

## Progress Report on the National Residues Monitoring Program for Certain Harmful Substances in Aquaculture Fish

### 1. General

The National Residues Monitoring Program (NRMP) for residues of certain harmful veterinary drugs and others substances in aquaculture fish and fishery products is implemented with allocated budget and plan approved by the Ministry of Livestock, Fisheries and Rural Development (MLFRD)<sup>1</sup>. The DOF within MOALI is the designated Central Competent Authority (CCA) for fishery product exports to the EU. Fish Inspection and Quality Control Section (FIQCS)<sup>2</sup> under Department of Fisheries (DOF) is responsible for carrying out the NRMP in accordance with the written procedures described in Official Control System Manual (OCS-MANUAL) for the Inspection and Certification of Fish and Fishery Products. The Residues Monitoring Committee (RMC) is responsible for managing the effective implementation, monitoring and reporting of all NRMP activities.

### 2. Scope and species monitored by regions

**Table1: Scope of the NRMP 2015/16**

Region	Township	Area(Ha)	Total Production in the Segregated System (MT)	Farms	Aquaculture Species
Yangon	Kyauk Tan	40.0	800.00	1	Crab (ScyllaserrataandScyllaolivacea)
Yangon	TwanTay	476.90	2850.00	3	Carfu ( Cyprinus carpio) , Roh u(Labe orohita),Tilapia(Oreochromis spp.),Pangush (Pangasius spp.), Puti (Puntius),Ka tla (Catla ca tla) , Mrigal(C irrhinu s spp.)
Ayeyarwaddy	NyaungDone	277.70	1737.00	8	Carfu ( Cyprinus carpio) , Roh u(Labe orohita),Tilapia(Oreochromis spp.),Pangush (Pangasius spp.), Puti (Puntius),Ka tla (Catla ca tla) , Mrigal(C irrhinu s spp.)
Ayeyarwaddy	MaUBin	1625.60	11168.30	21	Carfu ( Cyprinus carpio) , Roh u(Labe orohita),Tilapia(Oreochromis spp.),Pangush (Pangasius spp.), Puti (Puntius),Ka tla (Catla ca tla) , Mrigal(C irrhinu s spp.)
Ayeyarwaddy	Pathein	83.00	250.00	1	Asian tiger shrimp (Penaeus'monodon) and whiteleg shrimp (Penaeus' vannamei)
<b>Total</b>		<b>2503.20</b>	<b>16805.30</b>	<b>34</b>	

<sup>1</sup>MLFRD was renamed to MOALI by March 2016 but the sake of continuity with the Annual Plan (2014/2015) the term MLFRD will be maintained in this report.

<sup>2</sup>FIQCS was renamed to QCRS by November 2016 but for the sake of continuity with the Annual Plan (2014/2015) the term FIQCS will be maintained in this report.

## 2.1 Sampled Species

All samples have been collected at farms, included in the segregated system, at all stages of production. For Group A substances several sizes of the animals from nursery farms and grow out farms were taken and for Group B Substances the size of animals were mostly approximately 900 g to 1 kg (market size).

**Table2–Places of Sample Collection**

No.	Production Stage	Samples taken	Testing parameters
1.	Aquaculture site	Farmed fish at all growth stages	A1, A3, A6
2.	Aquaculture site	Farmed fish ready to be place on the market	B1, B2a, B3a, B3c, B3e
3.	Aquaculture site	Dried feed pellets and raw	B3d (AflatoxinB1)

### 3. Sampling and Testing

#### 3.1 Sampling

The sampling was carried out by the Inspection and Certification Unit (ICU) in accordance with the plan approved by the RMC and further developed to monthly sampling plans by parameter and districts.

