

AVAILABILITY AND MARKETING ACTIVITIES OF KUCHIA (*M. kuchia*) IN SOUTH-WESTERN REGION OF BANGLADESH

ABSTRACT

The present study was done for creating a better understanding of the current marketing activities and trading practices for kuchia. The study area was Paikgacha Upazila in Khulna district and its two large markets; Paikgacha Kuchia market and Kopilmony Kuchia market. The data were collected over twelve months from January to December, 2012 using semi-structured questionnaire among the cross section of marketing operators at Paikgacha. Data were collected from randomly selected 57 marketing operators where 17 were depot owners, 12 collectors and 28 kuchia catchers. Total availability of live kuchia was 18118 Kg at Paikgacha market and 18140 Kg at Kopilmony market. The marketing chain passes through a number of intermediaries: Kuchia catchers, collectors, small depots, large depots, local agent from exporter, exporter and finally export to the foreign countries. Kuchia marketing was considered as a profitable and feasible business by most of the marketing operators. However, reduced demand in the domestic market was reported by the operators. The social and religious restriction on consumption of kuchia was also reported as a problem that hinders the business and prevents obtaining realistic prices in the domestic market. Most of the kuchia in the domestic market are used as bait for catching crab. Only live kuchia is exported to many countries such as China, Hong Kong, Taiwan, Malaysia, Indonesia, Korea etc. from Bangladesh. Export value and demand of Kuchia is increasing day by day.

Key Words: Socio-economic, Kuchia catchers, Paikgacha, Khulna

INTRODUCTION

Monopterus albus (Hamilton, 1822) is generally known as kuchia or swamp eel (Synbranchidae: Synbranchiformes), is a fish species with good taste and high market value. The food value of this fish is very high. The average protein content per 100g of kuchia flesh is 14g and the caloric value of kuchia flesh is as high as 303Kcal/100g compared to 110Kcal/100g in other average fishes [1]. It is a carnivorous nocturnal fish, and prefers small fish, worms and mollusks. Kuchia spends the daytime hiding under crevices, stones, water hyacinth and soft mud [2]. It has developed specialized pharyngeal pouches for bimodal gas exchange ([3]; [4]). It has remarkable ability to distend respiratory air sac for gas exchange [5]. Therefore, it is easy to export in live condition. Kuchia lives in both freshwater and

brackishwater. In Bangladesh, kuchia (*M. kuchia*) is an export earning commodity that is playing an important role in national and international markets. Bangladesh is now exporting kuchia to many countries such as China, Hong Kong, Taiwan, Malaysia, Indonesia, Korea etc. It can generate employment directly and indirectly in terms of people employed in the production, marketing and other associated business. A large number of people, many of whom living below the poverty line, find the employment in the domestic fish marketing chain in the form of farmers, processor, traders, intermediaries, day labours and transporters ([6]; [7]; [8]). Kuchia is not cultured in our country. It is collected from natural sources such as: shrimp ghers¹, ponds, derelict ponds, canals, rivers, holes etc. Kuchia remain in these water bodies making hole in the mud. People of the study area catch kuchia from natural source for their income. Therefore, it is becoming vulnerable in Bangladesh due to loss of habitats, changes in habitats and overexploitation [9]. The natural stock of kuchia is decreasing day by day due to over exploitation. Other causes for the reduction of kuchia population is habitat destruction through blockage of water flow, shallow water depth, encroachment by agriculture and aquaculture, indiscriminate use of chemicals like fertilizers and pesticides, development of flood control structures and fishing in breeding season [10]. We need regulations on kuchia catch from the natural habitat. If we can artificially breed and culture them, we will be able to protect them. If we culture and export it, we will earn a lot of foreign currency. For this, we have to improve the existing export marketing system of kuchia also. By exporting kuchia Bangladesh earned 14.49 US\$ in the FY 2012-13 [11].

