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ASIA AND PACIFIC COMMISSION ON AGRICULTURAL STATISTICS

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Agenda Item 6.3
IMPROVING THE METHODELOGY OF DATA COLLECTION ON AQUACULTURE IN INDONESIA

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Outline

- 1. Overview of Fisheries and Aquaculture Statistics**
- 2. Methodology of Data Collection**
- 3. Improving the Methodology**
- 4. Plan activities on 2016**

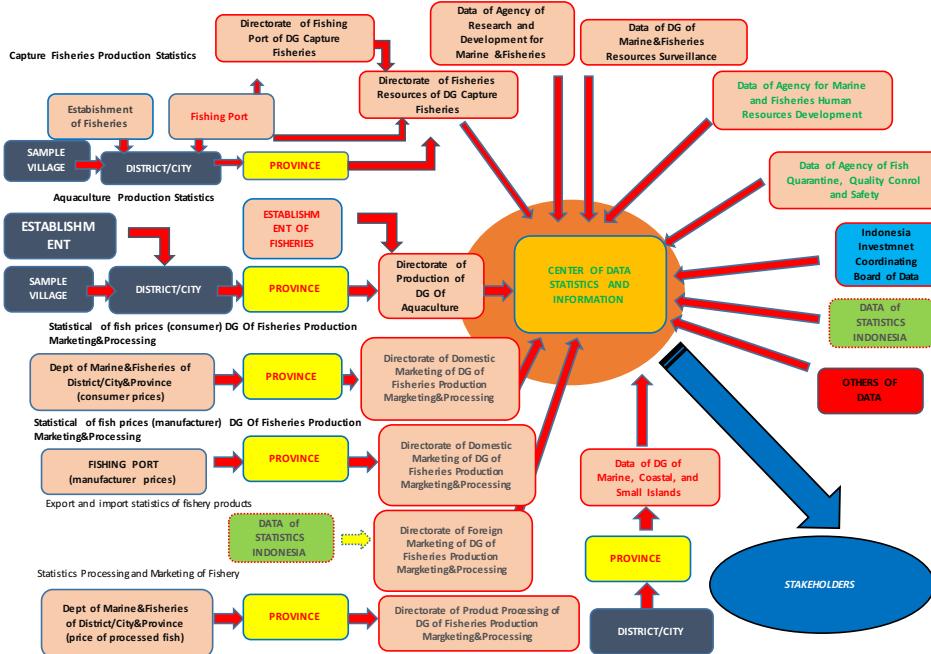


1.The Centre for Data Statistic and Information, Ministry of Marine Affairs and Fisheries (MMAF)

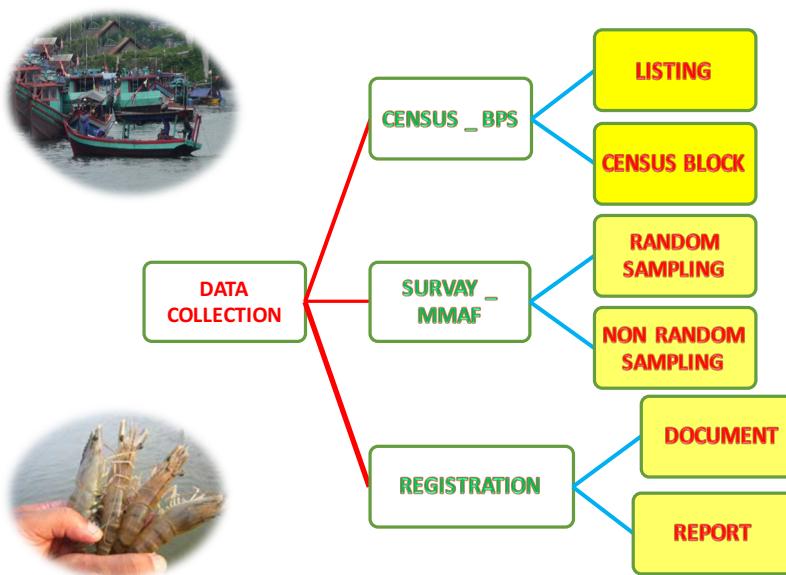
The Centre for Data Statistic and Information of Marine and Fisheries , structurally under the Scretarariate General of MMAF. This Centre has fuction to collect, process, analize and publishe those data of marine and fisheries for the National level. It is supported by 3 divisions are :data and statistics div, Infrastructure of information system division and Aplication of information system division.

