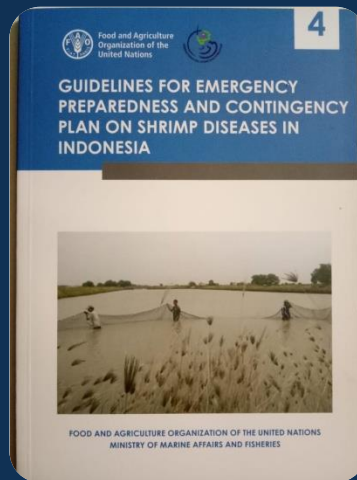


Aquatic Emergency Preparedness and Response System: INDONESIA



Mukti Sri Hastuti*, Desrina**, Maskur*
*Ministry of Marine Affairs and Fisheries
**Diponegoro University



ASEAN Regional Technical Consultation on Aquatic Emergency Preparedness and Response Systems for Effective Management of Transboundary Disease Outbreak in Southeast Asia
Bangkok, 20-22 August 2018

OUTLINE

I

- COMPETENT AUTHORITY

II

- LEGISLATIONS

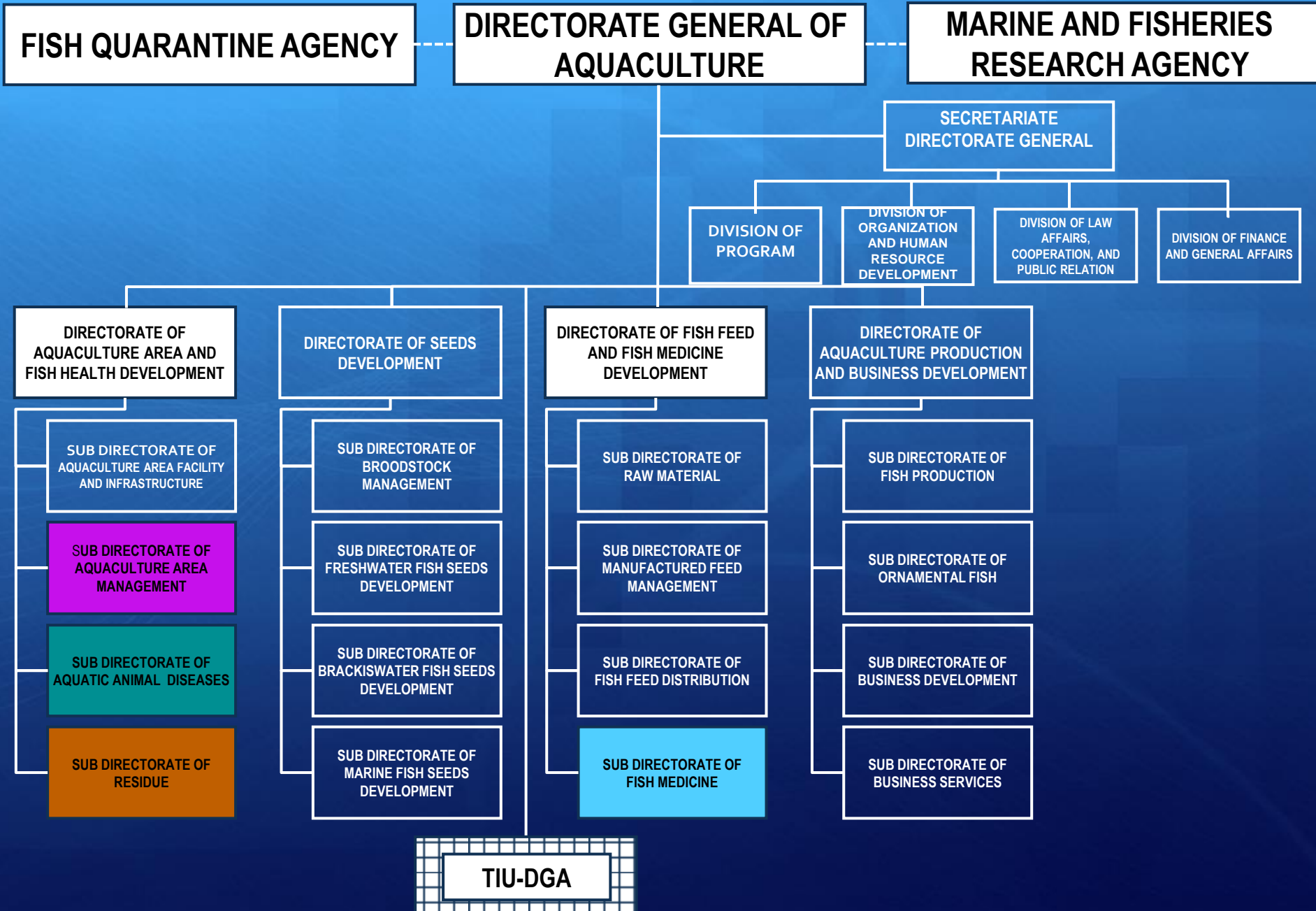
III

- Early Warning
- Early Detection
- Early Response



COMPETENT AUTHORITY

ORGANIZATION STRUCTURE OF COMPETENT AUTHORITY



COMPETENT AUTHORITY (Aquatic animal diseases)

BEFORE JANUARY 2017

Directorate of Fish
Health and
Environment



AFTER JANUARY 2017

Directorate of
Aquaculture Area
and Fish Health
Development

**Directorate General of Aquaculture,
Ministry of Marine Affairs and Fisheries**



LEGISLATIONS

NATIONAL STRATEGY ON AQUATIC ANIMAL HEALTH AND ENVIRONMENT (2016)

Program 4: Disease control, emergency responses and contingency planning

Biosecurity

Human Resources

Crisis Center

Guidelines

Funding



SUPPORTED BY FAO TCP/INS/3402:

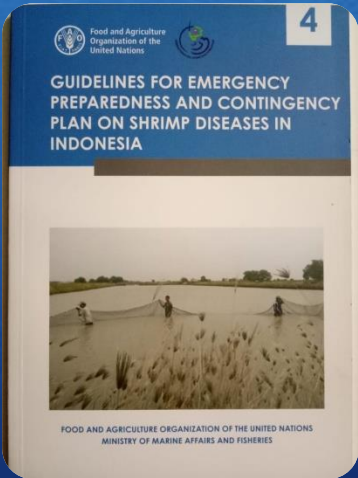
“Development of preventive aquatic animal health protection plan and enhancing emergency response capacities to shrimp disease outbreaks in Indonesia”

(2013- 2015)



GOVERNMENT REGULATION
Number: 28/2017
Article 60: Emergency Response

NATIONAL STRATEGY ON AQUATIC ANIMAL
HEALTH AND ENVIRONMENT (2016)

