



**Food and Agriculture Organization
of the United Nations**

National Action Plans on TiLV

Melba B. Reantaso

**Project Inception Workshop of GCP/RAF/510/MUL:
Enhancing capacity/risk reduction of emerging Tilapia Lake Virus (TiLV) to African tilapia aquaculture
Southern Sun Myfair Hotel, 23-24 October 2018, Nairobi, Kenya**

National Action Plans (NAP) on TiLV

- Stock taking/self-assessment
 - Self assessment survey questionnaires on performance and capacity on aquatic animal health and aquaculture biosecurity (FAO survey form)
 - Emergency preparedness and response (EPR) system audit (FAO survey form)
 - Tilapia sectoral status: farmed and wild populations
- Preliminary analysis of above
- Objective/s of the NAP on TiLV
 - Effective biosecurity governance (farm and policy levels) to reduce the negative impacts of the disease.
 - Enhance capacity of stakeholders in dealing with TiLV to reduce risk
 - To increase tilapia sector profitability through produce healthy tilapia
 - Etc.
- Checklist of field logistics/operational requirements: diagnostics (collection of field samples, laboratory tests), surveillance (12 point checklist), TiLV disease investigation outbreak, emergency response
- Information campaign and communication strategy

Elements of NAP on TiLV

Tilapia sectoral information:

- Production statistics (farmed; wild pop)
- Farm registry
- Import/export data
- Stakeholders

TiLV management and control: Strategy Manual

- Farm-level biosecurity (includes personnel, equipment)
- Movement of live tilapia (domestic and international)
- Health certificates and quarantine/border controls
- Risk analysis

Diagnostics:

- Diagnostic laboratories/competence (in country: Level 1, 2 or 3)
- Diagnostic laboratories (out of the country)
- Diagnostic tests (Sp, Se)

Surveillance: design and implementation

- 12-point checklist

TiLV outbreak investigation:

- TiLV; mixed infection; unknown/other pathogens

Emergency preparedness:

- EPRS audit: operational and technical
- Simulation: desk-top, field

Information campaign, communication strategy

Tilapia sectoral information

- Tilapia species (wild and farmed)
- Geographical distribution of tilapia farms and hatcheries
- Geographical distribution of wild tilapia stocks
- Average yearly production of the farms/hatcheries
- Production season if non-continuous production
- Average yearly catches of wild tilapia
- Available laboratory facilities – location and capacities
- Currently known disease occurrences in the tilapia population(s)
- Sectoral stakeholders: farm registry, producer organisations, scientific or professional societies, all input/service providers in the value chain

Level III

Virology
EM
Molecular and
Immunoassays



Level II

Parasitology
Bacteriology
Mycology
Histopathology

Level I

Observations of animal and environment
Gross clinical signs

Screening of healthy animals to ensure that they are not carrying subclinical infections by pathogens of concern. This is commonly conducted on samples of stocks or populations of aquatic animals destined for live transfer from one area or country to another,.

