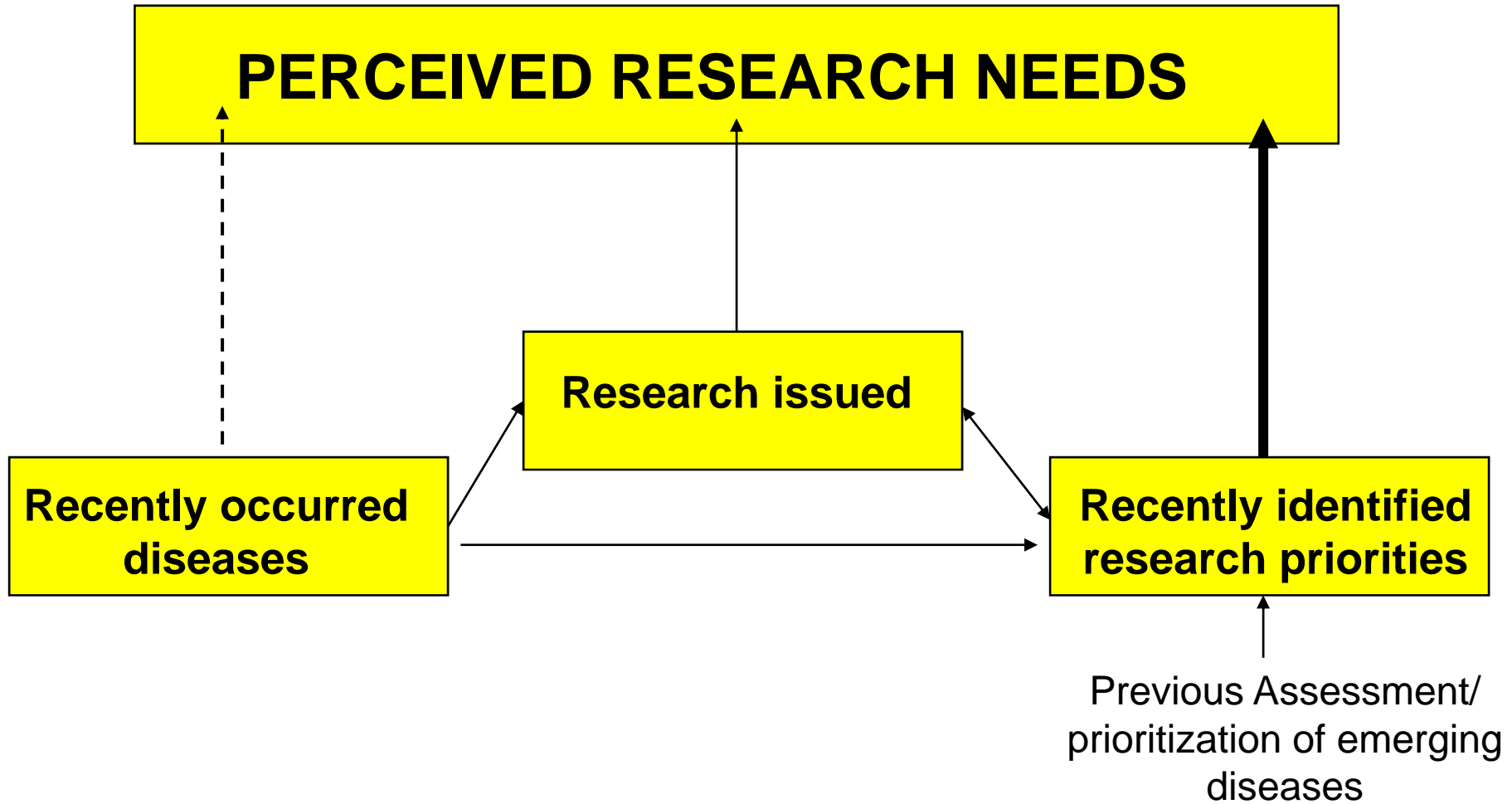


Section 2: Perceived needs and priorities

Background



Data collection

Recently occurred diseases

- WAHID database
- ADNS 2008 report

Researches issued

- CAB source

Recently identified research priorities/emerging issues

- Questionnaire: top 5 major diseases listed & topic outputs
- Research agendas/vision papers/action plan documents
- Institutional websites
- Recent publications
- Recent workshops/seminars/meetings