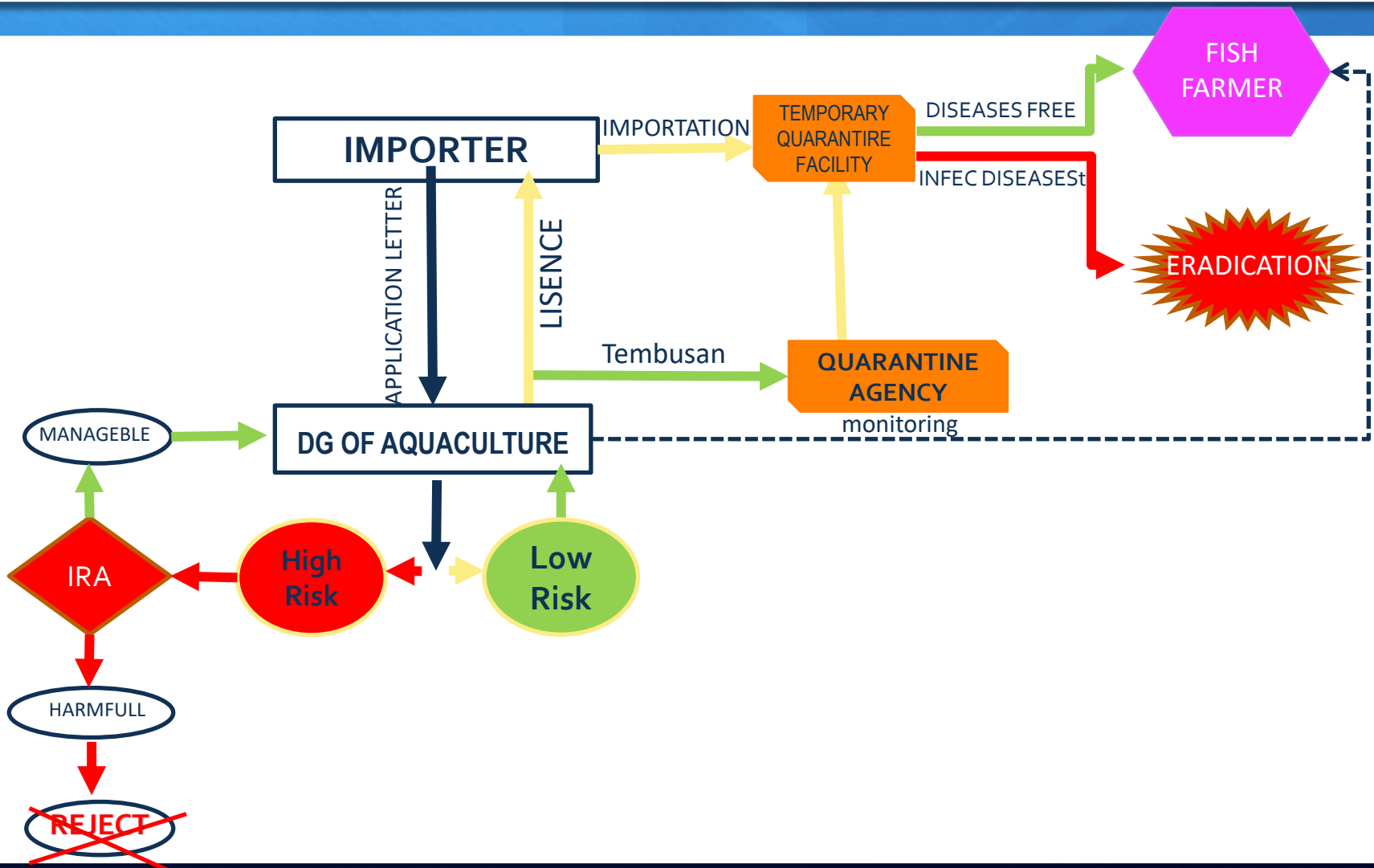


MINISTER REGULATIONS (DRAFT)
Operational Guidelines

GUIDELINES FOR EMERGENCY
PREPAREDNESS AND CONTINGENCY PLAN
ON SHRIMP DISEASES

FLOWCHART OF IMPORT RISK ANALYSIS

(MINISTRY DECREE: 16/MEN/2011)





A. Early Warning

Task Force Team

2002	: Koi Herpesvirus (KHV)
2013	: Early Mortality Syndrome (EMS) based on Director General Aquaculture Decree Number: 95A/KEP-DJPB/2013
2017	: Tilapia Lake Virus (TiLV) and Acute Hepatopancreatic Necrosis Disease (AHPND) , based on Director General Aquaculture Decree Number: 165/KEP-DJPB/2017



**KEMENTERIAN KELAUTAN DAN PERIKANAN
DIREKTORAT JENDERAL PERIKANAN BUDIDAYA**

KEPUTUSAN
DIREKTUR JENDERAL PERIKANAN BUDIDAYA
NOMOR 165/KEP-DJPB/2017

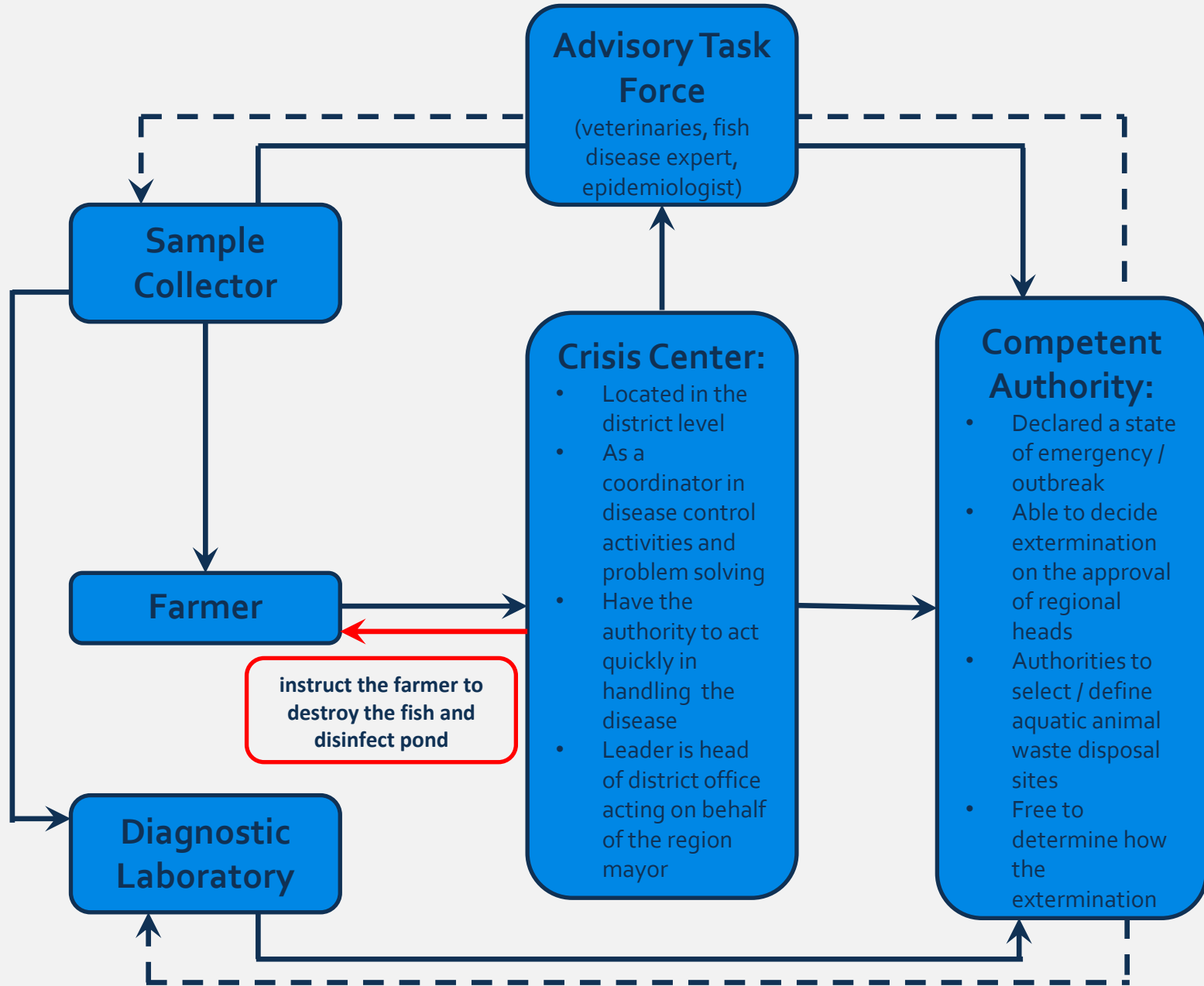
TENTANG

TIM GUGUS TUGAS PENGENDALIAN PENYAKIT *TILAPIA LAKE VIRUS*
(*TiLV*) DAN *ACUTE HEPATOPANCREATIC NECROSIS*
DISEASE (AHPND)