Bangladesh exports various fish and fishery products including Kuchia (*Monopterus kuchia*). Successful development of any fishery not only requires an appropriate natural environment but it also strongly influenced by the market situation. Price fluctuation, lack of buyers and market information, credit problems, high mortality and poor transportation systems in the marketing have negative effects on the competitive efficiency in both the domestic and international markets. There is a need for adequate information about the marketing system and performance for this exportable commodity to increase the volume for international export.

To achieve an efficient marketing system in a competitive manner it is necessary to identify the existing problems and to correct/improve these wherever they occur in the chain. It will also be useful for the policy makers to identify the existing weaknesses, by providing them with the necessary information for formulating strategies towards improvement of the kuchia

65 marketing. In view of this situation, the present study has been undertaken to create a better
66 understanding of the current marketing activities and trading practices for kuchia at
67 Paikgacha upazila in Khulna. This will help to gain better understanding of the current
68 marketing flow and trading practices of kuchia in the south-western region of Bangladesh.

69 MATERIALS AND METHODS

70 A preliminary survey was conducted at kuchia markets in different upazilas such as:
71 Shamnagar, Kaliganj, Paikgacha, Koira, Kachua, Fokirhat etc. of south-western region of
72 Bangladesh. Finally decision was taken for the study at Paikgacha upazila in Khulna
73 district. Based on the prospect in kuchia marketing, this study area was considered for the
74 study. The study area covers a large water bodies producing a huge amount of different
75 types of fisheries organism. The site of the study is in coastal region. Kuchia is found in
76 shrimp ghers of this area. Kuchia from different upazilas of Khulna and Satkhira districts
77 come to the kuchia markets of the study area. Data were collected during the period from
78 January to December, 2012. Existing marketing data were collected twice in a month to
79 fulfill the requirement of the research objective. The entire study period was divided into
80 four different seasons as: Winter (Dec-Feb), Summer (Mar-May), Rainy season (Jun-Aug),
81 Autumn (Sep-Nov).

82 Data collection method

83 Data were collected on availability and supply of kuchia to the market, price fluctuation with
84 seasonality, transportation, rejection, marketing, existing marketing channel, receiving and
85 selling prices of kuchia etc. Relevant data were collected by direct visiting and
86 interviewing. The basic method for primary data collection was survey, interview and
87 cross-check interview. Data were collected from randomly selected 60 marketing operators
88 where 17 were depot owners, 18 collectors and 25 kuchia catchers and were interviewed
89 throughout the period of study. Cross-check interviews were conducted with key informants
90 such as Senior Upazila Fisheries Officers, Chief Scientific Officer of Bangladesh Fisheries
91 Research Institute, school teachers, local leaders, service holders both private and
92 government and relevant GO & NGO officers and staffs throughout the period of study. The
93 accuracy of the data obviously depends on the answers of the interviewees.

94 Data processing and analysis

95 At each stage of the survey, data were checked, edited and coded in the field. Data from
96 various sources were coded and entered into a database system using Microsoft Excel
97 software. All the data were statistically analyzed by Microsoft Excel and SPSS (Statistical Package
98 for Social Science) software.

99 RESULTS AND DISCUSSION

100 Availability and supply of kuchia to the market

101 Kuchia is not cultured in our country. It is collected from natural sources. At Paikgacha Upazila it is
102 collected from natural sources, mainly from shrimp gher. Kuchia is also collected from ponds,
103 derelict ponds, beels, canals, rivers holes etc. Kuchia remain in these water bodies making hole in
104 the mud. Here these breed naturally is reported by the marketing operators.

105 Winter was found to be the peak catching period. Because, in winter, water level becomes
106 low and many gher are dried up, therefore kuchia catching from mud becomes easy and
107 availability increase. Then dead and unsold kuchia is dried and salted for future preservation.
108 The monthly amount and price of dry and salted kuchia at Paikgacha market is shown in
109 Table 1. At Kopilmony market only live kuchia is available.

110 During rainy season, heavy rainfall occurs and water level of water bodies rises, therefore
111 catching of kuchia becomes hard and availability of kuchia decreases. Total availability of
112 live kuchia was 18118 Kg at Paikgacha market (Table 2) and 18140 Kg at Kopilmony market
113 (Table 3).