Fisheries and Aquaculture statistics method has been introduced since 1976 through the UNDP/FAO project lead by the Mr. Yamamoto Tadashi, as published the standard Statistical System for marine fishery and for the inland open water fishery and also fresh water aquaculture. The development and implementation of those standard was keep on updating.

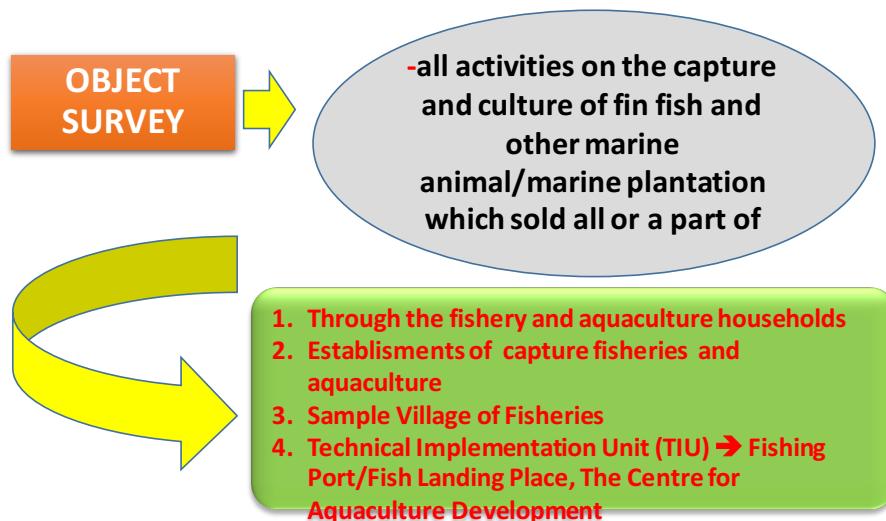
FLOW COLLECTION DATA STATISTICS MARINE AND FISHERIES



2. Methode of Data Collection



Object Survey of Fisheries and Aquaculture Production



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Types of data collection and Time of survey for collecting data of aquaculture

DETAILS	THE TYPE OF DATA COLLECTED	DATA COLLECTION
ECONOMY UNITS	Households or establishments aquaculture use form SB-2a (broodstock) and form SB-H1 (ornamental fish data) → area of aquaculture (wide effort)	Annual
INPUT	<ul style="list-style-type: none"> • Means of production • Production : volume • Value of production 	Quarterly
OUTPUT	<ul style="list-style-type: none"> • Estimation production by type of aquaculture: fresh water, brackish water, marine aquaculture • Values of production by type of aquaculture • Estimation production by fish species • Value of production by fish species 	Quarterly