Consist of:

- Quarantine Agency
- Research and Development Agency
- University
- Association (shrimp farmer, hatchery, shrimp feed, processing plan, medicine and other input production)
- Expert

Task Force Institutions in Emergency Response of Shrimp/Fish Disease



Other Activities

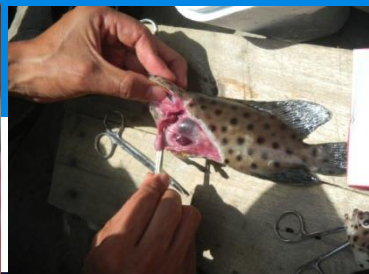
- Gathering information and literature of aquatic animal disease, involved in regional or international meetings and workshops where discussed on new diseases occurrence
- Contributing to, and frequent checking of regional and international diseases report and database
- Developing good communication linkages and working relationships with the responsible authorities of primary trading partners “mutual recognize arrangement”



B. Early Detection

ACTIVITIES

- Providing information about fish diseases
- Up dating laboratory testing method
- Conducting surveillance passive / active
- Preparing diagnostic capability
- Providing list of laboratories and experts
- Providing reporting system



Emergency Response of Shrimp/Fish Diseases



- + Exotic to Indonesia →
Acute hepatopancreatic necrosis disease (AHPND),
Tilapia Lake Virus (TiLV)
- + Already present in Indonesia →
White spot disease, Infectious myonecrosis, KHV

Appointed Reference and Testing Laboratories for TiLV
and AHPND based on Director General of Aquaculture
Decree Number: 162/KEP-DJPB/2017



**KEMENTERIAN KELAUTAN DAN PERIKANAN
DIREKTORAT JENDERAL PERIKANAN BUDIDAYA**

KEPUTUSAN
DIREKTUR JENDERAL PERIKANAN BUDIDAYA
NOMOR 162/KEP-DJPB/ 2017

TENTANG

LABORATORIUM ACUAN DAN LABORATORIUM PENGUJI
UNTUK PENYAKIT *TILAPIA LAKE VIRUS (TiLV)* DAN
ACUTE HEPATOPANCREATIC NECROSIS DISEASE (AHPND)

Surveillance, Monitoring and Reporting

DGA Decree :
6/KEP-DJPB/2018



2
Fish/shrimp
diseases
concern



1
DGA Decree:
10/KEP-DJPB/2018

1
Annual
surveillance,
monitoring
plan



3
Location,
species
concern



34 provinces
115 districts



5

Online
reporting



4

Testing
laboratory



DGA Decree:
179/KEP-DJPB/2014
National Lab reference

impikan.kkp.go.id



List of aquatic animal diseases to be monitored (based on DGA Decree No. 6/Kep-DJPB/2018)

NO	NAMA PENYAKIT	PENYEBAB (ETIOLOGI)	KOMODITAS TERSEKANG
A VIRAL			
1	<i>Koi Herpes Virus Disease</i>	<i>Koi herpes virus</i>	Mas, koi
2	<i>Iridovirus disease, Grouper iridovirus disease, Sleepy Grouper Diseases, Lymphocystis disease</i>	<i>Iridovirus, Lymphocystivirus, Megalocytivirus (Red Sea Bream Iridovirus/RSIV, Infectious Spleen and Kidney Necrosis Virus/ISKNV, Dwarf Gourami Iridovirus/DGIV)</i>	Nila, kakap putih, kerapu dan ikan hias air tawar
3	<i>Viral Encephalopathy and Retinopathy</i>	<i>Betanoda virus (Nodaviridae)</i>	Kerapu dan kakap
4	<i>White Spot Disease</i>	<i>White Spot Syndrome Virus (WSSV)</i>	Udang windu dan udang vaname
5	<i>Infectious Myonecrosis</i>	<i>Infectious Myonecrosis Virus (IMNV)</i>	Udang vaname
6	<i>White Tail Disease</i>	<i>Macrobrachium rosenbergii nodavirus (MrNV)</i>	Udang galah
7	<i>Tilapia Lake Virus Disease (TiLV)</i>	<i>Tilapia Lake Virus</i>	Nila
B BAKTERIAL			
8	<i>Streptococcosis</i>	<i>Streptococcus agalactiae</i>	Nila, mas, dan gurame
9		<i>Streptococcus iniae</i>	Kakap putih
10	<i>Enteric Septicemia of Catfish (ESC)</i>	<i>Edwardsiella ictaluri</i>	Patin
11	<i>Motil Aeromonas Septicemia (MAS)</i>	<i>Aeromonas hydrophila</i>	Lele, mas, gurame dan nila
12	<i>Mycobacteriosis</i>	<i>Mycobacterium fortuitum</i>	Gurame
13	<i>Tenacebaculosis</i>	<i>Tenacebaculum maritimum</i>	Kakap putih
14	<i>White Feces Syndrome</i>	<i>Vibrio parahaemolyticus, Vibrio alginolyticus, Vibrio vulnificus</i>	Udang vaname
15	<i>Ice-ice</i>	<i>Pseudomonas spp., Pseudoalteromonas gracilis, dan Vibrio spp</i>	Rumput laut

16	<i>Acute Hepatopancreatic Necrosis Disease (AHPND)</i>	<i>Unique strain of Vibrio parahaemolyticus</i>	Udang vannamei dan Udang monodon
C PARASITIK			
17	<i>Ichthyophthiriasis</i>	<i>Ichthyophthirius multifiliis</i>	Semua jenis ikan air tawar
18	<i>Enterocytozoon Hepatopenaei (EHP)</i>	<i>Mikrosporidia</i>	Udang vaname

Number of Targeted District for Monitoring

2015	2016	2017	2018	2019
3	100	115	115	120

- 34 Provinces
- 507 Districts

The flow of surveillance and monitoring aquatic animal disease in Indonesia

Executive

Central Government

Regional Government

Farmers

Target

National Aquatic animal disease (Indonesian concern)

Annual surveillance and monitoring fish disease plans (PETASUMOPI)