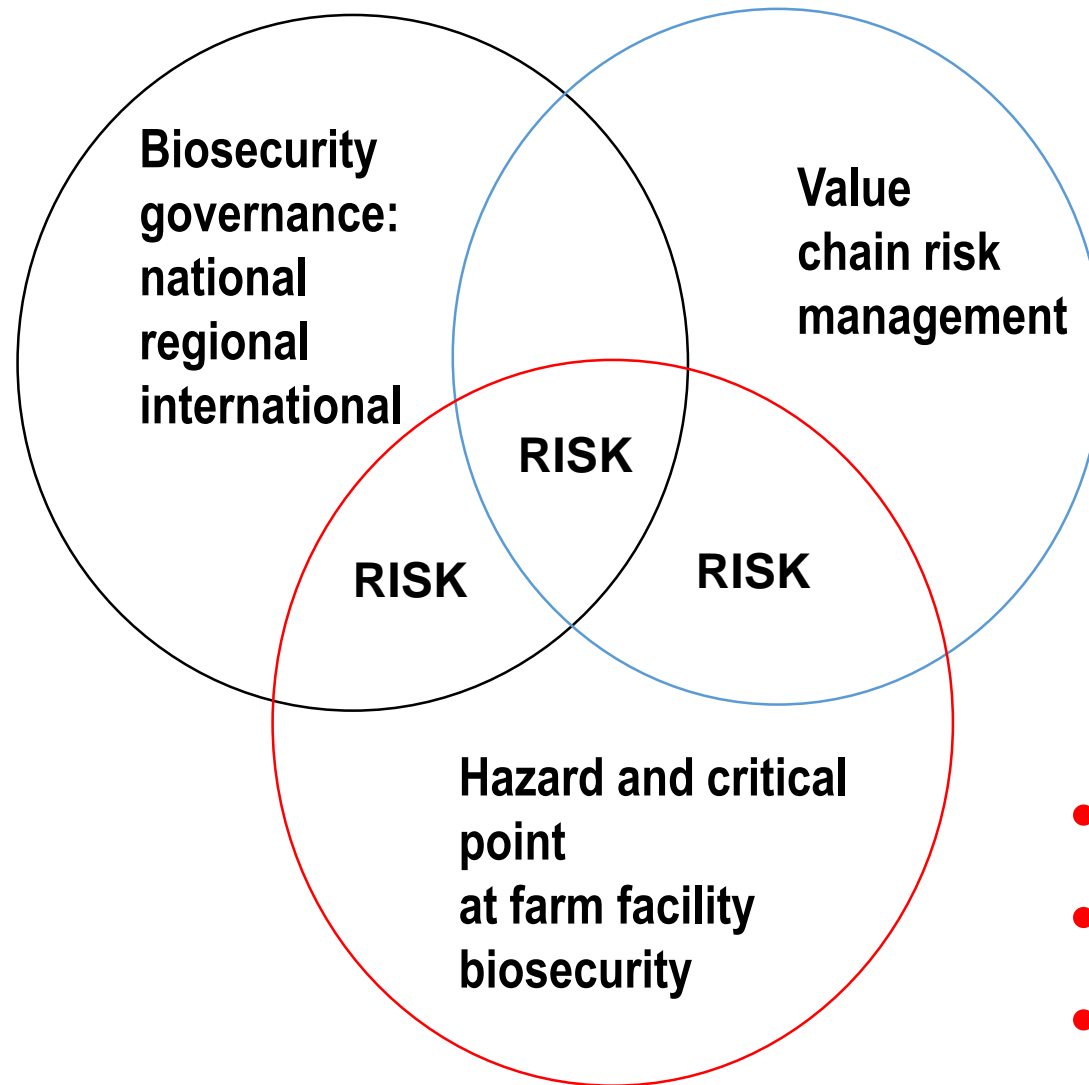
Disease diagnosis of animals showing signs of health deterioration (such as spawning failure, growth or behaviour) or clinical disease (deformities, morbidity or mortality).

Surveillance: Regular activities aimed to ascertain the health status of a given population with the aim of early detection and control of disease



Snieszko circle:
Interaction between the
host, pathogen and the
environment

- enabling environment
- policies, legislation and enforcement
- AAH services
- extension services
- compliance: GAP CoC, trading standards (OIE)
- certification schemes
- fisheries/veterinary authorities; stakeholders



- risky areas in the value chain
- supplier of inputs and products
- trading practices

- hatchery
- nursery
- grow-out
- processing plants
- markets
- wild

Manage the risks at all levels of the aquaculture chain

12-point surveillance checklist

#	Element	#	Element
1	Defining surveillance objective/purpose	7	Study design and data analysis methodology
2	Definition of population	8	Data flow and management
3	Clustering of disease	9	Validation
4	Case/outbreak definition	10	Quality assurance
5	Sampling	11	Human and Financial Requirements
6	Diagnostics/testing	12	Putting surveillance in the bigger picture (biosecurity, animal health, aquaculture, food safety/security, One Health)

1	Defining surveillance objective/purpose	1.a. Set with respect to disease 1.b. Set with respect to disease presence 1.c. Set with respect to level of certification 1.d. Set with respect to timeframe
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TiLV surveillance scenario	Aim/purpose of TiLV surveillance	Countries
Infected country (one or more TiLV cases reported in previous two years) Reports from grey/scientific literature/reports; national/OIE reports; other stakeholder information	To measure TiLV prevalence at national level in wild and farmed populations during 2019 To identify possible risk factors for spreading TiLV in order to develop a disease control program To establish a transparent national and international (according to OIE requirements for emerging disease) reporting system	Egypt Uganda
Unknown status (no reported cases, no previous surveillance activities however considered at risk)	To investigate presence/absence of TiLV in wild and farmed fish To secure early detection of TiLV	Angola Kenya Nigeria
Unknown status (no previous surveillance activities, unexplained tilapia mortalities, considered at risk)	To investigate unexplained mortalities	Ghana
Considered free (no reported cases in previous surveillance activities)	To maintain freedom of disease status	