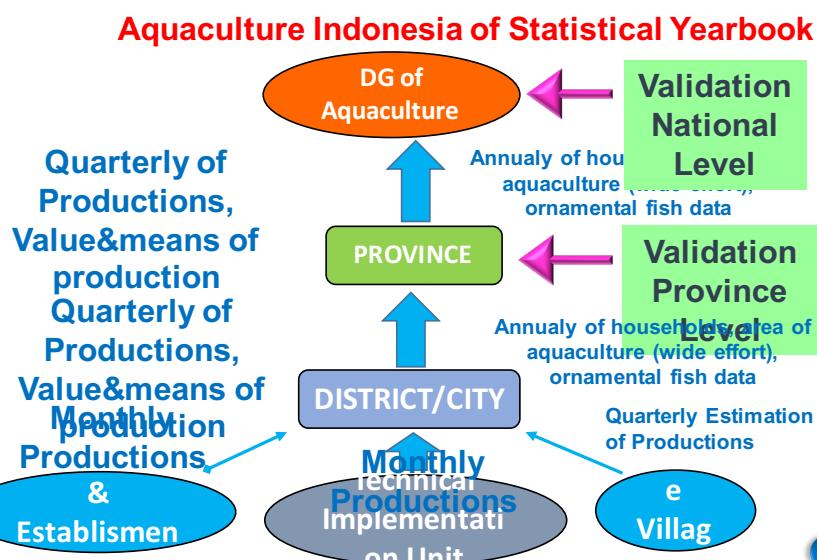
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Data to be Processed by the district fisheries service office related to the Survey of Aquaculture Production

ORGANIZATIONS	TYPES OF DATA	PROCESSING OF DATA
DISTRICT/ CITY	1. Data of area aquaculture, households and units, ornamental fish production	The sum of the data collected through the form SB-2a (broodstock), form SB-H1 (ornamental fish) at sample village of aquaculture
	2. Productions	The sum of the production data from result of Survey SB-4, SB-6 (broodstock), and SB-H3, SB-H5 (ornamental fish)
	3. Value of Production	Estimation of productions x flat rate from result of Survey SB-4, SB-6 (broodstock), and SB-H3, SB-H5 (ornamental fish)
PROVINCE	4. Data of area aquaculture, households and units, productions and value of productions, ornamental fish	Summary of aquaculture data statistics of the entire District/City
DG OF AQUACULTURE	5. Data of area aquaculture, households and units, productions and value of productions, ornamental fish	Summary of aquaculture data statistics of the entire province

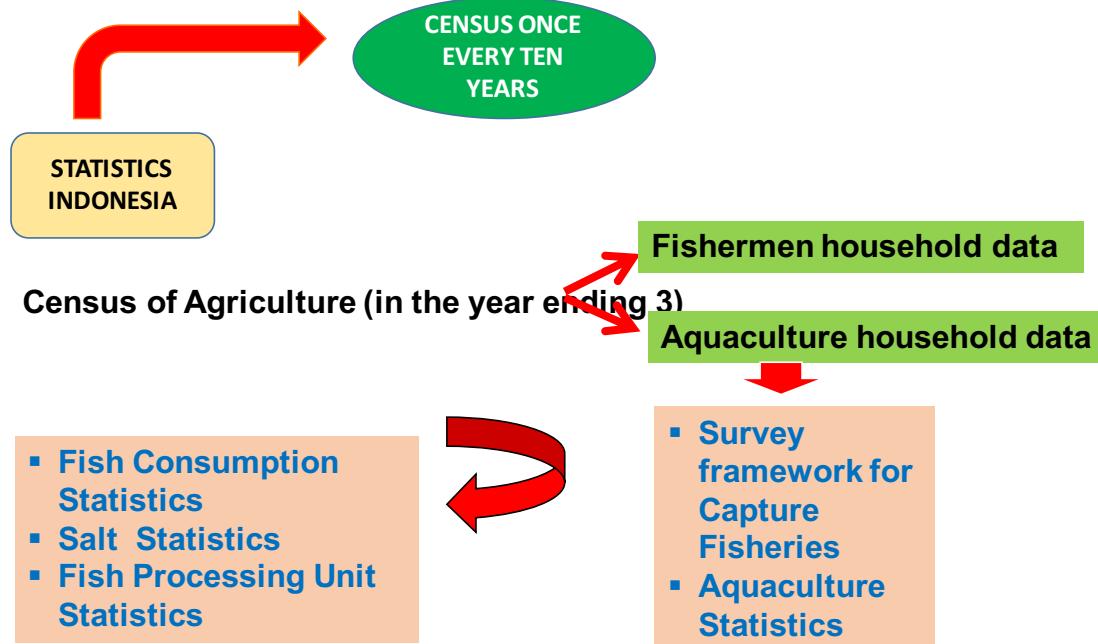
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Flow Data Statistics
Survey of Aquaculture Production



