

# UNION AQUACULTURE RESOURCE INVENTORY (UARI)

**UNION: MUNSHIGANJ  
Upazila: Shyamnagar  
District: Satkhira**

*By BSFF*

**In collaboration with  
DoF, Khulna and Munshiganj Union Parishad**

**Implemented with the support from  
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## ***Development of models for Union based inventory of aquaculture resources in selected Unions of selected districts in Khulna Division***

### **1. Background**

The approach of aquaculture resource survey was highly appreciated by the relevant authorities like the respective Union porishad, Upazila fisheries office and District fisheries office and from other relevant organizations, while Union Level aquaculture resources surveys were conducted and an Inventory for each of 2 unions as Batiaghata Sadar Union of Batiaghata Upazila of Khulna and Kashimari Union of Shyamnagar upazila of Satkhira district was prepared during the previous phase in the year 2013.

An organized inventory of the union level aquaculture resources has come-out through this program. This could be treated as a milestone to prepare a larger level-database for whole upazila and district-wise aquaculture resources on actual basis. The latest prevailing resources of the respective areas are known through this. It is evident that this kind of survey program would obviously help taking decisions for necessary planning and implementation steps to increase the aquaculture production and real expansion of the sector on genuine perspective. Thus the present component of resource survey and inventory preparation has drawn immense interest among the relevant authorities of public and private sectors.

In view of this, one Union Level Aquaculture Resource Survey (ULARS) has been accomplished by BSFF in association with DoF-GoB under 3rd phase, 2013-2014 project of BSFF supported by AIN-WorldFish

### **2. Objectives:**

- Develop Union-based aquaculture resource inventory modules for districts of varying aquaculture resources: one module for two Bagda shrimp farm dominated districts,
- Recommend Union based aquaculture resource inventory to the Government as a high priority national program for establishing a solid data base for aquaculture resources
- Involve Union Parishads in local level fisheries surveys and development matters
- An overall inventory of aquaculture resources at union level would help to know at a glance about:
  - ✓ The status of prevailing aquatic resources,
  - ✓ To know about utilization-level of water areas,
  - ✓ To know the reasons about lacking in proper exploitation of the prevailing aquatic opportunities,
  - ✓ Necessary action plan to be taken for adequate utilization of the aquatic potential of the union.

### **3. Outputs:**

Aquaculture resource inventory done in the Union in one district with Bagda dominated fisheries resources

- Modules for Union wise aquaculture resource inventory in one Bagda shrimp dominated district established

*[The above will help local level and national level planning and developing the vitally important national resources on a more realistic basis.]*

- Areas & reasons of under utilization and overutilization of water areas be addressed
- Evidences of encouraging production-outcome through advanced rearing technique (if any) in favor of aquaculture based yield will be noticed which can be adopted in other suitable areas for further improvement of aquaculture production from the prevailing scope of the union.
  - Report on the survey published
  - A guideline for future inventory prepared

#### **4. Methods:**

- Select one suitable Union from Satkhuis district
- BSFF personnel closely interact with DoF resource survey wing, concerned field level officials of Tahsil Office, and with Union Parishad (UP) Chairmen and other members of the UP
- BSFF personnel prepare a structured questionnaire in English and simple Bengali in consultation with the above mentioned people
- Select field level surveyors drafted from DoF/Tahsil Office/and Union Parishad
- Explain and orient them the questionnaire, including simple definition of separate aquaculture areas mentioned
- Field testing of the questionnaire
- Revise questionnaire, if needed
- Conduct survey with tested questionnaires
- Inventory of all existing and potentially suitable aquaculture areas, including seasonal waters potentially suitable for aquaculture, by:
  - Ownership: Private/Public
  - State of lease
  - Existing physical state of the water bodies, depths in dry and full monsoon months, aquatic vegetation,
  - Present uses
  - Fish production by species
  - Future development needs for the surveyed water bodies and rough budget estimation
- Fish landing facilities at farm sites
- Sources of ice
  - How many farmers ice fish within 30 minutes after harvest?
  - Number and Capacity of ice plants in or within 10 KM from the Union
  - Registration with CA
  - Source and quality of water used,
  - Mode of ice transportation
- Aquaculture feed sources
- Total aquaculture production
  - By water and culture types