114 **Table 1.** The monthly variation and price of dry and salted Kuchia at Paikgacha market

Month	Dry Kuchia		Salted Kuchia	
	Kg	Price(tk\kg)	Kg	Price(tk\kg)
January	44	210-225	47	55-60
February	51	220-230	58	45-55
March	57	225-235	45	55-60
April	50	230-240	27	55-65
May	23	230-240	13	60-65

June	6	240-250	8	70-75
July	-	250	10	70-75
August	-	250	12	60-70
September	-	250	30	55-65
October	-	250	42	55-60
November	-	250	56	50-60
December	31	215-225	61	50-55

115

116 **Table2:** Amount of live Kuchia (Kg) received by depot at Paikgacha Market

Sl. no. of Depot	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
1	800	1000	850	450	120	70	60	60	200	400	500	700	5210
2	600	800	650	350	100	30	50	70	100	200	300	500	3750
3	150	200	130	50	30	3	3	5	7	15	80	100	773
4	350	400	300	150	50	30	30	40	60	80	100	200	1790
5	100	150	120	100	-	-	-	-	-	60	80	90	700
6	110	140	120	70	-	-	-	-	-	60	70	90	660
7	80	85	90	-	-	-	-	-	-	-	80	85	420
8	80	100	80	60	20	-	-	-	-	50	60	70	520
9	100	200	70	50	-	-	-	-	-	50	80	100	650
10	110	200	130	100	-	-	-	-	-	60	80	100	780
11	350	400	380	250	40	20	20	40	60	120	200	300	2180
12	90	115	90	80	60	-	-	-	40	60	70	80	685
Total	2920	3790	3010	1710	420	153	163	215	467	1155	1700	2415	18118

117

118 At Kopilmony market only live Kuchia are available. Therefore, monthly amount and price
 119 of live Kuchia at Kopilmony market are given below:

Table3: Amount of live Kuchia (Kg) received by depot at Paikgacha Market

SL No.	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
1.	1200	1500	1000	400	200	70	70	80	80	400	800	1000	6800
2.	460	600	300	150	-	-	-	-	-	-	250	350	2110
3.	800	900	800	700	150	60	60	100	350	500	650	700	5770
4.	400	500	380	320	30	15	15	20	30	180	250	300	2440
5.	200	250	160	100	-	-	-	-	-	70	90	150	1020
Total	3060	3750	2640	1670	380	145	145	200	460	1150	2040	2500	18140

Monthly variation in the availability (Kg) of live Kuchia at Paikgacha and Kopilmony market is shown in Table 4. Monthly variation in the availability (Kg) of live Kuchia was similar at both markets.

Table 4. Monthly variation in the availability (Kg) of live Kuchia at Paikgacha and Kopilmony market

Month	Paikgacha	Kopilmony
Jan-Feb	6710	6810
Mar-Apr	4720	4310
May-Jun	573	525
July-Aug	378	345
Sep-Oct	1622	1610
Nov-Dec	4115	3550

Price varies with the availability of Kuchia. When supply increases then price decreases. Monthly variation in the price of live Kuchia at Paikgacha and Kopilmony market is shown in Table 5.

Table 5: Momthly variation in the price of live Kuchia at Paikgacha and Kopilmony market

Month	Paikgacha	Kopilmony
Jan-Feb	60-70	160-170
Mar-Apr	70-80	165-175
May-Jun	75-85	175-185
July-Aug	85-95	180-190
Sep-Oct	70-80	170-180
Nov-Dec	65-75	165-175

Price fluctuation with seasonality

There are many factors affecting the price of kuchia in both the domestic and international markets, particularly as the supply of kuchia is mainly dependent on wild sources. Supplies of exported kuchia were also reported by some traders to experience some sort of seasonality during Chinese New Year and Christmas time when the international consumption increases greatly, which ultimately affects the price of the kuchia in the international market (Table 6). Traders also reported that they can earn higher profits especially during this time. ~~Any price increase in the international market will ultimately increase the price in the domestic market. On the other hand, demand in the local or domestic market is seen as steady throughout the year.~~

In addition, when the interviewees were asked about the influence of marketing operations over the price, the majority of the collectors and farmers claimed their depot owner had the most influence over price, while conversely, the depot owners felt that suppliers and exporters had the greatest influence over the price paid.