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3. Improving the Methodology : Agriculture census (BPS) used as survey framework for Aquaculture (MMAF)



- 1. Food crops
- 2. Horticulture crops (vegetables, fruits, medicinal plants, ornamental plants)
- 3. Plantation
- 4. Livestocks
- 5. Fisheries
(Aquaculture, fishing)
- 6. Forestry
- 7. Agricultural services

- Number of Aquaculture Household non Ornamental Fish by Main Type of Fish,**

No.	Regions	Type of Main Fish									
		Nile Tilapia	Terpedo shaped catfish	Common carp	Gourami	Milk fish	Pangas catfish	Kakap	Spotted coral grouper	Shrimp*	Seaweed
1	Sumatera	76,01	47,37	30,07	22,05	15,82	12,37	0,12	4,38	13,66	0,41
2	Jawa	141,93	161,30	37,48	74,34	55,23	4,64	0,01	0,65	13,67	4,50
3	Bali dan Nusra	7,50	2,19	1,62	0,43	3,84	0,03	0,01	0,15	0,19	12,93
4	Kalimantan	21,57	8,02	2,85	0,51	4,42	8,74	0,03	0,13	6,40	2,12
5	Sulawesi	10,79	3,68	15,60	0,15	31,23	0,04	0,10	0,72	5,13	37,57
6	Maluku dan Papua	2,83	1,01	13,27	0,10	0,15	-	0,02	0,16	-	8,59
Indonesia		260,64	223,57	100,89	97,58	110,69	25,82	0,29	6,19	39,05	66,12

*). Shrimp vaname and Tiger shrimp

Activities on 2015 : BPS and MMAF agreed to improve statistical data collection on aquaculture:

- Agust 2015 – Pilot project in several sub distric in Central Java Province to redesign the methodology of survey in each household.
- Updating the frame to get information aquaculture household business in new condition.
- establishment of work teams aquaculture data and statistics (MMAF, province, district/ city)
- Strengthening field data collection through Recruitment of enumerators in each sub distric
- Processing data in the district and it send to Fisheries Service in the Province

Pilot Study Schedule

Activities	Mounth	Week
Planning	August	I-IV
Preparing	August-September	IV-I
Frame updating	September	II
Processing data updating	October	IV
Sample allocation	November	II
Sampling survey	November	II
Sample processing	December	III
Analyzing	December	IV

New Methodology - 1

- One stage stratified sampling design
- As sampling frame is a list of aquaculture household at each subdistrict and each type of fish (for rising, hatchery, and ornamental fish)
- Every year, doing update for list of aquaculture household at each subdistrict and then draw a number of household as sample to get data for detail information
- Data from each subdistrict can be sum up to get data at district level, province level, and national level

New Methodology - 2

- **Target Sample → A minimum sample of the household being counted for each type of fish by Slovin formulas**

$$m_{hi} = \frac{M_{hi}}{M_{hi}e^2 + 1}$$

Where:

m_{hi} = sampel target household type of aquaculture h and type of commodities i result of updating in sub district,

M_{hi} = population of household type of aquaculture h and type of commodities i result of updating in sub district,

e = margin of error will being tolerance (alternative: $e=10\%$, 12% , dan 15%).

