

Illegal Marketing of Freshwater Turtles and Tortoises in Different Markets of Bangladesh

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Abstract: A survey study was conducted to evaluate the trading and marketing structure of freshwater turtles and tortoises in different markets of Bangladesh during April to September 2011. Data were collected through questionnaire interviews and focus group discussions. The market chain from producers to consumers passes through a number of intermediaries: agents/suppliers, wholesalers and retailers. Based on a sample of 40 traders from the six different markets, four were retail markets and the other was wholesale markets. The daily supply of freshwater turtles and tortoises in Tatibazar of Old Dhaka; Krisnapur Bazar of Gopalganj Sadar; Patkhelbari Bazar of Gopalganj Sadar and Takerhat of Rajoir under Madaripur district were estimated as the following 0.24-0.27 mt, 0.09-0.11 mt, 0.06-0.07 mt and 0.07-0.08 mt respectively. Retail markets sat on each hut day. Aratders or wholesalers of Baidyabazar under Sonargaon upazila of Narayanganj and Madhabdi of Narshingdi Sadar were collected daily at an average of 20-25 kg and 15-20 kg freshwater turtles and tortoises respectively. It was estimated that 60-70% of freshwater turtles and tortoises supplied in the markets were softshell turtles such as *Lissemys punctata*, *Aspidereteshurum* and the other remaining part was hard shell (30-40%). The price of *Lissemys punctata* varied from Tk. 400-450/kg, *Aspidereteshurum* Tk. 450-650/kg, *A. gangeticus* Tk. 400-450/kg, *Moreniapetersi* Tk. 250-300/kg, *Kachugatecta* Tk. 200-250/kg and *Geoclemys hamiltonii* Tk. 200-250/kg were found during the study period. Although Bangladesh government has banned turtle trade both locally and internationally from 1998, but turtle trade inside the country is continuing as before. At present people who got this business through heredity are involved in turtle trading. Turtle traders run their business through networking and coordination among each other and in great confidentiality; they rarely operate as individuals. Early study reported eighteen species of freshwater turtle and tortoise were involved in marketing during 1980-1998. During the present study only six species were found in different markets. This depicts the precarious situation of the freshwater turtles and tortoises in Bangladesh. Strict execution of laws regarding trade control; captive breeding; conservation education and awareness both at national level and community level; scientific and social research; establishment of turtle hatcheries and protection of nesting sites will help to save this threatened species from extinction.

Key words: Illegal Marketing • Freshwater Turtle • Tortoise

INTRODUCTION

The fisheries sector of Bangladesh is highly diverse in resource types and species. There are about 795 species of fish and shrimp available in the both fresh and marine waters of Bangladesh. This sector generates income and food for the rural poor, provides an important

source of animal protein and essential elements for all consumers and is particularly important for poor in both rural and urban areas [1-3].

Turtle and Tortoise reptiles of order Testudines with characteristic bony shell; carapace above and the plastron below, joined along the flanks between the fore and hindlimbs. Twenty seven species of turtles and tortoises

are found in Bangladesh [4]. Of these, family Cheloniidae includes four and Dermochelyidae includes one marine turtle; and families Bataguridae, Testudinidae and Trionychidae include the remaining 22 species. Marine turtles have paddle-shaped limbs; head and limbs cannot be retracted into the shell. They occur along the coasts of Cox's Bazar, St. Martin's island and the sundarbans. Family Cheloniidae includes the following marine turtles: Loggerhead Turtle (*Caretta caretta*); Green Turtle (*Cheloniemydas*); Hawksbill Turtle (*Eretmochelysimbricata*); and Olive Ridley Turtle (*Lepidochelysolivacea*). Dermochelyidae includes the Leatherback Turtle (*Dermochelyscoriacea*) [4]. October-May is the breeding season. Family Bataguridae includes the following freshwater turtles: River Terrapin (*Batagurbaska*); Malayan Box Turtle (*Cuoraamboinensis*); Freshwater Tortoise (*Cyclemysdentata*); Black Pond Turtle (*Geoclemyshamiltonii*); Brahminy River Turtle (*Hardellathurjii*); Three-striped Roof Turtle (*Kachugadhongoka*); Painted Roofed Turtle (*K. kachuga*); Brown Roofed Turtle (*K. smithii*); Assam Roofed Turtle (*K. sylhetensis*); Common Roofed Turtle (*K. tecta*); Median Roofed Turtle/Indian Tent Turtle (*K. tentoria*); Three-keeled Land Tortoise (*Melanochelystricarinata*); Indian Black Turtle (*M. trijuga*); and Yellow Turtle/Indian Eyed Turtle (*Moreniapetersi*). Family Trionychidae includes Ganges Soft Shell Turtle (*Aspideretes gangeticus*); Peacock Soft Shell Turtle (*A. hurum*); bostami turtle (*A. nigricans*); found only in a pond at a shrine in Chittagong; Asiatic Soft Shell Turtle (*Chitraindica*); Spotted Flap Shell Turtle (*Lissemyspunctata*); and Bibron's Soft Shell Turtle (*Pelochelysbibroni*). These species are widely distributed in Bangladesh. Family Testudinidae includes the following land tortoises: (a) Yellow Tortoise/Elongated Tortoise (*Indotestudoelongata*) and (b) Asian Giant Tortoise (*Manouriaemys*). Land tortoises are mostly found in the northeastern and southeastern parts of Bangladesh [4].

