria | Output 3 | Resume

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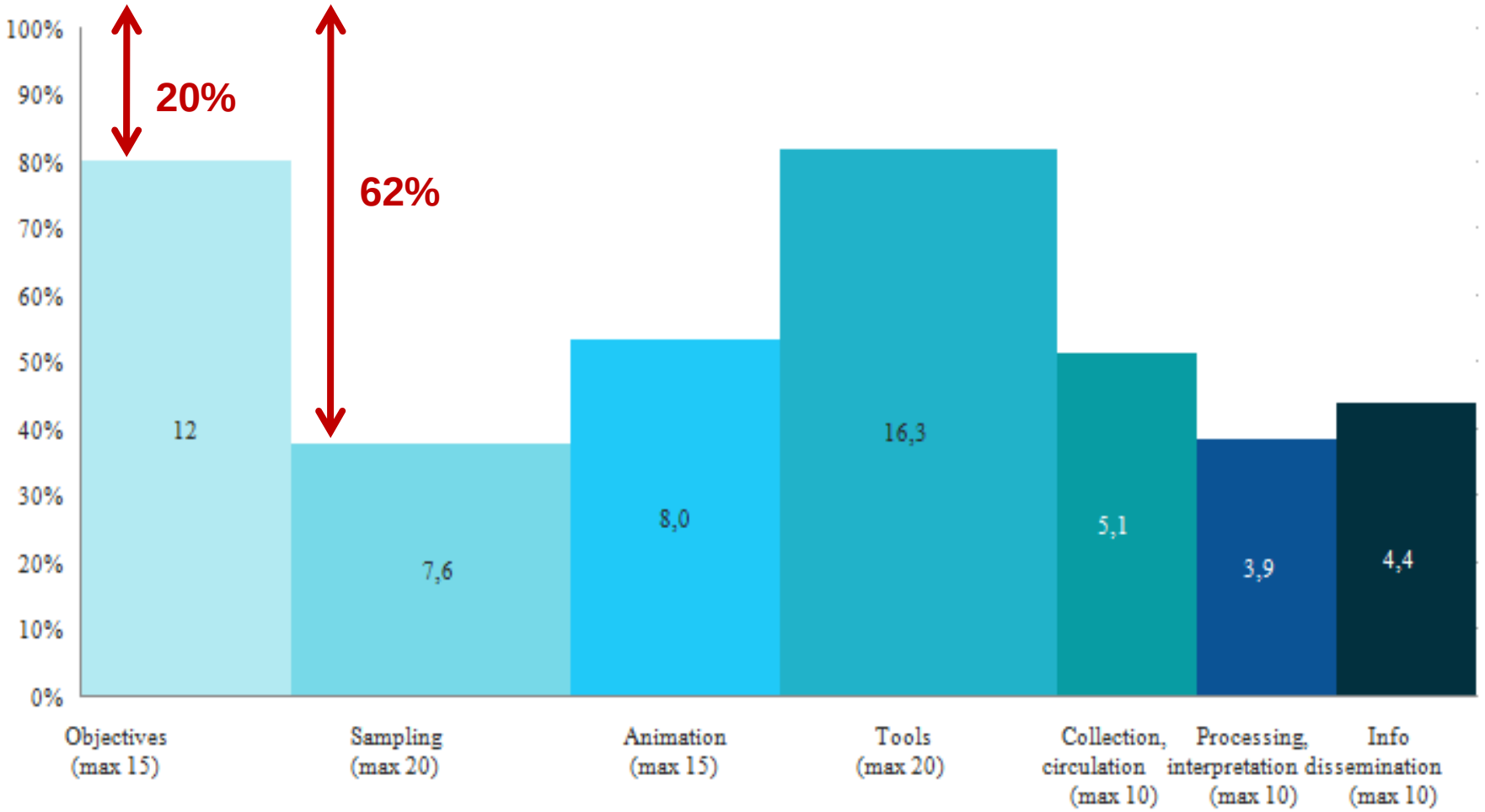
OUTPUT 1: Satisfactory level of the process

Sections	Result of evaluation per each section	Percentage of satisfaction
Section 1: Objectives and context of surveillance		100%
Section 2: Central institutional organization		36%
Section 3: Field institutional organization		53%
Section 4 : Laboratory		71%
Section 5: Surveillance tools		83%
Section 6: Surveillance procedures		22%
Section 7: Data management		38%
Section 8 : Formation		37%
Section 9 : Communication		64%
Section 10 : Evaluation		17%