Table 6: Seasonal variation of demand and supply of kuchia at Paikgacha

Month	Demand	Supply	Price	Factors
Winter	High	Good	High	Happy new year, taste, winter festivals abroad, Drying gher, increasing availability of Kuchia.
Summer	Moderate	Moderate	Moderate	Fewer available in gher, beels, ponds, rivers etc.
Rainy season	Moderate	Low	Low	Rainy season, heavy rainfall,

				fewer available in ghera, beels, ponds, rivers etc.
Autumn	Moderate	Moderate	Moderate	Fewer available in ghera, beels, ponds, rivers etc.

151

152 **Transportation**

153 Kuchia is easy to keep alive for several days if they are kept in water under cool and moist
 154 conditions. From Bangladesh only live kuchia are exported. They do not need any
 155 refrigeration or other sophisticated facilities during transportation. The kuchia catchers,
 156 collectors or middle men keep the harvested kuchia in plastic bags during transportation and
 157 to avoid mortality they keep their kuchia in water. Some use bamboo baskets for short time
 158 transportation. At first kuchia is carried to the local depot by wooden boats, bicycle or by
 159 van. Following this, all collected kuchia from different small and local depots are transported
 160 to Dhaka by truck or pick up van usually at night. For exporting kuchia to different countries,
 161 various types of container are used for transportation, usually specified by the importers, such
 162 as plastic baskets, plastic barrel, plastic cartons etc. The weight of each barrel varies from 80
 163 to 100 kg of kuchia. Sometimes they give aeration in the plastic boxes to prolong the shelf
 164 life of the exported kuchia.

165 **Rejection**

166 Generally dead kuchia were rejected from export by the depot owners. 18-22% mortality of
 167 kuchia was reported by the marketing operators at Paikgachha. On the average 20-24% of the
 168 kuchia was rejected from each depot.

169 **Marketing**

170 **Domestic Marketing:** When a company's product of one specific country is marketed
 171 efficiently in her own market is called domestic marketing.

172 In comparison with other fish or fishery products, the demand for kuchia in Bangladesh for
 173 domestic consumption is very less. The non-Muslim and tribal people are the main
 174 consumers of kuchia in Bangladesh. Generally, kuchia is mainly used to catch crab. The
 175 market price varies with the season and the selling price is normally fixed through
 176 bargaining between the seller and consumers.

Export Marketing: When a company's product of one specific country is marketed efficiently in foreign market is called export marketing.

~~From about ten to twelve years ago, few Paikgacha crab exporters started to export kuchia. But the number is increasing with the increasing demand of kuchia in the International market. However, from Bangladesh, only live kuchia is exported to many countries such as: China, Hong Kong, Taiwan, Malaysia, Korea etc. From the survey, 100% of exporters were found to be involved in exporting live Kuchia.~~

Marketing Channel

From Bangladesh only the live Kuchia is exported. Kuchia marketing channels in particular were complicated like crab marketing channels, since market operators may perform more than one marketing function [12]. The marketing channel of Kuchia in Bangladesh starts from the wild catchers and passes through a number of intermediaries such as catchers, middlemen, depot owners, local agents from exporter and finally from the exporter to the foreign countries. The general flow through the marketing channel is shown in Fig. 1.

