Aquatic Emergency Preparedness and Response System: INDONESIA

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**Diponegoro University

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Bangkok, 20-22 August 2018
OUTLINE

I. COMPETENT AUTHORITY

II. LEGISLATIONS

III. Early Warning
    • Early Detection
    • Early Response
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

<table>
<thead>
<tr>
<th>Biosecurity</th>
<th>Human Resources</th>
<th>Crisis Center</th>
<th>Guidelines</th>
<th>Funding</th>
</tr>
</thead>
</table>

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)

IMPORTER

APPLICATION LETTER

IMPORTATION

TEMPORARY QUARANTINE FACILITY

DISEASES FREE

INFECT DISEASES

ERADICATION

FISH FARMER

DG OF AQUACULTURE

IMPORTER

LICENCE

Tembusan

QUARANTINE AGENCY

monitoring

MANAGEABLE

IRA

High Risk

Low Risk

HARMFULL

REJECT
A. Early Warning
## Task Force Team

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>Koi Herpesvirus (KHV) and Early Mortality Syndrome (EMS) based on Director General Aquaculture Decree Number: 95A/KEP-DJPB/2013</td>
</tr>
<tr>
<td>2013</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>Tilapia Lake Virus (TiLV) and Acute Hepatopancreatic Necrosis Disease (AHPND) based on Director General Aquaculture Decree Number: 165/KEP-DJPB/2017</td>
</tr>
</tbody>
</table>

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

Advisory Task Force
(veterinaries, fish disease expert, epidemiologist)

Crisis Center:
• Located in the district level
• As a coordinator in disease control activities and problem solving
• Have the authority to act quickly in handling the disease
• Leader is head of district office acting on behalf of the region mayor

Farmer

Sample Collector

Competent Authority:
• Declared a state of emergency / outbreak
• Able to decide extermination on the approval of regional heads
• Authorities to select / define aquatic animal waste disposal sites
• Free to determine how the extermination

Diagnostic Laboratory

instruct the farmer to destroy the fish and disinfect pond
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
Surveillance, Monitoring and Reporting

Annual surveillance, monitoring plan

Fish/shrimp diseases concern

Location, species concern

Online reporting

Testing laboratory

DGA Decree: 6/KEP-DJPB/2018

DGA Decree: 179/KEP-DJPB/2014

DGA Decree: 10/KEP-DJPB/2018

34 provinces
115 districts

impikan.kkp.go.id

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

<table>
<thead>
<tr>
<th>NO</th>
<th>NAMA PENYAKIT</th>
<th>PENYEBAK (ETIOLOGI)</th>
<th>KOMODITAS TERSERANG</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Koi Herpes Virus Disease</td>
<td>Koi herpes virus</td>
<td>Mas, koi</td>
</tr>
<tr>
<td>2</td>
<td>Iridovirus disease, Grouper iridoviral disease, Sleepy Grouper Diseases, Lymphocystis disease</td>
<td>Iridovirus, Lymphocystivirus, Megalocystivirus (Red Sea Bream Iridovirus/RSIV, Infectious Spleen and Kidney Necrosis Virus/ISKNV, Dwarf Gourami Iridovirus/DGV)</td>
<td>Nila, kakap putih, kerapu dan ikan hias air tawar</td>
</tr>
<tr>
<td>3</td>
<td>Viral Encephalopathy and Reticulopathy</td>
<td>Betanoda virus (Nodaviridae)</td>
<td>Kerapu dan kakap</td>
</tr>
<tr>
<td>4</td>
<td>White Spot Disease</td>
<td>White Spot Syndrome Virus (WSSV)</td>
<td>Udang windu dan udang vaname</td>
</tr>
<tr>
<td>5</td>
<td>Infectious Myonecrosis</td>
<td>Infectious Myonecrosis Virus (IMNV)</td>
<td>Udang vaname</td>
</tr>
<tr>
<td>6</td>
<td>White Tail Disease</td>
<td>Macrobrachium rosenbergii nodavirus (MrNV)</td>
<td>Udang galah</td>
</tr>
<tr>
<td>7</td>
<td>Tilapia Lake Virus Disease (TLV)</td>
<td>Tilapia Lake Virus</td>
<td>Nila</td>
</tr>
<tr>
<td>8</td>
<td>Streptococcus</td>
<td>Streptococcus agalactiae</td>
<td>Nila, mas, dan gurame</td>
</tr>
<tr>
<td>9</td>
<td>Enteric Septicemia of Catfish (ESC)</td>
<td>Edwardsiella ictaluri</td>
<td>Patin</td>
</tr>
<tr>
<td>10</td>
<td>Motil Aeromonas Septicemia (MAS)</td>
<td>Aeromonas hydrophila</td>
<td>Lele, mas, gurame dan nila</td>
</tr>
<tr>
<td>11</td>
<td>Mycobacteriosis</td>
<td>Mycobacterium fortuitum</td>
<td>Gurame</td>
</tr>
<tr>
<td>12</td>
<td>Tenacebaculosis</td>
<td>Tenacebaculum maritimum</td>
<td>Kakap putih</td>
</tr>
<tr>
<td>13</td>
<td>White Feces Syndrome</td>
<td>Vibrio parahaemolyticus, Vibrio alginolyticus, Vibrio vulnificus</td>
<td>Udang vaname</td>
</tr>
<tr>
<td>14</td>
<td>Ice-ice</td>
<td>Pseudomonas spp., Pseudooltneromonas gracilis, dan Vibrio spp</td>
<td>Rumput laut</td>
</tr>
<tr>
<td>15</td>
<td>Acute Hepatopancreatic Necrosis Disease (AHPND)</td>
<td>Unique strain of Vibrio parahaemolyticus</td>
<td>Udang vannamei dan Udang monodon</td>
</tr>
<tr>
<td>16</td>
<td>Ichthyophthiriasis</td>
<td>Ichthyophthirius multifilis</td>
<td>Semua jenis ikan air tawar</td>
</tr>
<tr>
<td>17</td>
<td>Enterocytophagocytosis Hepatopancreatis (EHP)</td>
<td>Mikrosporida</td>
<td>Udang vaname</td>
</tr>
</tbody>
</table>
## Number of Targeted District for Monitoring