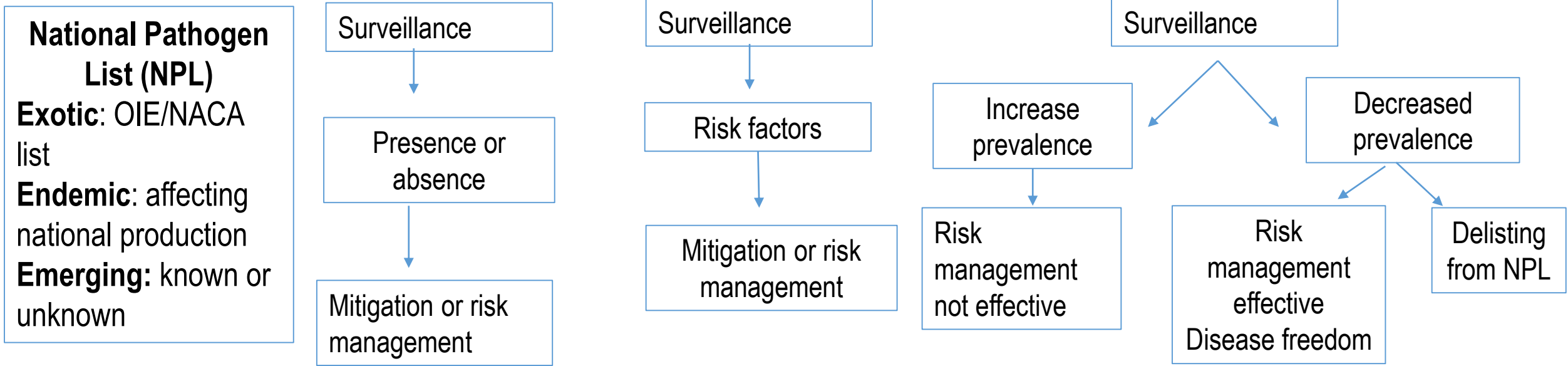
In this step, several forms need to be completed. These include, e.g.

- checklist of field logistics/operational requirements:
 - surveillance team
 - diagnostic team
 - field support team
 - communication
 - work plan
 - finance
- and submitted for approval by project proponents as basis for generating financial support for its implementation.

12	Putting surveillance in the bigger picture (biosecurity, animal health, aquaculture, food safety/security, One Health)	Surveillance as an essential component of aquatic animal health/aquatic biosecurity strategies, aquatic animal health protection programmes or disease control plans, One Health platform within the context of aquaculture
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This last step puts TiLV active surveillance in line with overall national strategies for enhancement of aquaculture biosecurity and aquatic animal health, aquaculture and international trade as well as the One Health platform. Within this framework, domestic producers may benefit from increased revenue and reduced disease-related losses.

National fishery/aquaculture authorities and/or veterinary services will enhance their competence and gain trust, and the society will benefit as whole by contributing to national economy, public health and country recognition in world trade.



Big picture: pro-active vs reactive; long-term vs *ad-hoc*

TiLV National Action Plan

National or Regional Strategy on AAH or Aquaculture Biosecurity

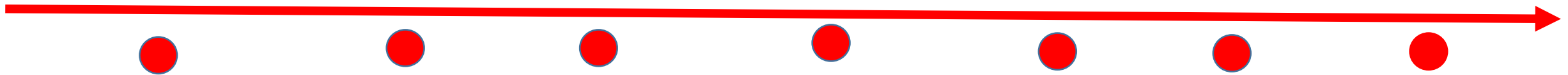
Progressive Management Pathway for Aquaculture Biosecurity (PMP/BA)



Exotic: OIE list or other lists
Endemic: production-related
Emerging: known or unknown

Risk-based
Progressive
Collaborative

Diseases in aquaculture: from largest aquaculture-related epizootics



Disease (observation in the field)	Diagnosis	Reporting /communication (national or OIE)	Containment (vaccine, treatment, husbandry)	Management (cost- effective)	Disease freedom	National and international confidence to the sector
EUS (1970s): fungi	1980s		?			
WSSV (1980s): virus	mid-1990s		?			
KHV (2000s): virus	mid-2000	OIE: 2006	?			
AHPND (2009): bacteria	2013	OIE: 2016	?			
TiLV (2009): virus	2014	Still being assessed	2018 ?			

Long time lapse: years

\$\$\$\$ losses: production, market = livelihoods, export earnings, food supply
= socio-economic and environmental impacts

\$\$\$ spent: producers/government/academe: biosecurity (policies, prevention, diagnosis, surveillance, containment, training/education, research, trade disputes, etc); compensation; alternatives)

Before the disease or **after**

Prevention

?

Solution

Pro-active

vs

Reactive

<\$\$

vs

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Bottle-necks in development and implementation: for discussion

- Government commitment
- Champions
- Technical and operational support
- Limited budget
- Buy-in from relevant stakeholders
- Unexpected events or other risks
- Etc.



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Thank you for your attention

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