- By species
- Fish marketing
  - Fish market number, Facilities and Operators
- Survey data will be collected from the owners of the respective aquatic units by the trained surveyors through in-field visits and interview at the farm side.
- In-field monitoring and evaluation of data collection will be done by BSFF personnel.
- Local personnel of DoF and Union Parishad Office in addition with related supply chain stakeholders and local NGOs will be involved collecting data.
- Computation of database, preparation and display of inventory in the form of a book-let for the Union level Aquaculture Resource will be done by BSFF

#### **5. Activities done to initiate ULARS**

- Preparation of two tour and work plans for April and May 2014
- Make necessary correspondence with UP Chairmen, DFOs, SUFOs, Fisheries Ex Os, proposed surveyors/enumerators and others associated,
- Ten surveyors for Munshiganj Union (Satkhira District) were selected with the help of DFOs, UFOs and AFOs of DoF of the upazila;
- Two orientation meetings for Munshiganj union's group of surveyors were organized at the Upazila fisheries office
- Meetings were held with the concerned Union Parishad Chairmen
- Distribution of survey questionnaires prepared in consultation with DoF officials
- Orientation to the concerned DoF field officials and surveyors as to the questionnaires and filling in the questionnaires
- Have spot visits and provide hands-on training to the surveyors on interviewing the owners of various facilities
- Reveal Procedure of recording of information on the Survey Forms

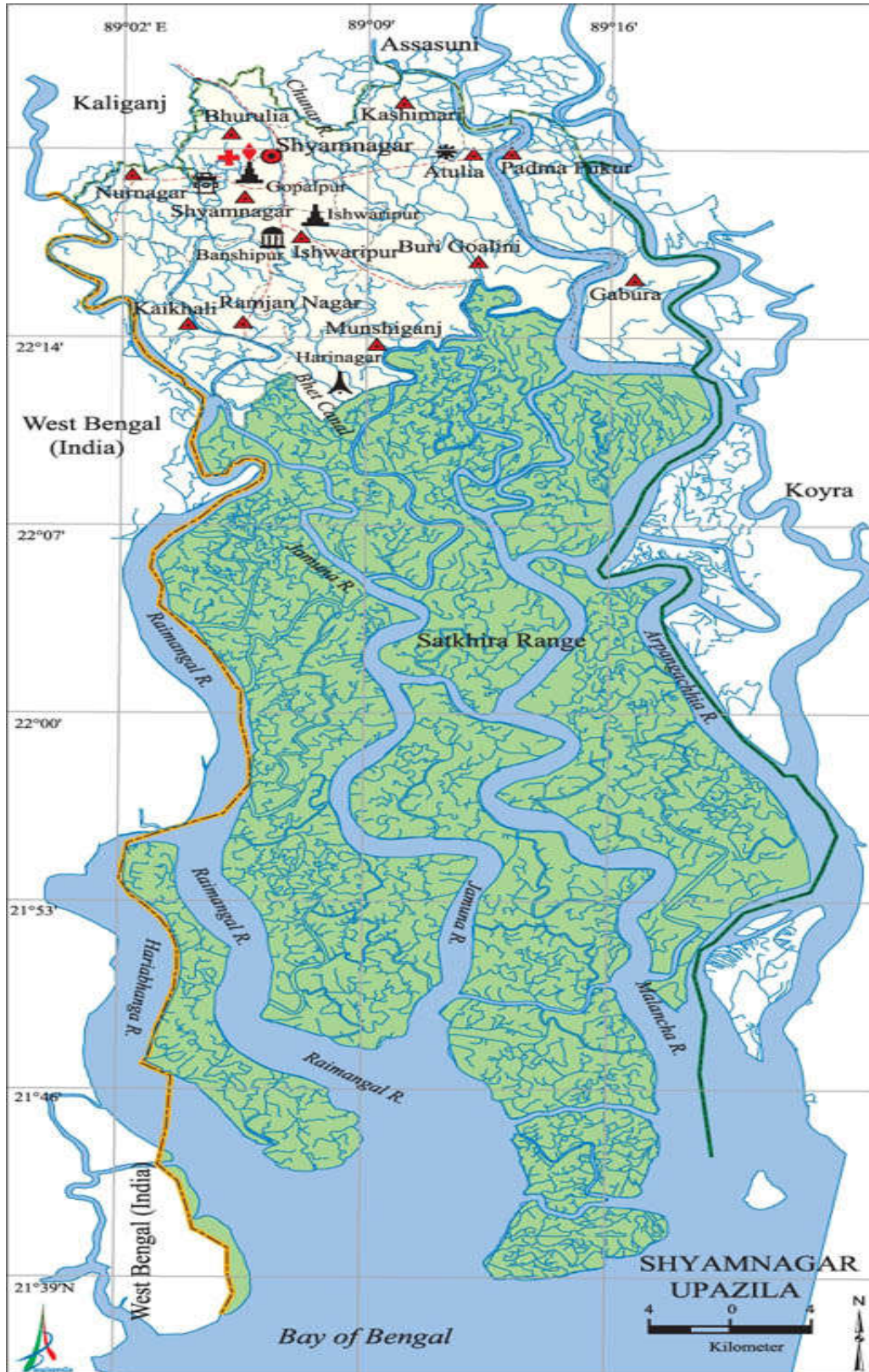
#### **6. Activities conducted for monitoring, evaluation and completion of survey**