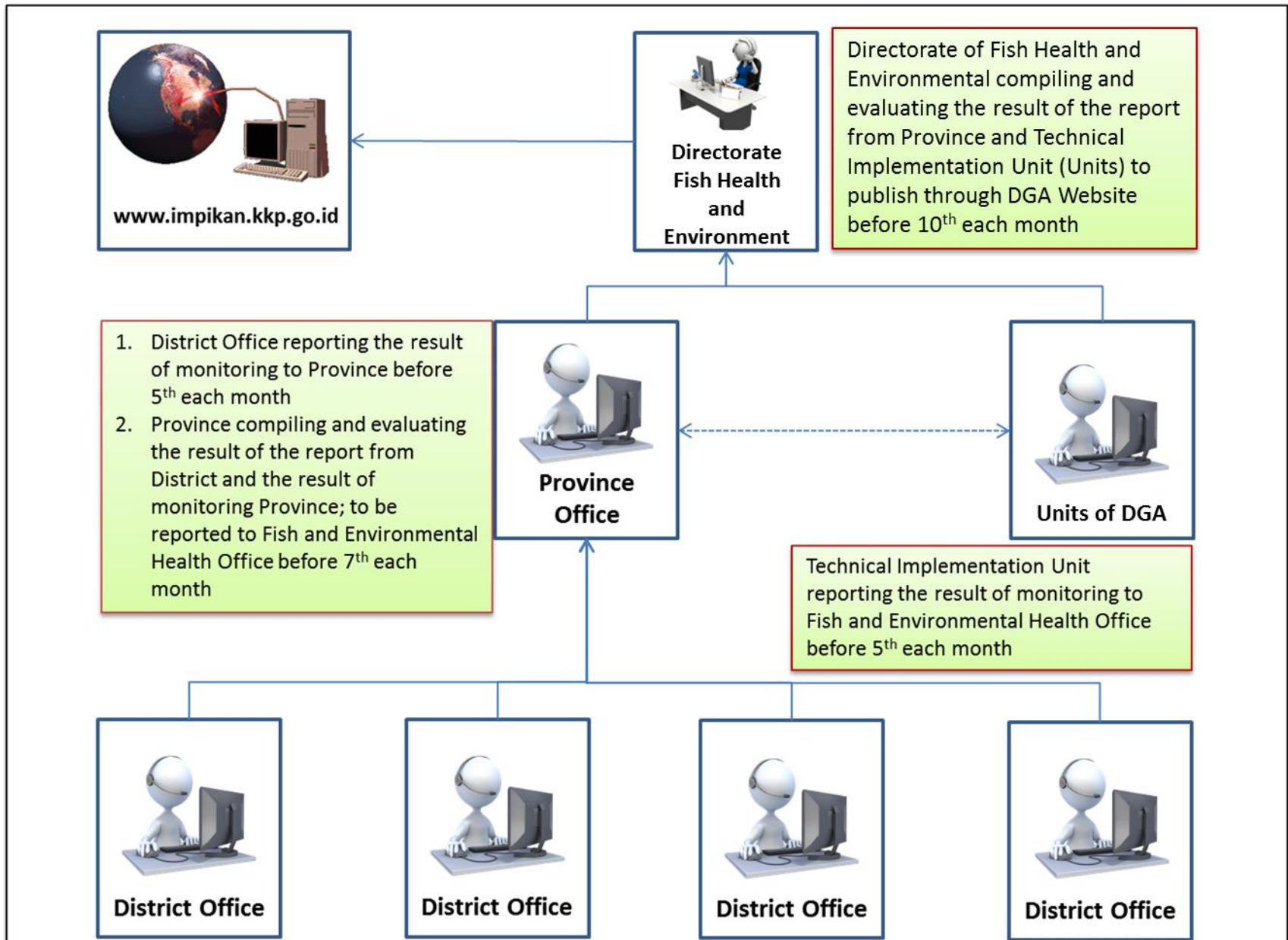
Result of surveillance and monitoring fish disease

Reporting

Monitoring Fish Disease System Software (SSMPI) online; regular and fast tract (IAADAS)

Notification material to OIE, NACA, FAO

The flow of reporting the result of Surveillance and Monitoring Fish Disease through SSMPI ONLINE



Impikan is the website of Directorate of Fish Health and Environment that mainly inform about fish diseases in Indonesia

Information obtained from the website:

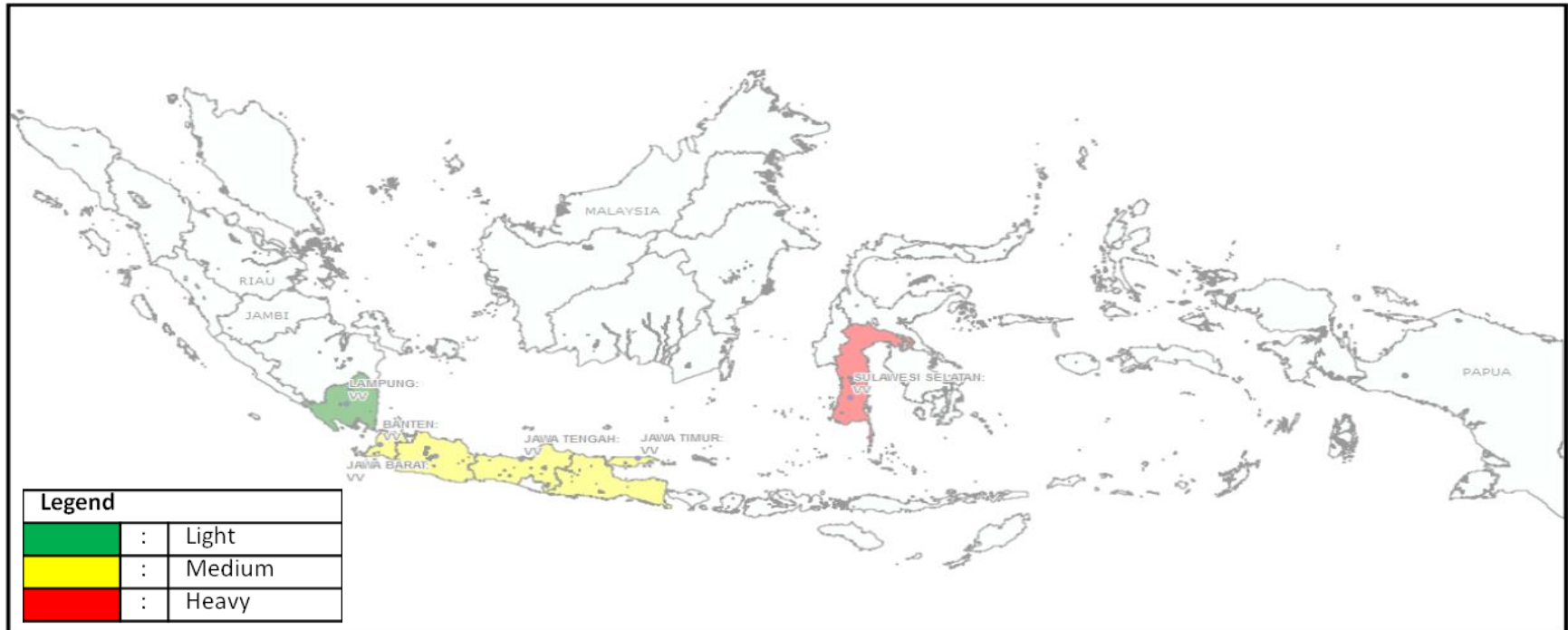
- Fish diseases distribution maps
- Fish diseases status of an area in Indonesia
- Current fish disease occurrence in Indonesia
- Regulations and policies on fish diseases in Indonesia
- All farming communities can access the website after registered as member
- The interaction with the operator is also available during working day at office hour