Data analysis

- Data entered in an excel spreadsheet
- Codification and clustering of data
- Data reporting

Diseases notified to OIE since 2005*

<i>Disease</i>	<i>Number of outbreaks</i>
Bluetongue	4.370
Highly path. avian influenza	792
Classical swine fever	138
Epizootic Haemorrhagic Disease	112
Foot and mouth disease	60
West Nile fever	51
Newcastle disease	43
Equine infectious anaemia	42
Low pathogenic avian influenza (poultry)	39
Koi herpesvirus disease	21
Rabies	17
Equine rhinopneumonitis	16
Lumpy skin disease	10
Suspected: Herpesvirus OsHV-1 frequently associated with <i>Vibrio splendidus</i>	10
Porcine reproductive/respiratory syndrome	8
Viral haemorrhagic septicaemia	8
Avian infectious bronchitis	7
Brucellosis (<i>Brucella melitensis</i>)	7
Brucellosis (<i>Brucella suis</i>)	6
Infection with <i>Bonamia ostreae</i>	6

<i>Disease</i>	<i>Number of outbreaks</i>
Scrapie	6
Contagious equine metritis	5
Infection with <i>Xenohalotus californiensis</i>	5
American foulbrood of honey bees	4
Equine viral arthritis	4
Anthrax	2
Bovine spongiform encephalopathy	2
Caprine/ovine brucellosis (not <i>Brucella ovis</i>)	2
Enzootic bovine leukosis	2
Infectious haematopoietic necrosis	2
Bovine genital campylobacteriosis	1
Infectious bovine rhinotracheitis (IBR/IPV)	1
Infection with <i>Bonamia exitiosa</i>	1
Myxomatosis	1
Peste des petits ruminants	1
Q fever	1
Spring viraemia of carp	1
Bovine viral diarrhoea	0

*WAHID: <http://www.oie.int/wahid-prod/public.php> (Januray 2009)
 Reporting for countries: Austria; Belgium; Croatia; Cyprus; Czech Republic; Denmark; Finland; France; Germany; Ireland; Israel; Italy; Lithuania; Netherlands; Norway; Spain; Sweden; Switzerland; Turkey; United Kingdom