##### **➤ Munshiganj Union, Shyamnagar Upazila, Satkhir District**

- BSFF and DoF officials met the Union Parishad Chairman and the local level surveyors at the office of the Upazila Fisheries Officer and monitored and evaluated the surveyed data for their accuracies
- Lists of participants attending the meetings are enclosed as annexes in previous quarterly report submitted
- Survey data documents, GPS readings **and soil pH data were** collected
- Cross checks of data recorded by the surveyors were done through in field visit of BSFF staffs
- Detailed compilation and computerization of survey data completed.
- Findings, remarks in brief on Union based Aquaculture Resource Inventory presented with this report.
- Work plan and Travel schedule, Attendance Register of two orientation meeting with surveyors of Munshiganj, records of discussion meetings with surveyors, Questionnaire Formats for survey in Bangla were presented in separate annexes in the report of April-June 2014

7. AreaMap of Shyamnagar Upazila showing position of MUNSHIGANJ Union

7.



8. Munshiganj union is one of the potential Bagda shrimp dominated Unions of Shyamanagar Upazila under Satkhira district of Bangladesh. The geographical location of the Union may be seen in the map above. *Munshiganj* Union has 21 villages as may be seen in Table below:

**Table: Villages of the union**

Sl. No.	Village	13	Kochukhali
1	Ayitpara	14	Kultoli
2	Boddipara	15	Mothurapur
3	Boro Vetkhali	16	Mirgang
4	Choto Vetkhali	17	Nodirdhar
5	Chunkuri	18	Passekhali
6	Dhol	19	Singhortoli
7	Gajipara	20	Uttar Kadamtala
8	Hetalkhali	21	Dakkhin Kadamtala
9	Horinagar		
10	Jelekhali		
11	Jogindranagar		
12	Kalinagar	Total	21 (Twenty) Villages

## 9. Aquaculture water resources & production, 2013

<b>9.1. Total numbers of farmers-Munshiganj</b>			
Sl. No.	Farm type	Number of farmers	Number of ghers
1	<b>Bagda</b>	1580	1770
2	<b>Pond</b>	2388	2715
3	<b>Galda</b>	51	58
4	<b>Crab fattening</b>	170	184
5	<b>Nursery</b>	21	44
		<b>4210</b>	<b>4771</b>

<b>9.2 Black Tiger, <i>Penaeus monodon</i> shrimp or Bagda Gher</b>	
<b>Total No. of Bagda Gher</b>	<b>1770</b>
<b>Total water areas (acres)</b>	<b>4587 acres = 1835 Ha</b>
<b>Total aquaculture production (MT)</b>	<b>1380</b>
• Bagda: <i>Penaeus monodon</i>	<b>370</b>
• Harina: <i>Metapenaeus monoceros</i>	<b>34</b>
• Chali chingri: <i>Metapenaeus brevicornis</i>	<b>13.2</b>
• Galda	<b>0.44</b>
• Parsey	<b>785</b>
• Others	<b>174.3</b>
• Crab	<b>3</b>
<b>Paddy production (MT) from Bagda Gher:</b>	<b>1.1</b>
<b>9.3 Giant Prawn, <i>Macrobrachium rosenbergii</i> or Galda Gher</b>	
<b>Total No. of Galda Gher</b>	<b>58</b>
<b>Total water areas (acres)</b>	<b>25.4acre=10.1 Ha</b>
<b>Total aquaculture production (MT)</b>	<b>5.3</b>
• Galda	<b>1.8</b>
• Carp	<b>2.5</b>
• Tilapia & others	<b>0.7</b>
• Bagda	<b>0.3</b>
<b>Paddy production (MT) from Galda Gher</b>	<b>0.7</b>