<http://impikan.kkp.go.id>



DISTRIBUTION OF INFECTIOUS MYONECROSIS IN 2016

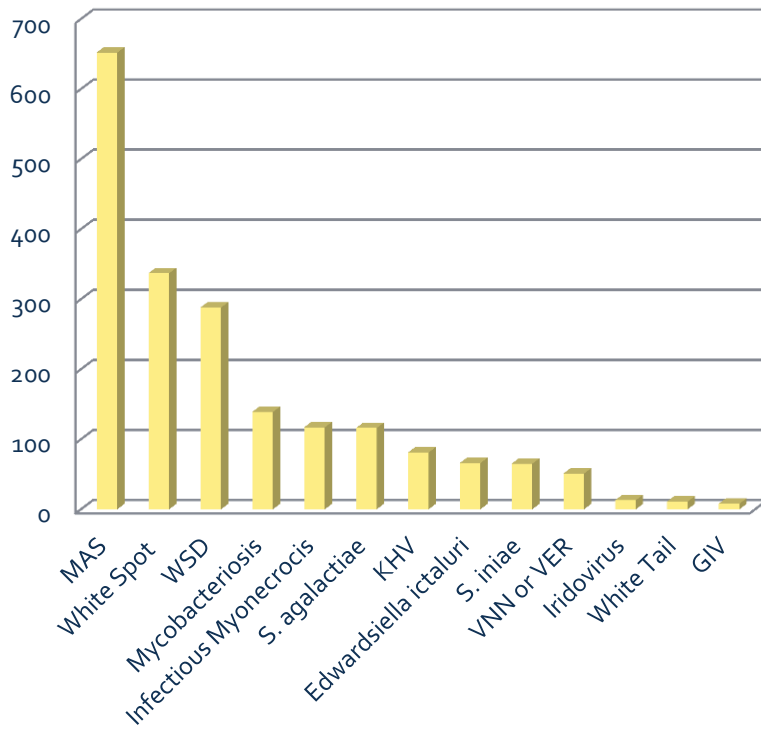
Period: January – March



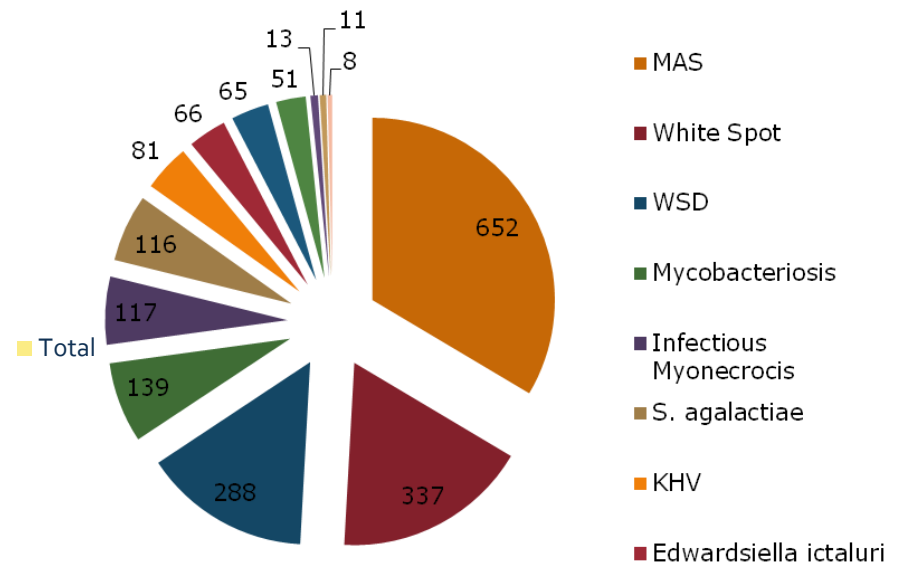
Province	District	Sub District	Level of Attack
Lampung	Pesawaran	Padang Cermin	Light
	South Lampung	Ketapang	Medium
West Java	Karawang	Pedes	Medium
	Indramayu	Sindang, Indramayu, Krangkeng	Light
Central Java	Rembang	Kaliori	Medium
East Java	Probolinggo	Tongas	Medium
Banten	Tangerang	Kronjo	Medium
South Sulawesi	Barro	Mallusetasi	Weight

REVIEW OF FISH DISEASES REPORT THROUGH SSMPI ONLINE 2016

Total



Total



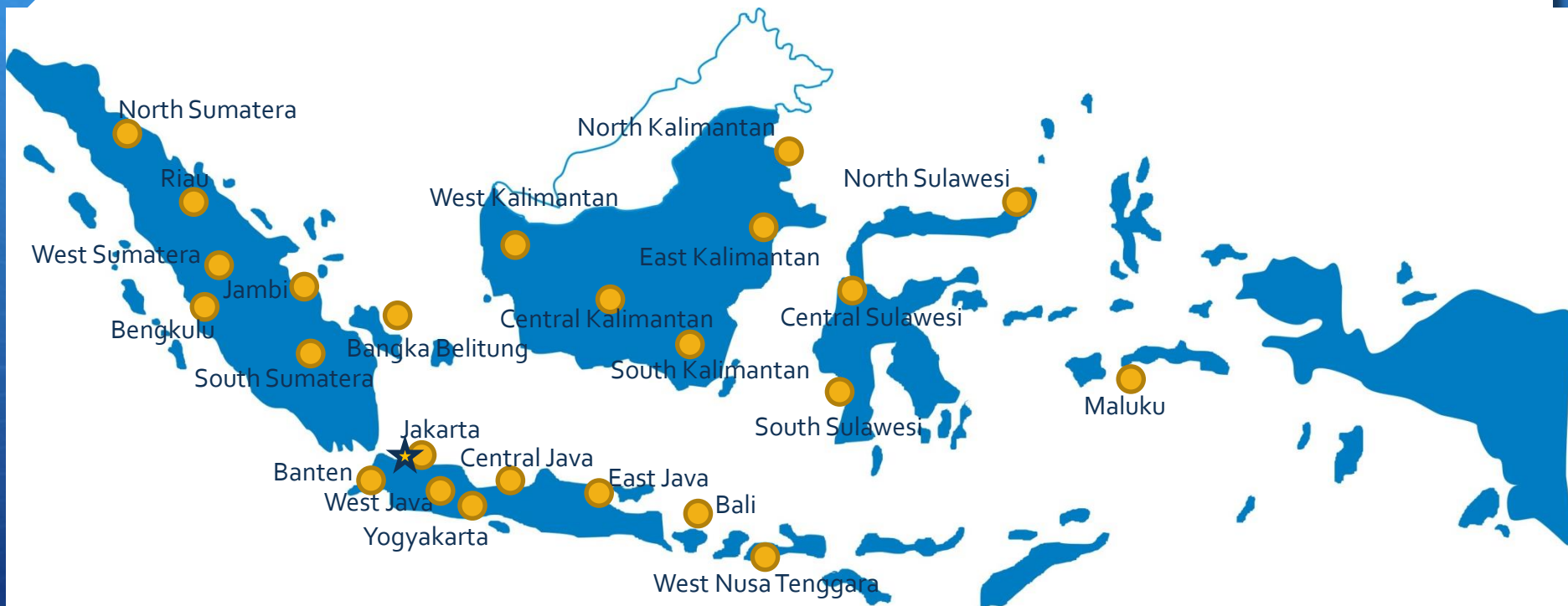
Reference and Testing laboratories (Directorate General of Aquaculture-TIU)



- ★ Competent Authority Location/ MMAF
- Testing Laboratory Location
- Reference Laboratory

14 Labs accredited ISO 17025
1 Labs under process

Testing laboratories (75 units) (Province, District/City Fisheries Office-TIU)