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>100</td>
<td>115</td>
<td>115</td>
<td>120</td>
</tr>
</tbody>
</table>

- 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**

**Notification material to OIE, NACA, FAO**

- Monitoring Fish Disease System Software (SSMPI) online; regular and fast tract (IAADAS)
The flow of reporting the result of Surveillance and Monitoring Fish Disease through SSMPI ONLINE

1. District Office reporting the result of monitoring to Province before 5th each month
2. Province compiling and evaluating the result of the report from District and the result of monitoring Province; to be reported to Fish and Environmental Health Office before 7th each month

Directorate of Fish Health and Environmental compiling and evaluating the result of the report from Province and Technical Implementation Unit (Units) to publish through DGA Website before 10th each month

Technical Implementation Unit reporting the result of monitoring to Fish and Environmental Health Office before 5th each month
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**

<table>
<thead>
<tr>
<th>Province</th>
<th>District</th>
<th>Sub District</th>
<th>Level of Attack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lampung</td>
<td>Pesawaran</td>
<td>Padang Cermin</td>
<td>Light</td>
</tr>
<tr>
<td></td>
<td>South Lampung</td>
<td>Ketapang</td>
<td>Medium</td>
</tr>
<tr>
<td>West Java</td>
<td>Karawang</td>
<td>Pedes</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Indramayu</td>
<td>Sindang, Indramayu, Krangkeng</td>
<td>Light</td>
</tr>
<tr>
<td>Central Java</td>
<td>Rembang</td>
<td>Kaliori</td>
<td>Medium</td>
</tr>
<tr>
<td>East Java</td>
<td>Probolinggo</td>
<td>Tongas</td>
<td>Medium</td>
</tr>
<tr>
<td>Banten</td>
<td>Tangerang</td>
<td>Kronjo</td>
<td>Medium</td>
</tr>
<tr>
<td>South Sulawesi</td>
<td>Barru</td>
<td>Mallusetasi</td>
<td>Weight</td>
</tr>
</tbody>
</table>

**Legend**
- : Light
- : Medium
- : Heavy
REVIEW OF FISH DISEASES REPORT THROUGH SSMPI ONLINE 2016

Total

<table>
<thead>
<tr>
<th>Disease</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS</td>
<td>652</td>
</tr>
<tr>
<td>White Spot</td>
<td>337</td>
</tr>
<tr>
<td>WSD</td>
<td>288</td>
</tr>
<tr>
<td>Mycobacteriosis</td>
<td>139</td>
</tr>
<tr>
<td>Infectious Myonecrosis</td>
<td>117</td>
</tr>
<tr>
<td>S. agalactiae</td>
<td>116</td>
</tr>
<tr>
<td>Edwardsiella ictaluri</td>
<td>81</td>
</tr>
<tr>
<td>KHV</td>
<td>66</td>
</tr>
<tr>
<td>S. iniae</td>
<td>65</td>
</tr>
<tr>
<td>VNN or VER</td>
<td>51</td>
</tr>
<tr>
<td>Iridovirus</td>
<td>13</td>
</tr>
<tr>
<td>White Tail</td>
<td>11</td>
</tr>
<tr>
<td>GIV</td>
<td>8</td>
</tr>
</tbody>
</table>

Total: 652 cases
Reference and Testing laboratories (Directorate General of Aquaculture-TIU)
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
- 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)

46 Labs accredited ISO 17025

Competent Authority Location/ MMAF

Testing Laboratory Location (Quarantine)

Aceh: 1
North Sumatera: 3
Riau: 1
Riau Islands: 2
West Sumatera: 1
Jambi: 1
Bangka Belitung Islands: 1
Bengkulu: 1
South Sumatera: 1