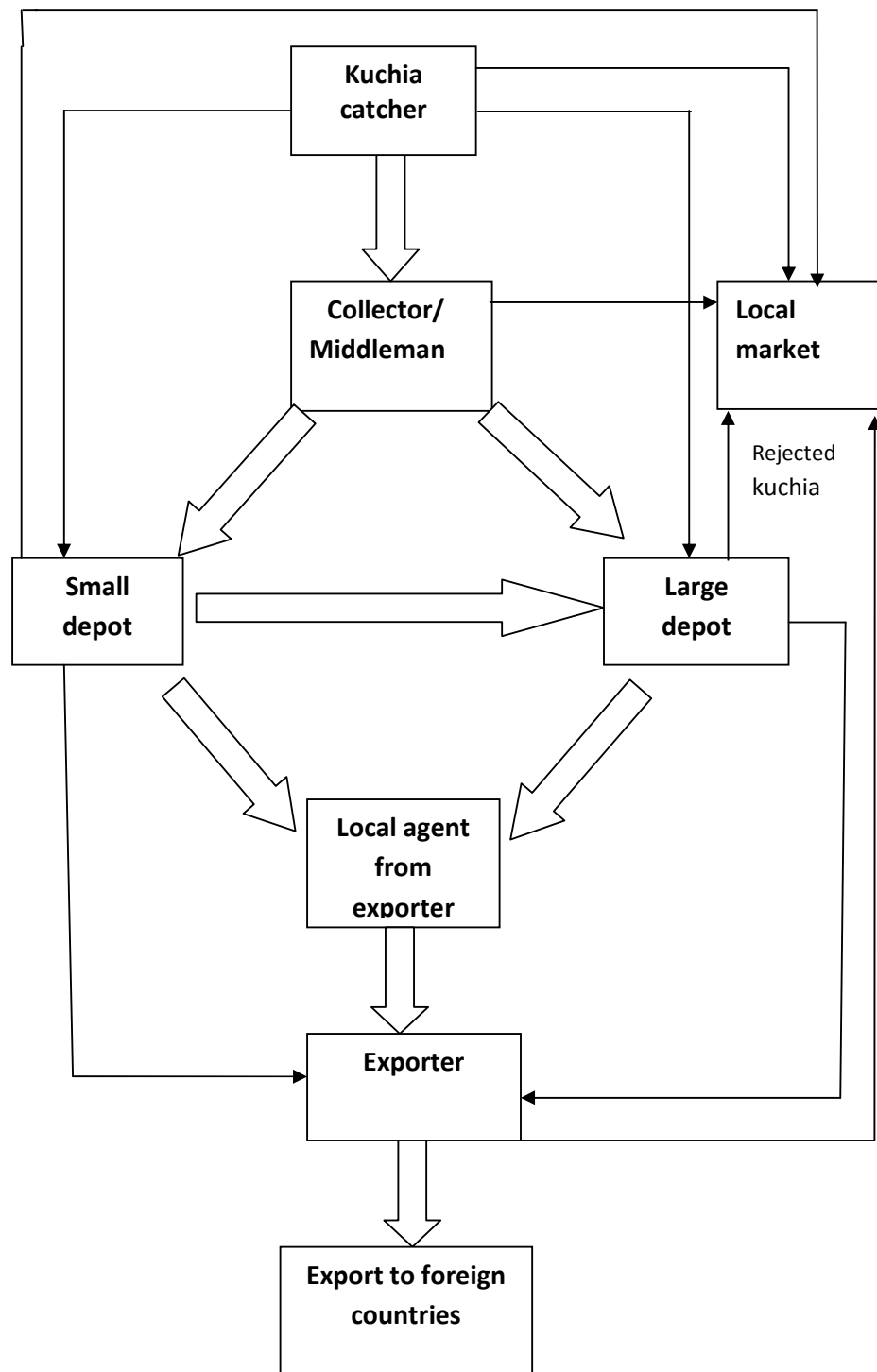


Fig.1: Marketing channel of Kuchia

232 **Role of major operators in marketing**

233 There are no official figures available on the total number of intermediaries involved in
 234 kuchia marketing at Paikgacha upazila. However, the number has clearly increased in the past
 235 two years due to increasing demand in the international market.