Comparison Methodology

Item	Previous Method	New Method
Type of Aquaculture	9	13
Sampling design	Two stage stratified , 1st, village-PPS 2 nd , Holding-Sys	One stage stratified, Holding-sys , area as a implicit strat.
# sample	10 each village of each type of aquaculture	Depend on updating in each stratum à Slovin
Updating frame	Not every years	Every years
Level of est.	District	Sub district
Scope of commodities	Not all commodities	All commodities
Frame	Only by type of aquaculture	By type of aquaculture and commodities

PLAN ACTIVITIES ON 2016

- **BPS- → collects data of companies aquaculture (annual basis), while MMAF collect and updating the aquaculture company quarterly basis .**
- **MMAF → data collection in aquaculture has done through interview household**
- **The data processing conducted jointly between the District Coordinator of Statistics (KSK BPS-) and enumerators marine and fisheries fisheries services.**

Out put :

- Availability the same data on aquaculture production
- Strengthening the role of enumerators in each sub district for providing the aquaculture data by name and by address of aquaculture household
- Strengthening the role of Coordinator Statistics sub district for collecting the data and send it to the district level
- Updating the SIMSTAT application for providing data quarterly
- Providing the data in the national level

Comparison Questionnaire DGA-MMAF and BPS-Statistics - 1

Kuesioner BPS		Perbandingan Kuesioner DJPB
BLOK I - Keterangan Identitas	Provinsi	Sudah tersedia
	Kabupaten	Sudah tersedia
	Kecamatan	Sudah tersedia
	Desa/Kelurahan	Sudah tersedia
	Tahun	Sudah tersedia
	Nama perusahaan	Sudah tersedia
	Contact person	Belum tersedia di kuesioner DJPB
	Lokasi	Sudah tersedia
	Alamat	Sudah tersedia
	Kondisi perusahaan (aktif, sementara, tutup)	Belum tersedia di kuesioner DJPB
BLOK II - Keterangan Perusahaan	Jenis Budidaya Utama (Tambak, air tawar, dll)	Sudah tersedia
	Jenis Kegiatan Utama (Pembenihan, Pembesaran)	Sudah tersedia
	Wadah Budidaya Utama (Tambak, Kolam, Karamba, Jaring apung)	Sudah tersedia
	Bentuk badan usaha (PT, CV, Firma, Koperasi, Persero)	Telah tersedia dengan pertanyaan yang lain
	Status permodalan (PMA, PMDN, Swasta, koperasi)	Telah tersedia dengan pertanyaan yang lain
	Izin usaha (pusat, daerah)	Belum tersedia di kuesioner DJPB
	Status perusahaan (tanpa cabang, induk/pusat, cabang)	Belum tersedia di kuesioner DJPB
	Tahun mulai operasional	Belum tersedia di kuesioner DJPB

Comparison Questionnaire DGA-MMAF and BPS-Statistics - 2

Kuesioner BPS		Perbandingan Kuesioner DJPB
BLOK III - Jumlah Pekerja dan Pengeluaran untuk Pekerja	A. Pekerja tetap dan tidak tetap selama setahun	Belum tersedia di kuesioner DJPB
	. Tingkat pendidikan (SD - Universitas)	Belum tersedia di kuesioner DJPB
	. Pekerja Produksi dan Non Produksi (pekerja tetap dan pekerja tidak tetap)	Belum tersedia di kuesioner DJPB
	. Jumlah WNA dan WNI	Belum tersedia di kuesioner DJPB
	. Pekerja tidak dibayar/pekerja keluarga	Belum tersedia di kuesioner DJPB
	B. Pekerja harian lepas/borongan selama setahun	Belum tersedia di kuesioner DJPB
	. Rata-rata jumlah pekerja harian per hari kerja	Belum tersedia di kuesioner DJPB
	. Jumlah hari kerja selama setahun	Belum tersedia di kuesioner DJPB
	. Jumlah hari orang dalam setahun	Belum tersedia di kuesioner DJPB
	. Jumlah upah untuk pekerja harian dalam setahun	Belum tersedia di kuesioner DJPB
BLOK IV a. Luas Penguasaan Lahan budidaya	C. Jumlah pekerja dan pengeluaran untuk pekerja	Belum tersedia di kuesioner DJPB
	. Jenis pengeluaran (Upah, gaji, upah lembur, bonus) --> berupa uang dan berupa barang	Belum tersedia di kuesioner DJPB
BLOK IV b. Luas Penguasaan Lahan Budidaya Menurut Lokasi	Status Penguasaan Lahan (Milik sendiri, sewa, lainnya) menurut jenis budidaya	Sudah tersedia
	Lokasi lahan (Dalam kabupaten, Luar kabupaten, Luar provinsi) menurut jenis budidaya	Belum tersedia di kuesioner DJPB