Publications on diseases notified to OIE since 2005

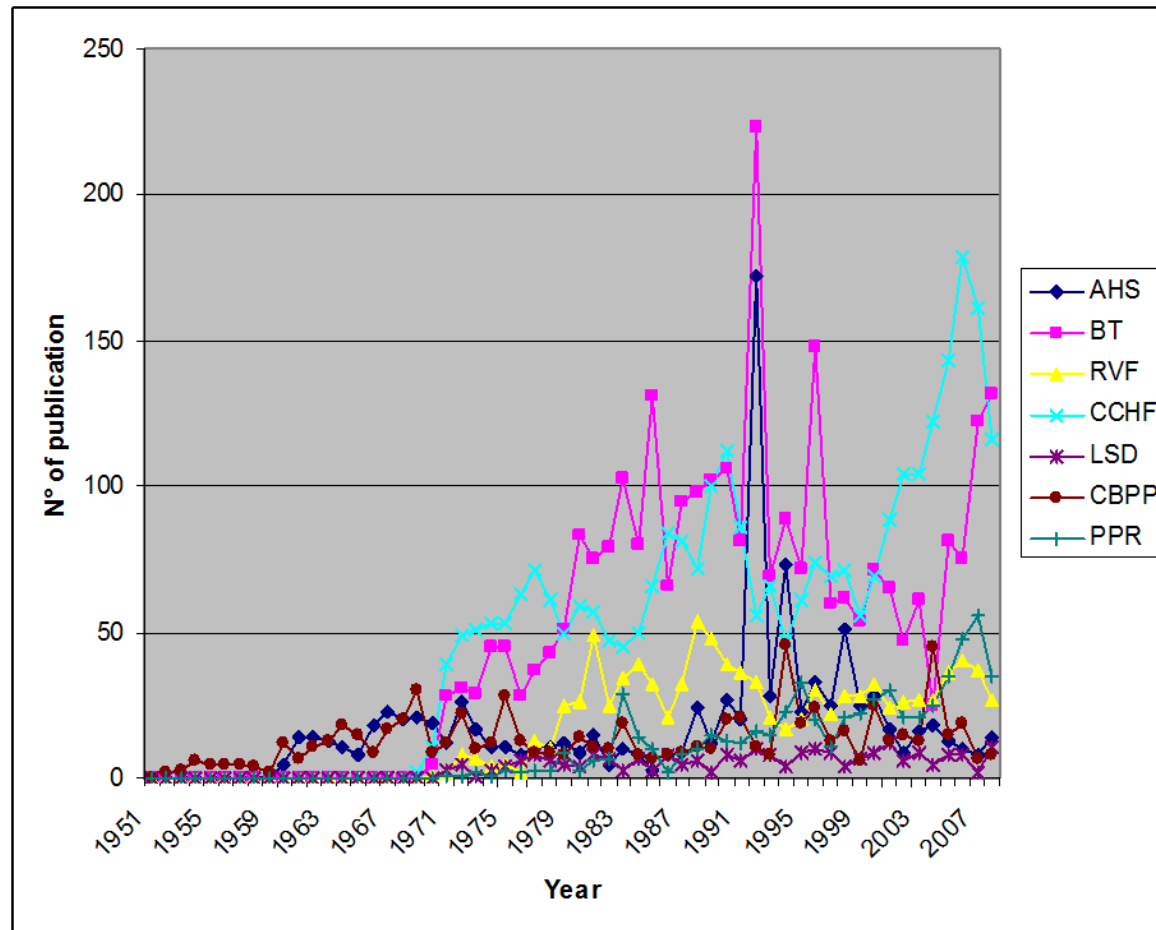
<i>Disease</i>	<i>N. of Outbreaks</i> *	<i>N. of publications</i> ♦
Rabies	8	15976
Brucellosis	9	8996
Foot and mouth disease	60	8015
Newcastle disease	44	7489
Highly path. avian influenza	792	4136
Bovine spongiform encephalopathy	2	4018
Enzootic bovine leukosis	2	3788
Scrapie	6	3514
Classical swine fever	137	3504
Inf.bov.rhinotracheit. (IBR/IPV)	1	3221
Bluetongue	4371	3030
Anthrax	2	2605
West Nile Fever	51	2580
Avian infectious bronchitis	7	2252
Bovine viral diarrhoea	0	1938
Q fever	1	1719
Equine infectious anaemia	42	1378

<i>Disease</i>	<i>N. of Outbreaks</i> *	<i>N. of publications</i> ♦
Equine rhinopneumonitis	16	820
Porcine reproductive/respiratory syndr.	8	814
Peste des petits ruminants	1	569
Myxomatosis	1	503
Contagious equine metritis	5	409
Epizootic Haemorrhagic Disease	112	405
Infect. haematopoietic necrosis	2	339
Equine viral arthritis	30	241
Lumpy skin disease	10	235
Spring viraemia of carp	1	162
Bonamia	6	154
Low pathogenic avian influenza	8	74
Koi herpesvirus disease	21	61
Bov. genital campylobacteriosis	1	14
American foulbrood of honey bees	4	12
Suspected: Herpesvirus OsHV-1 associated with Vibrio splendidus	10	11
Infection with Xenohalotis californiensis	5	10
Viral haemorrhagic septicaemia	8	2

*WAHID: <http://www.oie.int/wahid-prod/public.php> (Januray 2009)