OUTPUT 2: Critical control points

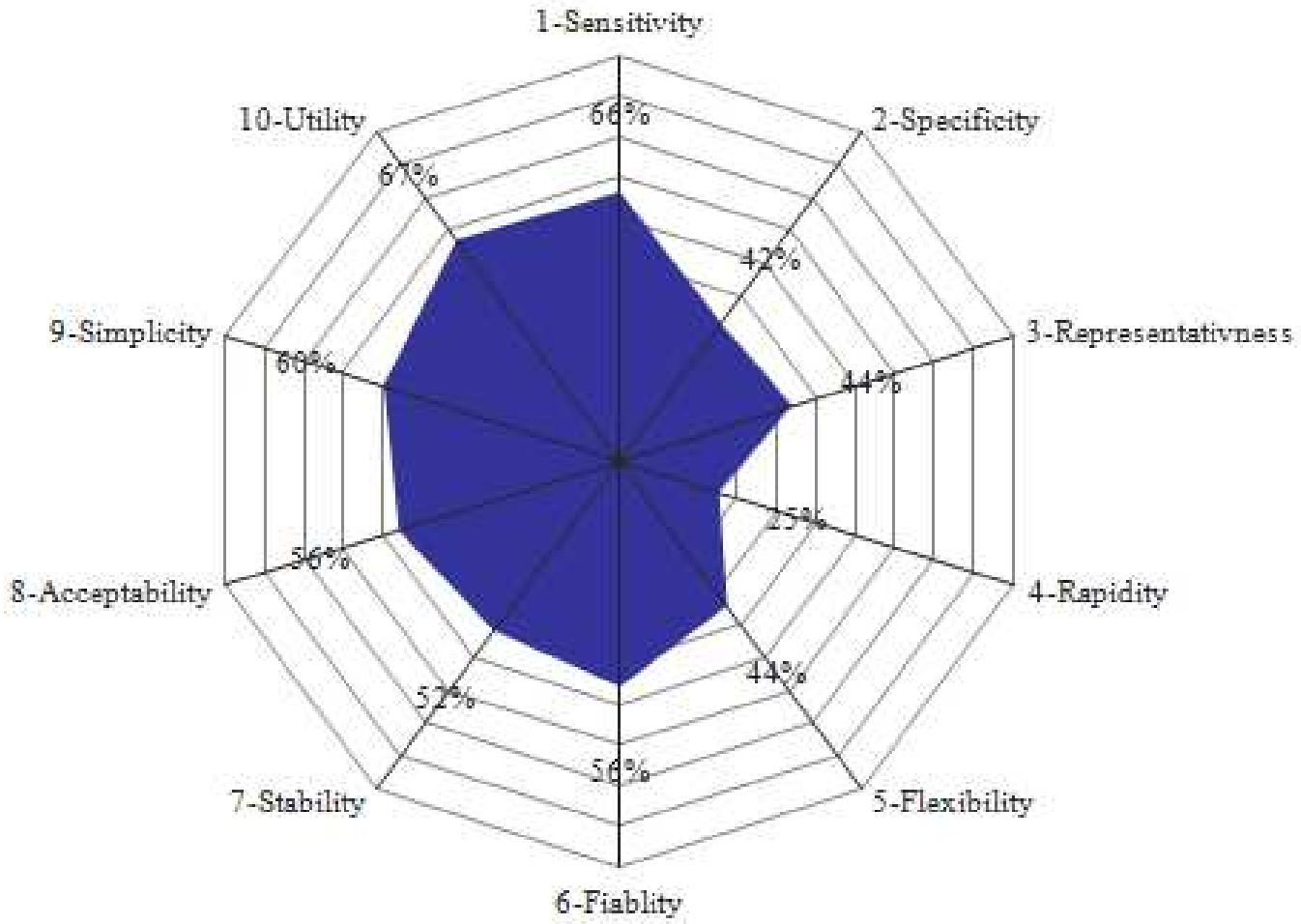


OUTPUT 3: Quality criteria

RAPIDITY		
criteria	**coefficient**	MAX SCORE
3.5. Adequacy of material and financial resources of intermediary	3	9
3.8. Adequacy of material and financial resources at the field level	3	9
4.2. Adequacy of human, material, and financial resources for diag	3	9
4.6. Existence of an investigation team to support field agents	1	3
4.11. Technical level of data management at the laboratory	3	9
4.12. Analysis deadlines at the laboratory (formalization, standardi	6	18
7.1. Adequacy of the data management system for the needs of th	2	6
7.2. Data input interval in accordance with the objectives and use	0	3
7.3. Designated staff available and trained in data entry, managem	2	6
9.5 Présence d'un système d'échange d'informations organisé tra	2	6
		78

- Sensitivity
- Specificity
- Representativeness
- Rapidity
- Flexibility
- Fiability
- Stability
- Acceptability
- Simplicity
- Utility

OUTPUT 3: Quality criteria



Main results

- Main strengths:
  - Accurate surveillance objective
  - Simplicity of the system
  - Good Se of the case definition
  - Diagnostic tools adapted to the objectives

- Weaknesses
  - No evaluation
  - Data collection and process not formalised
  - Timeliness
  - **NO financial sustainability**
  - Low acceptability from farmers

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Acceptability and Engagement

- **Semi-qualitative assessment methods**

Method type	References	Strenghts	Limits
Structured questionnaire survey (OASIS fr OASIS En)	Hendrikx et al., 2011	Allows to identify targeted corrective actions	limited flexibility, based on pre-defined requirement criteria which may not apply to all cases
Participatory approach	Elbers et al, 2010; Paterson et al., 2012	Allows to identify factors influencing reporting attitude and perception of surveillance	Time consuming
Participatory approach (AccePT)	**Calba et al., 2015**	**Well documented method, step by step approach; semi-quantification of level of acceptability per actors and per aspect of the system, provide context-dependant recommendations, information related to the context**	**Time consuming, specific training required, highly dependant on stakeholders' willingness to participate**
Conjoint analysis	Delabouglise et al,2015 Pham et al., 2016 (submitted)	Quantitative estimation of factors (preferences and anticipations) affecting acceptability either positively or negatively	Time consuming, specific training required, highly dependant on stakeholders' willingness to participate, failure to collect relevant data may occur

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What is an epidemiological surveillance network?

FETPv Training Session

Design and evaluation of animal health surveillance systems

25th and 27th April 2016, Qingdao, China

THANK YOU !