236 The following major marketing operators are involved in the marketing of kuchia at
 237 Paikgacha upazila:

238 **Kuchia catcher:** Kuchia catchers catch kuchia from the water bodies like gher, beels,
 239 ponds, canals etc. and finally they sell their catches either to collectors or middlemen.
 240 Kuchia catcher's role in these areas has been vital to the supply of kuchia to the market.
 241 Kuchia catchers marketing activity is also quite simple. Most of them sell their catch to foria
 242 or depot owner. A small part of their catch comes to the retail market.

243 **Collector or middleman (Foria):** Middlemen or collectors provide the main link between
 244 wild kuchia and the market. They are locally called Foria. They buy the kuchia from the
 245 catchers and sell these to depot owners.

246 **Depot owners:** In depot, kuchia is sold beside mud crab. Depot owners play an important
 247 role in kuchia marketing at Paikgacha, through financing the initial stages of the market chain
 248 directly to the catchers and to the middlemen. All of the surveyed depot owners conduct
 249 privately owned businesses. Most of the depot owners (74%) sell mud crabs only. Some of
 250 them (26%) sell kuchia also (Table 7). But the number of kuchia seller is increasing day by
 251 day with increasing demand of kuchia in the international market.

252 **Table 7:** Distribution of Kuchia depots in the study area

District	Thana	Name of market	Number of total depot	Number of Kuchia depot
Khulna	Paikgacha	Paikgacha market	40	12
		kopilmoni market	25	5

253

254 From the survey, 80% of depot owners reported that they sell their kuchia through the local
255 agent to exporters, while 20% of depot owners sell their kuchia directly to the exporter.

256 **Local agent for the exporter**

257 These agents collect all the live kuchia from small and large depots through depot owner and
258 send them to Dhaka, from where they will go to the final destination.

259 **Exporters:** Exporters are those who export kuchia to the foreign countries. Most of the
260 exporters are residing in the capital. All of their businesses are privately owned.

261 **Retailers:** Generally the retailers collect the rejected kuchia (which are rejected from export)
262 from different depots and sell in the local market for use as bait or domestic consumption.
263 According to their responses, as the non-Muslim and tribal people are the main consumers
264 and the quality of the kuchia in the domestic market is not so good and they are not getting
265 the higher profit. Lack of interest in consuming kuchia in Bangladesh is the main cause of
266 their low profit. Retailers collect mainly dead kuchia as dead kuchia is rejected for export.
267 They either dry or salted these kuchia and sell them to crab catcher which are used as bait for
268 catching crab.

269 Kuchia marketing operators at Paikgacha face some problems which are listed in table 8.

270 **Table 8.** Problems reported by Kuchia marketing operators at Paikgacha

Kuchia catchers	Overexploitation, low price from middlemen, lower rate, not available throughout the year, lack of money, by catch morality of Kuchia by fishermen using achra, iron rod etc., climate change.
Middlemen	Transportation, price controlled by exporter agents, lack of supply during high demand, lack of market information.
Depot owners	Fluctuation in price, insufficient supply, transportation harassment, lack of credit facility, information accessibility, price controlled by exporter agents, by-catch morality of Kuchia by fishermen.
Supplier	Fluctuation in price, lack of credit facility, Exporter influence over price, insufficient supply.
Retailers	Lower price, lack of demand in domestic market.

271

SOME RECOMMENDATIONS

- Closer relationship among stakeholders should be maintained.
- Price fixing is better to be done through discussing among stakeholders
- Overexploitation should be prohibited
- Research on habitat, feeding, breeding biology, induce breeding of Kuchia should be done.
- Culture technique of Kuchia should be developed.
- Information (export market demand, price, etc) via mobile, media, etc. should be accessible.
- Special ferry system should be provided for Kuchia transporting vehicles.
- Harassment (Police, terrorist etc.) free high way transportation should be ensured.
- Quality improvement
- Trade license system should be available.
- Training for stakeholders should be provided.
- Depot handling and sanitation, good hygienic practices in handling, packaging, and transportation should be ensured.

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