**Table 3.1: Sampling in 2015/16**

Regions	Yangon (Kyauk Tan)		Yangon (Twantay)		Ayeyarwaddy (Nyaung Done)		Ayeyarwaddy (Ma U Bin)		Ayeyarwaddy (Patheingyi)		Total			Remarks
	Plan	De facto	Plan	De facto	Plan	De facto	Plan	De facto	Plan	De facto	Plan	De facto	Difference	
Group of Substances	2	3	4	5	6	7	8	9	10	11	12	13	14=(12-13)	(+ = Extra) (- = Required)
A1 Group (Stilbenes): diethylstilbestrol	0	0	3	5	2	2	14	11	0	0	19	18	1	+2, -3
A3 Group (Steroids) Methyltestosterone	0	0	3	4	3	1	13	11	0	0	19	16	3	+1, -4
A6 Group (Prohibited Veterinary medicines); Chloramphenicol, Nitrofurans	3	3	3	3	2	2	13	10	1	1	22	19	3	-3
B1 Group (Antibacterial Substances): Tetracycline, Chlorotetracycline, Oxytetracycline, Oxolinic acid, Florfenicol	3	3	10	13	5	5	41	38	1	1	60	60	0	+3, -3
B2a: Anthelmintics (Praziquantel)	1	1	4	3	2	2	16	14	1	1	24	21	3	-3
B3a Group (Organochlorinated Pesticides): DDT, Aldrin, Dieldrin	1	1	2	2	1	1	6	5	1	1	11	10	1	-1
B3c Group (Heavy Metals): Pb, Cd, Hg	1	1	1	2	1	1	6	5	1	1	10	10	0	+1, -1
B3d Group (Mycotoxin) : Aflatoxin (B1)	0	0	2	2	1	1	6	5	1	1	10	9	1	-1
B3e Group (Dyes): MG/LMG, CV/LCV	1	1	1	1	1	0	6	5	1	1	10	8	2	-2
<b>Total</b>	<b>10</b>	<b>10</b>	<b>29</b>	<b>35</b>	<b>18</b>	<b>15</b>	<b>121</b>	<b>104</b>	<b>7</b>	<b>7</b>	<b>185</b>	<b>171</b>	<b>14</b>	<b>+7, -21</b>

**Note:** Plan number of samples is changed when compare with Original Sampling Plan that submitted to EU, cause of the production rate increase a bit according to **Annex I** updated excel plan.

### 3.2 Testing

**Table 4: Analytical Results in 2015/16**

Groups	Non-Compliant Results/Total Samples Analysed (%)
	Year2015/16
A1 Group (Stilbenes):Diethylstilbestrol	0
A3 Group (Steroids):Methyltestosterone	Enquiring
A6 Group (Prohibited Veterinary Medicines): Chloramphenicol, Nitrofurans	0
B1 Group (Antibacterial substances): Tetracycline, Chlorotetracycline, Oxytetracycline, Oxolinic acid, Florfenicol	0
B2a: Anthelmintics (Praziquantel)	Enquiring
B3a Group (Organochlorinated Pesticides): DDT, Aldrin, Dieldrin	0
B3c Group (Heavy metals): Pb, Cd, Hg	0
B3d Group (Mycotoxin): Aflatoxin (B1)	2
B3e Group (Dyes): MG/LMG, CV/LCV	0

**Table 5: Testing Results in 2015/16**

Monitored groups	Monitored substances	Testing methods <sup>1</sup>	Analysis <sup>2</sup>		Action Level (µg/kg)	Number of Non-Compliant samples
			Plan	De facto		
A1. STILBENES	Diethylstilbestrol	LC/MS/MS	19	18	Any Detected	0
A3. Steroids	Methyltestosterone	-	19	16		-
A6. Chloramphenicol	Chloramphenicol	ELISA	22	19		0
A6.NITROFURANS		LC/MS/MS	22	19	Any Detected	0
Nitrofurantoin	AHD	LC/MS/MS	22	19		0
Furazolidone	AOZ	LC/MS/MS	22	19		0
Nitrofurazone	SEM	LC/MS/MS	22	19		0
Furaltadone	AMOZ	LC/MS/MS	22	19		0
B1. Antibiotics Confirmation Method	Tetracycline	LC/MS/MS	60	13	100	0
	Chlorotetracycline			15	100	0
	Oxytetracycline			12	100	0
	Oxolinicacid			10	100	0
	Florfenicol			10	0.5	0
B1. Antibiotics						
B2a. Anthelmintics	Praziquantel	-	24	21	Any Detected	-
B3a. Organochlorine Pesticides	Aldrine	GC/µECD	11	10	10	0
	Dieldrine				10	0
	DDT				10	0
	Sum of Dioxin and Dioxin like PCBS <sup>3</sup>			-	0.5	
B3c. Heavy Metals	Pb	ICPMS	10	4	300	0
	Hg			3	500	0
	Cd			3	50	0

B3d. Mycotoxins	AflatoxinB1	HPLC		9	4	2
B3e.Dyes	Malachite Green/ LeucomalachiteGree	LC/MS/MS	10	8	Any Detected	0
	Crystal Violet/ LeucocrytalViolet	LC/MS/MS	10	8		0
Total						2