<b>9.4 Excavated Pond</b>	
<b>Total No. of Ponds</b>	<b>2715</b>
<b>Total pond water area (acres)</b>	<b>263 acre=105 Ha</b>
<b>Total aquatic production from Pond (MT)</b>	<b>318</b>
• Local carp	<b>120</b>
• Chinese carp	<b>94</b>
• Tilapia/pangus/koi	<b>71</b>
• Other species of fin fish	<b>28</b>
• Galda	<b>5</b>



<b>9.5. Other Water resources<sup>1</sup></b>	
<b>Total No. of Canal</b>	<b>14</b>
<b>Total Canal area (Acre)</b>	<b>117.8acre=47.1Ha</b>
<b>Total aquatic production from Canal (MT)</b>	Not studied
<b>Total No. of River</b>	<b>3</b>
<b>Total River area (Acre)</b>	<b>132.5 acres=53Ha</b>
<b>Total aquatic production from River (MT)</b>	Not studied

***Note** : Water type of all the 17 rivers and canals are saline. Seven of 14 canals (50%) are being used as leased property. All 17 canals and rivers are of public ownership. Reclamation needed for nine canals (64%) out of 14.*

<b>9.6 Statistics of Aquatic farming Units at a glance</b>				
<b>Subject</b>	<b><u>Bagda Gher</u></b>	<b><u>Galda Gher</u></b>	<b><u>Pond</u></b>	<b><u>Total</u></b>
<b>Total No. of Aquatic farming Units</b>	<b>1,770</b>	<b>58</b>	<b>2,715</b>	<b>4,543</b>
<b>Total water areas (acres) of Aquatic farming Units</b>	<b>4,587</b>	<b>25.4</b>	<b>263</b>	<b>4875</b>
<b>Total aquatic production (MT)</b>	<b><u>1,385</u></b>	<b><u>5.3</u></b>	<b><u>318</u></b>	<b><u>1,708</u></b>
	Bagda: 370 Galda:0.44 Other shrimp: 51.2 Crab: 3 Fish/others:960	Galda: 1.8 Bagda:0.3 Fish: 3.2	Fish: 313 Galda:5	Bagda: 370.3 Galda:7.3 Other shrimp: 51.2 Crab: 3 Fish: 1276.2
<b>Agricultural production (MT)</b>	<b><u>1.1</u></b>	<b><u>0.65</u></b>	Not studied	<b><u>1.75</u></b>
	Paddy: ---1.1	Paddy:0.65	---	Paddy: 1.75

<b>10. Sources of water-Munshiganj</b>			
<b>Water source</b>	<b>% contribution in</b>		
<b>% Contribution of</b>	<b>Bagda Gher</b>	<b>Galda Gher</b>	<b>Pond</b>
Tide fed – direct from river, canal	65		1+3=4
Tide-fed indirect through others' Gher	34		
Tide-fed: direct & indirect	1		
Rain		100	81
Underground			1
Rain & Canal			0
Rain & River			1
Rain & Underground			13
Total %	100	100	100

<b>11. Ownership of farming water bodies</b>		
<b>Water type</b>	<b>Single ownership %</b>	<b>Joint ownership %</b>
Bagda Gher	94	3
Galda Gher	100	0
Pond	88	12
<b>Type of ownership</b>	<b>Lease Property %- Yes</b>	<b>Lease Property %- No</b>
Bagda Gher	14	86
Galda Gher	10	90
Pond	0	100
Canal	<i>Seven of 14 canals (50%) are being used as leased property. All of 14 canals (100%) are of public ownership.</i>	
River	<i>All the 3 Rivers are publicly owned</i>	

## 12. Sources Of Fry

Fry Source	% contribution in		
	Bagda Gher	Galda Gher	Pond
% Contribution of Hatchery	76	100	95
Wild		0	
Both	24	0	5
Total %	100	100	100