♦CAB search

N. of publications/year on certain transboundary diseases



Top 5 emerged diseases listed in responses to the questionnaire

<i>List of diseases reported in the responses</i>	<i>N.</i>
Bluetongue	10
Avian Influenza	7
Q-fever	3
West Nile Fever	3
New castle disease	2
Rabies	2
Anisakidosis	1
Bovine tuberculosis	1
Cryptosporidia	1
EU Bat Lyssavirus	1
Footh and Mouth disease	1
Hepatitis E	1
MRSA	1
Paratuberculosis	1
PDNS/PMWS	1
Rift valley fever	1
Scrapie	1
Surra	1
Viral haemorrhagic septicaemia	1

1st occurring or emerging disease outbreaks

1.918	Bluetongue
112	Epizootic Haemorrhagic Disease
63	Highly path. avian influenza
35	Equine viral arthritis
26	Equine infectious anaemia
17	Koi herpesvirus disease
15	Equine rhinopneumonitis
10	Suspected: Herpesvirus OsHV-1
8	PRRS
5	Xenohaliotis californiensis
3	Low pathogenic avian influenza (poultry)
3	Scrapie
3	Infection with Bonamia ostreae
2	West Nile Fever
1	Infect. haematopoietic necrosis
1	Infection with Bonamia exitiosa
1	Q fever

Highest number of notified outbreaks

4370	Bluetongue
792	Highly path. avian influenza
137	Classical swine fever
112	Epizootic Haemorrhagic Disease
60	Foot and mouth disease
51	West Nile Fever
44	Newcastle disease
42	Equine infectious anaemia
30	Equine viral arthritis
21	Koi herpesvirus disease
16	Equine rhinopneumonitis
10	Suspected: Herpesvirus OsHV-1
10	Lumpy skin disease
8	Viral haemorrhagic septicaemia
8	Rabies
8	Porcine reproductive/respiratory syndr.
8	Low pathogenic avian influenza (poultry)
7	Brucellosis (Brucella melitensis)
7	Avian infectious bronchitis
6	Scrapie

Main recently identified emerging issues

(Research agenda/vision/action plan documents + Institutional websites
Recent publications + Recent workshops/seminars/meetings)

Diseases reported in more than 10 documents regardless of source:

- Highly Pathogenic Avian Influenza
- Foot and mouth disease
- West Nile fever
- Bluetongue
- Salmonellosis
- Brucellosis
- Classical Swine Fever
- Tuberculosis
- Rabies
- Rift Valley Fever
- TSE
- *Escherichia coli*
- BSE
- Paratuberculosis
- Campylobacteriosis
- Leishmaniosis
- Cryptosporidiosis
- Anthrax

***Diseases from workshops/
seminars/meeting reports***

Highly Pathogenic Avian
Influenza

Rift Valley Fever

West Nile fever

Footh and mouth disease

Brucellosis

Classical Swine Fever

Bluetongue

TB

Rabies

Campylobacter

Contagious pleuropneumonia bovine

Trichinellosis

Diseases from publications

Footh and mouth disease

Highly Pathogenic Avian
Influenza

West Nile fever

Bluetongue

BSE

TB

Escherichia coli

Salmonella

Classical Swine Fever

Nipah virus

Diseases from websites

Highly Pathogenic Avian
Influenza

Rabies

Footh and mouth disease

Brucellosis

Bluetongue

Rift Valley Fever

Classical Swine Fever

Escherichia coli

Salmonella

West Nile fever

***Diseases from research
agendas /action plans /vision
papers***

Salmonella

TSE

TB

Bluetongue

West Nile fever

Paratuberculosis

Rabies

Footh and mouth disease

Escherichia coli

Campylobacter

Main suggested research themes

(Research agenda/vision/action plan documents + Institutional websites
Recent publications + Recent workshops/seminars/meetings)

Main themes reported regardless of source:

- Zoonoses
- New diagnostic tools
- Aquaculture
- Antimicrobial resistance
- Genomics
- Wildlife diseases
- Disease risk analysis
- Impact of climate change
- Immunology
- Vector borne diseases
 - ✓ bio-economic impact
 - ✓ vector biology
 - ✓ vector ecology
 - ✓ arbovirus
 - ✓ tick-borne diseases
 - ✓ risk assessment
- Disease epidemiology
 - ✓ Modelling
 - ✓ GIS implementation
 - ✓ Database network implementation
 - ✓ Monitoring strategies