Comparison Questionnaire DGA-MMAF and BPS-Statistics - 3

Kuesioner BPS		Perbandingan Kuesioner DJPB
BLOK V. Jumlah Sarana Budidaya yang Digunakan	Jumlah jenis sarana (pompa air, kincir air, aerotor, waerkit, genset, dll) milik sendiri, sewa, lainnya	Belum tersedia di kuesioner DJPB
BLOK VI. Produksi dan Pendapatan Lain	A. Produksi dan Nilai Produksi selama setahun (Jenis ikan dan jenis lahan), produksi pembelian	Sudah tersedia
	B. Pendapatan dan penerimaan lain selama setahun (penerimaan dari jasa perikanan, keuntungan, pendapatan lainnya)	Belum tersedia di kuesioner DJPB
	C. Nilai produksi dan pendapatan selama setahun	Belum tersedia di kuesioner DJPB
BLOK VII. Penggunaan produksi	Berdasarkan jenis ikan, cara dijual dalam negri dan ekspor (hidup, segar, beku, kering)	Belum tersedia di kuesioner DJPB
BLOK VIII. Pengeluaran untuk sarana produksi selama setahun	Jenis sarana produksi (benih, bibit, pupuk, obat, pakan) menurut jenis budidaya	Sudah tersedia
	Nilai sarana produksi (benih, bibit, pupuk, obat, pakan) menurut jenis budidaya	Belum tersedia di kuesioner DJPB

Comparison Questionnaire DGA-MMAF and BPS-Statistics - 4

Kuesioner BPS		Perbandingan Kuesioner DJPB
BLOK IX. Pemakaian Bahan Bakar, Listrik,	Jumlah bahan bakar dan pelumas, listrik, air, LPG dan Gas	Belum tersedia di kuesioner DJPB
	Nilai bahan bakar dan pelumas, listrik, air, LPG dan Gas	Belum tersedia di kuesioner DJPB
BLOK X. Pengeluaran untuk bahan-bahan, jasa dan lainnya	Bahan-bahan (Kemasan, pembungkus, suku cadang, barang keperluan)	Belum tersedia di kuesioner DJPB
	Jasa (Ongkos pemeliharaan dan perbaikan, jasa perikanan)	Belum tersedia di kuesioner DJPB
	Sewa (Sewa gedung, mesin dan peralatan)	Belum tersedia di kuesioner DJPB
	Pengeluaran untuk garam dan es	Belum tersedia di kuesioner DJPB
	Pajak tidak langsung	Belum tersedia di kuesioner DJPB
	Penyusutan	Belum tersedia di kuesioner DJPB
	Bunga atas pinjaman	Belum tersedia di kuesioner DJPB
	Hadiah, sumbangan	Belum tersedia di kuesioner DJPB
BLOK XI. Pembentukan Modal Tetap, Penambahan, Pengurangan dan	Jenis barang modal (tanah, gedung, mesin, kendaraan) pembelian barang modal	Belum tersedia di kuesioner DJPB
	Perbaikan besar barang modal	Belum tersedia di kuesioner DJPB
	Pengurangan barang modal	Belum tersedia di kuesioner DJPB

CHALLENGING

- Enumerators in the sub district need to educate for full understanding of the way to fill in the questionnaire
- Verification of data in the district and provinces need to be supervised, as well the data processing
- In the Fisheries Provincial Services validated those all data respectively ,and analizing as the data province.
- Then, send it to the centre, MMAF to be validate as national data
- Operators of SIMSTAT fully understand their fuction for sending data quartely.



THANK YOU