## 13. Practice Of Icing In 60 Minutes After Harvest

Icing in 60 minutes after harvest			
Response	% contribution in		
	Bagda Gher	Galda Gher	Pond
Yes	1	2	3
No	99	98	97

## 14. Substrata On Which Shrimp / Fish Dumped After Harvest

After harvest shrimp / fish kept on			
Material	% contribution in		
	Bagda Gher	Galda Gher	Pond
• Cemented floor	7	0	4
• Plastic sheet	11	25	9
• Bamboo basket	82	75	83
• Plastic basket	0	0	3
• Plastic drum	0	0	1
• Net	0	0	0
• Date leaf mat	0	0	0
<b>Total%</b>	<b>100</b>	<b>100</b>	<b>100</b>

**15. Training Received On Aquaculture / GAqP**

<b>Have any training on aquaculture / GAqP</b>			
	<b>% contribution in</b>		
<b>Response</b>	Bagda Gher	Galda Gher	Pond
Yes	1	2	1
No	99	98	99

<b>16. Information On Supporting Facilities-Munshiganj</b>			
<b>Facilities</b>	<b>Type</b>	<b>Number</b>	<b>Response</b>
a. Is there any ice plant in the union?		<b>01</b>	<b>Yes</b>
b. Ice plants within 10 KM from Union		--	<b>No</b>
c. Is water tested for arsenic?			<b>Yes</b>
d. Is water tested for germs?			<b>No</b>
e. Mode of ice transportation	<b>Paddle -van</b>		
f. Ice covered during transportation?			-
g. Feed mill in the union			<b>No</b>
h. Feed mill in the union within 10 km			<b>No</b>
i. Feed shop present? How many?		-	-
j. Number of shrimp/fish depot		<b>4</b>	
k. How many registered with DoF?		<b>4</b>	
l. Number of Fish market		<b>1</b>	<b>Yes</b>
m. Permanent shed			<b>No</b>
n. Roof type	<b>Tin</b>		
o. Floor type	<b>Concrete</b>		
p. Fish sold on raised shelf			<b>No</b>
q. Water supply	<b>River</b>		
r. Fish sold with ice			<b>Yes-30% No-70%</b>
s. Any unsold fish?			<b>Yes</b>
t. Market daily washed & disinfected			<b>Only washed</b>
u. Any means to prevent pest animals			<b>No</b>
v. Any storage facility?			<b>Stored in box with ice</b>

**17. Village wise production (Kg/acre)  
Munshiganj Union, Shamnagar, Satkhira  
Pond**

Sl No	Village name	Number of pond	Acre	Carp	Chin. Carp	Thai/Pangus/Koi	Others
1	Ayitpara	48	5.17	171.35	99.71	70.67	71.64
2	Boddipara	46	5.45	137.56	104.68	86.32	85.58
3	BoroVetkhali	153	16.30	838.05	556.49	212.52	75.05
4	ChotoVetkhali	15	1.51	622.52	331.13	609.27	632.45
5	Chunkuri	166	8.20	1100.73	836.95	480.85	339.51
6	Dhol	24	3.77	204.24	92.84	293.10	135.28
7	Gajipara	51	4.39	183.83	110.25	97.95	95.67
8	Jeলেখালি	359	34.01	311.76	193.27	18.11	134.17
9	Jogindranagar	155	15.84	458.16	166.91	206.69	102.37
10	Kalinagar	182	18.91	176.31	152.83	276.15	94.29
11	Kochukhali	87	8.74	340.01	225.07	103.61	68.12
12	Kultoli	275	31.08	284.43	201.48	136.71	83.30
13	Horinagar	301	24.16	530.27	198.98	292.74	153.59
14	Mothurapur	256	27.59	370.06	249.79	673.78	81.96
15	Moragang	15	1.37	91.24	69.34	1386.86	36.50
16	Mirgang	28	3.22	381.99	248.45	1447.20	140.68
17	Mushigonj	42	3.89	652.96	528.28	100.00	203.86
18	Passekhali	5	0.80	275.00	128.75	243.75	300.00
19	Singhortoli	38	2.84	403.17	179.93	306.34	138.73
20	Uttar Kadamtala	300	27.16	1032.73	1382.22	251.14	193.23
21	DakkhinKadamtala	169	18.86	189.08	141.57	284.04	81.02