- ★ Competent Authority Location/ MMAF
- Testing Laboratory Location

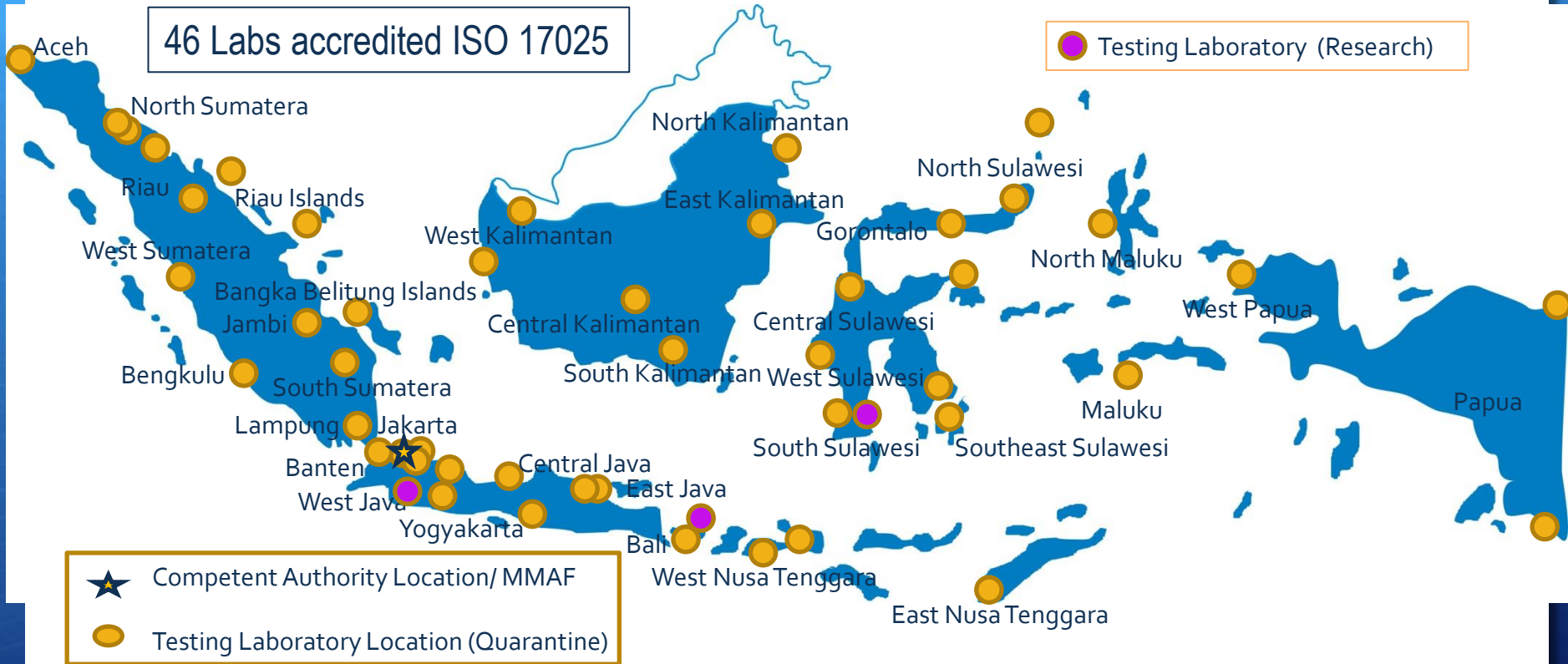
North Sumatera: 2
 Riau: 1
 West Sumatera: 7
 Jambi: 1
 Bengkulu: 1
 South Sumatera: 3
 Bangka Belitung: 1
 Banten: 2

Jakarta: 1
 West Java: 9
 Central Java: 11
 Yogyakarta: 5
 East Java: 10
 Bali: 3
 West Nusa Tenggara: 1
 West Kalimantan: 1

East Kalimantan: 1
 South Kalimantan: 3
 Central Kalimantan: 3
 North Kalimantan: 1
 South Sulawesi: 2
 Central Sulawesi: 3
 North Sulawesi: 1
 Maluku: 1

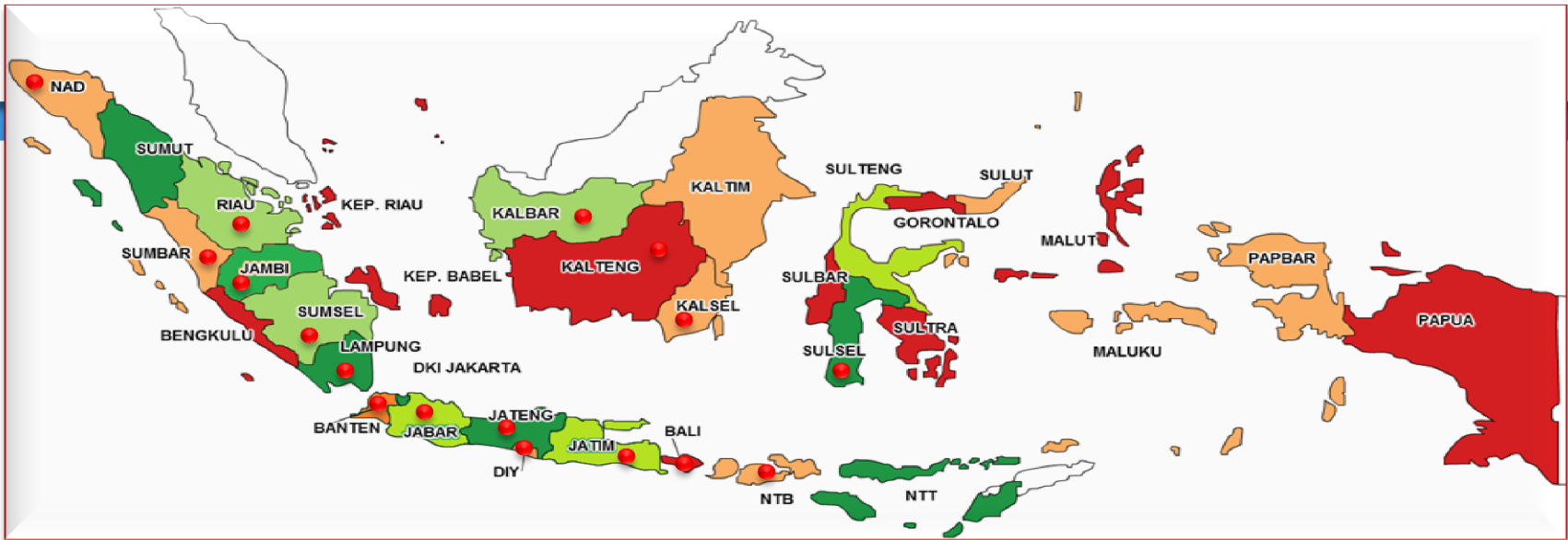
Testing laboratories in Indonesia

Fish Quarantine Agency-TIU(47) and Research Agency-TIU(3)



Aceh: 1	Lampung: 1	South Kalimantan: 1	Gorontalo: 1
North Sumatera: 3	Banten: 1	East Kalimantan: 1	North Sulawesi: 2
Riau: 1	Jakarta: 3	North Kalimantan: 1	North Maluku: 1
Riau Islands: 2	West Java: 2	Bali: 1	West Sulawesi: 1
West Sumatera: 1	Central Java: 1	West Nusa Tenggara: 2	Maluku: 1
Jambi: 1	Yogyakarta: 1	East Nusa Tenggara: 1	West Papua: 1
Bangka Belitung Islands: 1	East Java: 2	South Sulawesi: 1	Papua: 2
Bengkulu: 1	West Kalimantan: 2	Central Sulawesi: 2	
South Sumatera: 1	Central Kalimantan: 1	Southeast Sulawesi: 2	