Lampung: 1
Banten: 1
Jakarta: 3
West Java: 2
Central Java: 1
Yogyakarta: 1

South Kalimantan: 1
East Kalimantan: 1
North Kalimantan: 1
Bali: 1
West Nusa Tenggara: 2
East Nusa Tenggara: 1
South Sulawesi: 1
Central Sulawesi: 2
Southeast Sulawesi: 2
Gorontalo: 1
North Sulawesi: 2
North Maluku: 1
West Papua: 1
Maluku: 1
West Nusa Tenggara: 1
East Nusa Tenggara: 1

Papua: 2
<table>
<thead>
<tr>
<th>No.</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kabupaten Bireun (NAD)</td>
</tr>
<tr>
<td>2.</td>
<td>BBIS Sicincin (Sumbar)</td>
</tr>
<tr>
<td>3.</td>
<td>Kab. Agam (Sumbar)</td>
</tr>
<tr>
<td>4.</td>
<td>Kab. Kampar (Riau)</td>
</tr>
<tr>
<td>5.</td>
<td>Kab. Musi Rawas (Sumsel)</td>
</tr>
<tr>
<td>6.</td>
<td>Kota Palembang (Sumsel)</td>
</tr>
<tr>
<td>7.</td>
<td>Kota Jambi (Jambi)</td>
</tr>
<tr>
<td>8.</td>
<td>Kab.Pesawaran (Lampung)</td>
</tr>
<tr>
<td>9.</td>
<td>Kab. Tulang Bawang (Lampung)</td>
</tr>
<tr>
<td>10.</td>
<td>Kab. Tangerang (Banten)</td>
</tr>
<tr>
<td>11.</td>
<td>Kab. Serang (Banten)</td>
</tr>
<tr>
<td>12.</td>
<td>Kab. Subang (Jabar)</td>
</tr>
<tr>
<td>13.</td>
<td>Kab.Cirebon (Jabar)</td>
</tr>
<tr>
<td>14.</td>
<td>Kab. Bekasi (Jabar)</td>
</tr>
<tr>
<td>15.</td>
<td>Kab. Bogor (Jabar)</td>
</tr>
<tr>
<td>16.</td>
<td>Kab. Indramayu (Jabar)</td>
</tr>
<tr>
<td>17.</td>
<td>Kab. Pekalongan (Jateng)</td>
</tr>
<tr>
<td>18.</td>
<td>Kab. Kendal (Jateng)</td>
</tr>
<tr>
<td>19.</td>
<td>Kab. Pati (Jateng)</td>
</tr>
<tr>
<td>20.</td>
<td>Kab. Boyolali (Jateng)</td>
</tr>
<tr>
<td>22.</td>
<td>Kab. Gunung Kidul (DIY)</td>
</tr>
<tr>
<td>23.</td>
<td>Kab. Gresik (Jatim)</td>
</tr>
<tr>
<td>24.</td>
<td>Kab. Sidoardjo (Jatim)</td>
</tr>
<tr>
<td>25.</td>
<td>Kab.Kapuas (Kalteng)</td>
</tr>
<tr>
<td>26.</td>
<td>Kab. Banjar (Kalsel)</td>
</tr>
<tr>
<td>27.</td>
<td>Kab. Pinrang (Sulsel)</td>
</tr>
<tr>
<td>28.</td>
<td>Kab. Maros (Sulsel)</td>
</tr>
<tr>
<td>29.</td>
<td>Kab. Bangli (Bali)</td>
</tr>
<tr>
<td>30.</td>
<td>Kab. Sumbawa (NTB)</td>
</tr>
</tbody>
</table>
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 TILAPI LAKE VIRUS (TILV)

PERBEDAAN NILA SEHAT DAN NILA TERSENGAT TILV

DAMPAK

TINDAKAN BILA ADA INDIKASI SERANGAN TILV

LANGKAH Pencegahan TILV

SOSIALISASI Pencegahan masuknya EARLY MORTALITY SYNDROME (EMS) / ACUTE HEPATOPANCREATIC NECROSIS DISEASE (AHPND) ke Indonesia
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

1. Download Aplikasi Mobile di: http://impikan.kkp.go.id
2. Lakukan Registrasi
3. Kirim Laporan

DATABASE SERVER

KELOMPOK PEMBUVIDAYA

DINAS KELAUTAN DAN PERIKANAN PROVINSI
- Kepala Dinas Kelautan dan Perikanan
- Pejabat Bidang Kesehatan Ikan

LAB. KESLING PROVINSI

INVESTIGASI

DINAS PERIKANAN KABUPATEN / KOTA
- Kepala Dinas Perikanan
- Pejabat Bidang Kesehatan Ikan

LAB. KESLING KABUPATEN

INVESTIGASI

DJPB
- Direktur Kawasan dan Kesehatan Ikan
- Kasubdit Hama dan Penyakit Ikan
- KASI Pemantauan
- KASI Penanggulangan

LAB. UPT DJPB

MONITORING

DIREKTORAT JENDERAL PERIKANAN BUDIDAYA
DIREKTORAT KAWASAN DAN Kesehatan IKAN
Gedung Mina Bahari IV Lt6
Jalan Medan Merdeka Timur No.16
Telp. (021) 351 9070 ext: 2672
Fax. (021) 351 4724
Thank You.....