**18. Village wise production (Kg/acre)  
Munshiganj Union, Shamnagar, Satkhira  
Bagda**

Sl No.	Village name	Number of pond	Acre	Bagda	Others chingri	Other fish
1	Ayitpara	57	126.30	41.31	8.88	51.61
2	Boddipara	13	22.77	42.73	8.87	34.83
3	BoroVetkhali	157	444.47	78.91	3.52	49.10
4	ChotoVetkhali	111	264.20	163.42	0.57	70.91
5	Chunkuri	150	314.72	107.68	13.88	82.72
6	Dhol	115	187.88	339.92	20.44	78.01
7	Gajipara	32	31.86	28.44	11.52	36.51
8	Hetalkhali	65	298.26	84.96	0.00	36.53
9	Horinagar	52	73.72	92.06	6.77	108.96
10	Jeleshali	48	106.27	32.61	38.71	110.33
11	Jogindranagar	170	404.75	74.65	4.04	35.43
12	Kalinagar	157	510.03	34.85	24.80	31.78
13	Kochukhali	14	65.81	31.15	11.97	53.65
14	Kultoli	111	214.04	34.53	13.06	32.25
15	Mothurapur	32	119.77	29.56	9.53	54.24
16	Mirgang	152	617.69	65.35	4.53	81.18
17	Nodirdhar	45	73.25	34.95	6.69	41.30
18	Passekhali	42	124.21	65.49	2.41	59.72
19	Singhortoli	84	286.88	81.35	8.21	42.68
20	Uttar Kadamtala	41	43.58	91.90	30.98	92.34
21	DakkhinKadamtala	122	256.14	48.11	35.50	43.21
	<b>Average</b>					

**19. Village wise production (Kg/acre)**  
**Munshiganj Union, Shamnagar, Satkhira**  
**Galda**

<b>Sl.</b>	<b>Village name</b>	<b>Golda</b>	<b>Carp</b>	<b>Tilapia &amp; others</b>	<b>Bagda</b>
1	Horinagar	88.35	0.00	80.32	20.08
2	Kochukhali	44.89	82.12	93.07	56.57
3	Kultoli	36.45	55.01	33.68	12.72
4	Jelexhali	79.09	142.94	0.00	0.00



<b>20. Place of <u>MUNSHIGANJ</u> Union in <u>Shyamnagar</u> Upazila</b>			
<b>Sl</b>	<b>Parameters</b>	<b>DoF data on Shyamnagar Upazila 2012-13</b>	<b>BSFF/DoF survey 2013</b>
1	<b>No of Unions</b>	12	
2	No. of Wards	108	
3	No. of Villages	227	21
4	Area KM <sup>2</sup>	455.31	
5	<b>Total No. of Aquatic farming Units</b>		
	■ Bagda Gher	16,344	1770
	■ Total Bagda Ghers registered by DoF	15394	-
	■ Crab fattening units	729	184
	■ Total Crab fattening units registered	-	-
	■ Nursery	-	44
	■ Galda Gher	210	58
	■ Total Galda Ghers registered by DoF	210	-
	■ Pond	8735	2715
	■ Total fish pond registered by DoF	-	-
	■ River	06	3
	■ Canal	126	14
6	<b>Total a Area of farming Units (Acre)</b>		
	■ Bagda Gher	42,995.29	4587
	■ Crab fattening units	37.05	-
	■ Galda Gher	266.21	254
	■ Pond	1,106.14	264
	■ River	11,340	133
	■ Canal	3,306	118
7	<b>Total number of aqua-farmers</b>	25,289	
	■ Bagda Ghers	16,344	1580
	■ Galda Gher	210	51
	■ Pond	8,735	2388
	■ Crab fattening	-	170
	■ Nursery	-	21
	<b>Total aquatic production (MT)</b>		
	■ Bagda Gher (Bagda & other species)	5,568	1385
	■ Crab fattening units	3,524	-
	■ Galda Gher (Galda & other species)	(Only Galda)40	5.3
	■ Pond ( Various fish & Galda)	527	318
	■ River and Canal	356	-
8	<b>Total number of Hatchery</b>		
	■ Bagda	(Nursing ) 02*	--
	■ Galda	-	-
9	Ice plant: Number	06	1
10	Fish depot	05	
11	Shrimp /Fish depot	105	4
12	Shrimp processing plant	02	0