POS KESEHATAN IKAN TERPADU (POSIKANDU)



No.	Location
1.	Kabupaten Bireun (NAD)
2.	BBIS Sicincin (Sumbar)
3.	Kab. Agam (Sumbar)
4.	Kab. Kampar (Riau)
5.	Kab. Musi Rawas (Sumsel)
6.	Kota Palembang (Sumsel)
7.	Kota Jambi (Jambi)
8.	Kab. Pesawaran (Lampung)
9.	Kab. Tulang Bawang (Lampung)
10.	Kab. Tangerang (Banten)

No.	Location
11.	Kab. Serang (Banten)
12.	Kab. Subang (Jabar)
13.	Kab. Cirebon (Jabar)
14.	Kab. Bekasi (Jabar)
15.	Kab. Bogor (Jabar)
16.	Kab. Indramayu (Jabar)
17.	Kab. Pekalongan (Jateng)
18.	Kab. Kendal (Jateng)
19.	Kab. Pati (Jateng)
20.	Kab. Boyolali (Jateng)

No.	Location
21.	Kab. Banyumas (Jateng)
22.	Kab. Gunung Kidul (DIY)
23.	Kab. Gresik (Jatim)
24.	Kab. Sidoarjo (Jatim)
25.	Kab. Kapuas (Kalteng)
26.	Kab. Banjar (Kalsel)
27.	Kab. Pinrang (Sulsel)
28.	Kab. Maros (Sulsel)
29.	Kab. Bangli (Bali)
30.	Kab. Sumbawa (NTB)

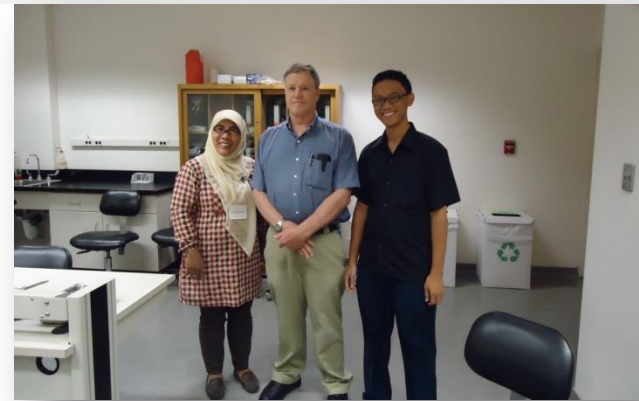
OIE Twinning Project

Laboratory of **Main Center of Freshwater Aquaculture Development** Sukabumi

- + Collaboration with OIE reference laboratory (National Research Institute of Aquaculture) in Japan
- + Time period 3 years:
2015-2017
- + Koi Herpes Virus detection

Laboratory of **Brackishwater Aquaculture Development Center** Situbondo

- + Collaboration with University of Arizona Laboratory, USA
- + Time period 3 years:
2015-2017
- + Shrimp disease detection



Fish health laboratories in Indonesia receive international acknowledgement in ability to detect certain types of fish disease with standard method

Proficiency test towards several types of fish disease (collaboration with Australian Centre for International Agricultural Research-ACIAR and Network of Aquaculture Centers in Asia-Pacific-NACA):

- + Infectious myonecrosis
- + White spot disease
- + Nervous necrosis virus (Viral encephalopathy and retinopathy)
- + Epizootic haematopoietic necrosis virus





C. Early Response

Emergency Response and Contingency Plan of Aquatic Diseases

Contingency Plan Document

- Guidelines for fish disease management
- Guidelines for emergency response
- Guidelines for eradication
- Guidelines for disposal
- Guidelines for decontamination

Operational Support Systems

- Regulation
- Synergistic cooperation with stakeholders
- Communication system
- Source of funds





➤ Public awareness

MENGENAL PENYAKIT IKAN TILAPIA LAKE VIRUS (TLV)

Penyebab
Orthonyxo-like virus yang menyerang pada jenis ikan Tilapia (Nila dan Mujair)

Sasaran
Ikan hasil budidaya dan ikan liar

Akibat
Kerusakan organ otak, mata, hati dan kerusakan sistem saraf ikan

GEJALA

- Tubuh ikan seluruh atau sebagian besar terlihat berwarna hitam
- Kornea mata beriak (katarak) serta meny dan cekung ke dalam
- Kulit mengalami erosi
- Bola mata membesar
- Anatomi rongga perut terlihat membesar

DAMPAK

- Ikan hanya bertahan 4 - 7 hari setelah terinfeksi
- Kematian massal ikan mencapai 80 - 100%
- Ukuran fingerling (tokolan) paling rentan terjangkit

LANGKAH PENCEGAHAN TLV

- Melarang impor induk, calon induk dan benih ikan dari negara terjangkit TLV
- Membatasi impor induk, calon induk, dan benih ikan dari negara tidak terjangkit TLV dengan ketentuan melampirkan ijazah pemusakan ikan hiluap sertifikat bebas TLV, serta melakukan uji mutu di pintu pemasukan ikan
- CPB: Menggunakan benih ikan bersertifikat bebas TLV
- CBIB: Menerapkan biosekuriti dan sanitasi unit pembenihan dan unit budidaya
- Membatasi lalu lintas ikan nila antar area
- Penerapan biosekuriti dan sanitasi unit pembenihan dan unit budidaya
- Membatasi sementara kegiatan peredaran benih ikan nila di perairan umum
- elakukan surveilan dan monitoring penyakit TLV
- Tingkatkan kewaspadaan dan kepedulian antar pembudidaya
- jaga padat tebar dan layakan kualitas air

TINDAKAN BILA ADA INDIKASI SERANGAN TLV

- Melaporkan ke Dinas Perikanan, Poskandud, Laboratorium Penyakit Ikan terdekat atau sebagai TLV melalui Email : subdit.hpi@kpp.go.id Telp : 021-3514724
- Membatasi lalu lintas orang dari dan ke lokasi wabah
- Dilarang menggunakan air, peralatan dan sarana dari lokasi wabah TLV
- Melakukan pengamatan gejala klinis dan pengambilan sampel

PERBEDAAN NILA SEHAT DAN NILA TERSEKANG TLV

Ikan Nila sehat	Ikan Nila Terjangkit TLV
Warna kulit cerah	Warna kulit menghitam
Mata jernih dan cerah	Mata berlobak/katarak & terlihat cekung
Kulit sedikit berkilau	Kulit mengalami erosi
Anatomi perut mendatar	Perut terlihat membesar



There are some alternative ways for reporting the incident of fish disease

SMS



- Easy to use
- Fast access
- Well recorded report (get into database server)



- Not all farmers using Android yet
- Limited SMS character

Phone



- Easy to use
- Fast access
- Farmers can completely report the anamneses



- Report is not well recorded (doesn't get into database server)