***Themes from
workshops/
seminars/meeting
reports***

Vector borne disease

Impact of climate change

Immunology

Disease epidemiology

***Themes from
Research
agendas/action
plans/vision papers***

Zoonoses

Disease risk analysis

Genomic technologies

Epidemiological/spatial
modelling

***Themes from
Publications***

Zoonoses

Wildlife diseases

Epidemiological studies

Modelling

Themes from websites

New diagnostic tools

Aquaculture

Antimicrobial resistance

Genomics

Themes from research agendas/vision papers/ action plans

<i>Theme</i>	<i>Group</i>
New pathogens	Diseases
Variant of endemic disease	
Vector borne-disease (ecology, tick-borne diseases...)	
Transboundary diseases	
Animal/human interaction	
Wildlife (reservoirs and /or sentinels for zoonoses, diseases, pollutants)	
Zoonoses	
Virology	
Parasites	
Disease ecology	
Disease in young farm animals	
Disease of unknown cause	
Disease prioritisation	

<i>Theme</i>	<i>Group</i>
Disease resistance	Diseases
Neglected diseases/zoonoses	
Antimicrobial resistance	
Lameness	
Mastitis	
Helmintic resistance	
Host/pathogen interactions	
Fertility disorders	
Food-borne diseases	
Gastro-intestinal parasites	
Exotic diseases	
Emerging zoonoses	
Endemic diseases	

Themes from research agendas/vision papers/action plans

Theme	Group	
<i>Aquaculture diseases</i>	Aquaculture	
<i>Aquaculture breeding</i>		
<i>Aquatic pathogen genomics database</i>		
<i>Chemical agents</i>	Contaminants	
<i>Contaminants</i>		
<i>Environmental pollutants</i>		
<i>Drug simulation</i>	Others	
<i>Evolutionary biology</i>		
<i>Mycotoxins and phytotoxins</i>		
<i>Phylogenetics analysis</i>		
<i>physiology</i>		
<i>phytotherapy industry implementation</i>		
<i>probiotics</i>		
<i>Impact of climate change on biodiversity</i>		Climate change
<i>Impact of climate change on exotic diseases</i>		
<i>Impact of climate change on zoonoses</i>		

Theme	Group
<i>New diagnostic methods</i>	Diagnostic tools
<i>Biotechnology</i>	
<i>New treatments</i>	
<i>Genetics</i>	
<i>Genomic technologies</i>	
<i>Techniques for residues analysis</i>	Epidemiology
<i>Global database network implementation</i>	
<i>Epidemiological studies</i>	
<i>Epidemiological tracing</i>	
<i>Modelling</i>	
<i>Monitoring strategies</i>	
<i>Prioritisation of animal diseases</i>	
<i>Risk analysis</i>	
<i>Risk assessment</i>	
<i>Risk communication</i>	
<i>Risk management</i>	
<i>Spatial analysis techniques</i>	

Themes from research agendas/vision papers/action plans

<i>Theme</i>	<i>Group</i>
Impact of globalisation in importation of undesirable products	Socio-Economics
Impact of globalisation in transport of live animals	
Impact of globalisation in undesirable production methods	
Socio-economic researches	
Cost-benefit analysis	
Networking implementation	

<i>Theme</i>	<i>Group</i>
New farming methods	Farming
New technology environment friendly	
Reproduction technologies	
Technology assessment	
Breeding for resistance to diseases	
Risk of new technology	
Feed optimization	Immunology
Vaccine development	
Immuno-pathology	
mucosal vaccine developments	
Antivirals implementation	

Final remarks

Evidence that a disease/thematic is extensively discussed does not necessarily mean that future research should focus primarily on that disease/thematic

The data collected should only be meant as a bibliographic search and used exclusively as a means to envisage areas for further in-depth study
(WP4)

Monitoring perceived needs

VS.

Identifying emerging needs

**Current diseases
distribution**

+

**Risk factors for the
emergence of diseases:**

Biological factors

Environmental/Agricultural development factors

Climatic factors

Social/cultural factors

Economic factors

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Thank you