Website

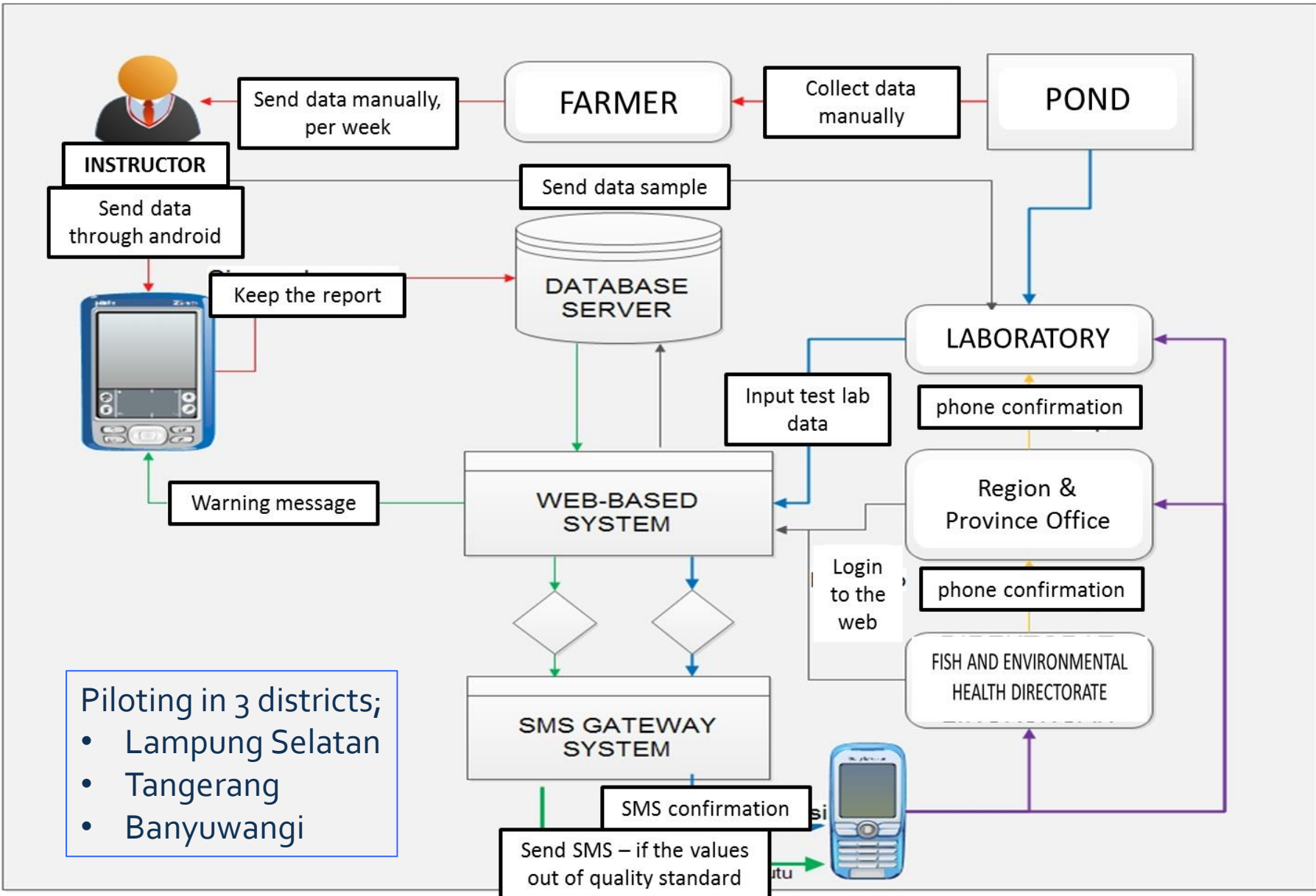


- Farmers can completely report the anamneses
- Well recorded report (get into database server)



- Not all farmers familiar using internet yet

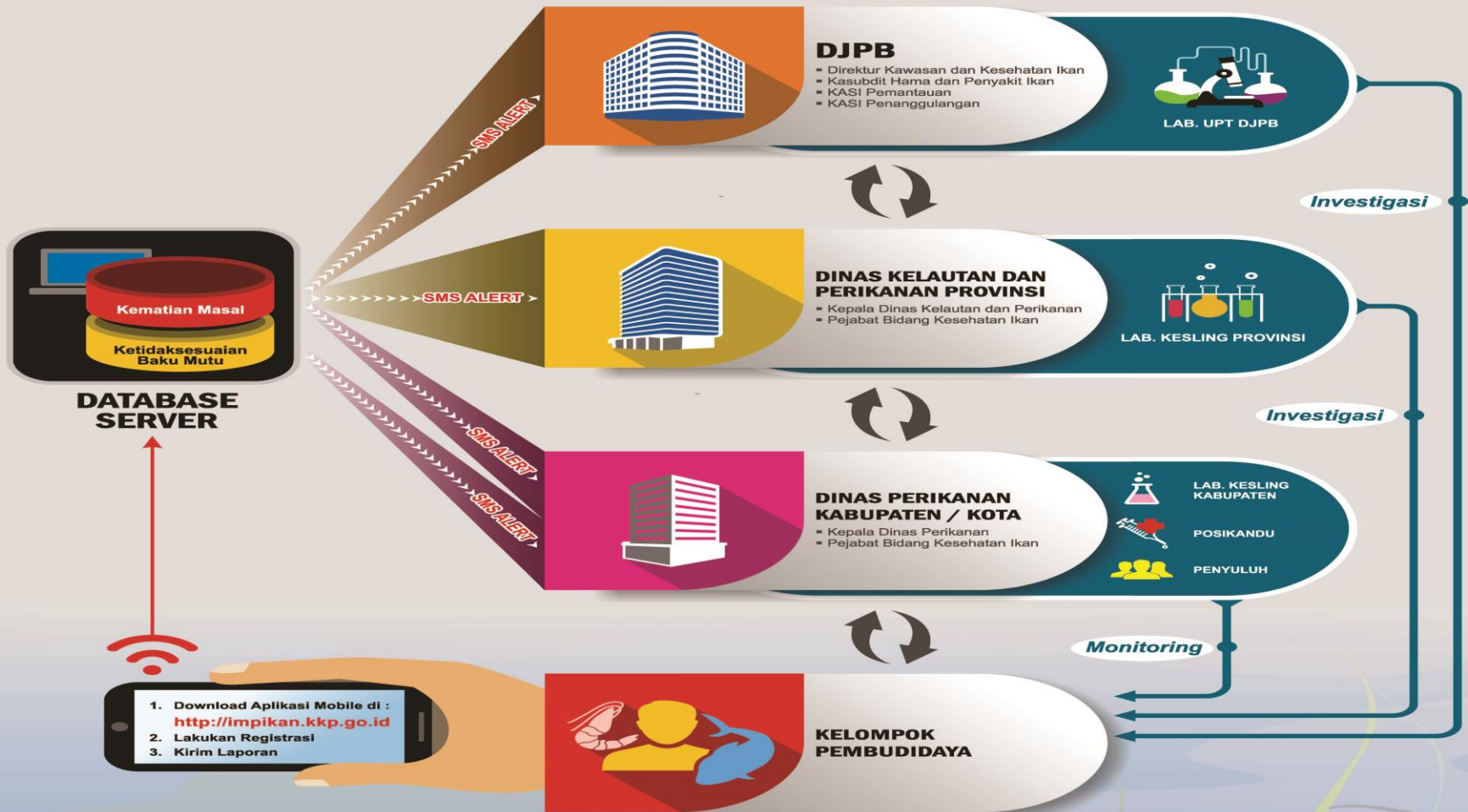
The flow of fish disease fast track report through SMS Gateway (FAO TCP/INS/3402) → IAADAS



Piloting in 3 districts;

- Lampung Selatan
- Tangerang
- Banyuwangi

MEKANISME PELAPORAN PENYAKIT IKAN BERBASIS APLIKASI ONLINE



Thank You.....