The 2000 IUCN Red List includes conservation status assessments of 89 species of Asian turtles. Of these 89 species, 67 species are listed as threatened, meaning critically endangered (CR), Endangered (EN) or Vulnerable (VU). 21 species are considered (Lower Risk, near threatened) LR: nt and (Lower Risk, least concern) LR:lc, or DD. This is a remarkable increase from the 1996 IUCN Red List, which listed only 33 Asian Turtle species as threatened.

A periodical gathering of people for buying and selling of fish or fisheries products is called a market.

According to Chaston[5], a fisherman in a small rural community who lands a catch in excess of his needs and seeks to exchange the fish for another product is implicitly involved in the activity of fish marketing. Markets have become a major issue for aquaculture sector, where consumers demands, international competitiveness, health and quality product are important [6]. According to Shang [7], the return of farm depends on production level and market prices, the price usually fluctuating seasonally due to variations in the supply and demand. The consumers' acceptance and price levels in the market place are two of the major factors that determine economic viability in many situations [8]. According to Kleih *et al.* [9] the fish market structure varies from area to area such as primary market, secondary market, higher secondary market, consuming market.

So this study evaluates the trading and marketing structure of freshwater turtles and tortoises in different markets of Bangladesh

MATERIALS AND METHODS

Site Selection: Dhaka is the capital of Bangladesh and demand of commodities is much higher compare to any other part of the country. Tatibazar is highly populated area of Dhaka city and large numbers of Hindus are living here. Gopalganj is situated on the bank of Madhumoti, Ghagar, Kumar, Barshiya River and there are many *beels* in Gopalganj from where large number of freshwater turtles and tortoises are collected. Besides it is situated near Barisal district, so retailers can easily come with freshwater turtles and tortoises collected from Barisal, Patuakhali and Bhola. Large numbers of Hindus and Christians are living there. The demand of freshwater turtles and tortoises is higher among these religious people in Gopalganj from the time being.

Madaripur is placed on the bank of one of the major rivers of Bangladesh i.e. the Padma and Arial Kha, Barisal is on the south and the Meghna River is on the east. So hunters can collect freshwater turtles and tortoises from nearby rivers, beels. Through retailers of Madaripurwe can easily access the collected freshwater turtles and tortoises from Barisal, Bhola and Patuakhali. Near about 14% Hindus of total population are lived in Madaripur to whose freshwater turtle and tortoise meat is demandable.

The Meghna river goes through Narayanganj district. Comilla, Narsingdi is situated near Narayanganj. Hunters collect freshwater turtles and tortoises from Meghna river near SonargaonMeghnaGhat and Comilla and then sell these to different arats situated in Baidyabazar, Sonargaon.

The Meghna, the Shitalakkha, the old Brahmaputra, Haridhoa, Paharea are some of the main river flows through Narsingdi district. Large numbers of freshwater turtles and tortoises are collected from these rivers and then sell to different arats situated in Madhabdi of NarsingdiSadar.

Target Groups

Collector: Collectors are those who capture freshwater turtles and tortoises from canals, rivers and tributaries etc. Their techniques of capturing turtles are traditional. They use spear rod called Koch, net with hooks to capture turtles. They fit nets in shallow water and check them for turtles, twice a day; early morning and at evening. Sometimes they catch tortoises by hand.

Foria or Middleman: Farias are mobile assemblers who buy freshwater turtles and tortoises from collectors. Normally the collector receives credit known as dadan from the assembler by virtue of which his bound to deliver his catch to the same.

Aratder or Wholesaler: Aratders or wholesalers are those who buy freshwater turtles and tortoises from collectors or forias and sell them to the retailers. Sometimes aratders sell freshwater turtles and tortoises to suppliers who then supply freshwater turtles and tortoises to the exporter.

Retailer: Retailers are those who buy freshwater turtles and tortoises from aratders and then sell to consumers in local markets and huts.

Consumer: Consumers are those who buy freshwater turtles and tortoises from retailers. Freshwater turtles and tortoises are consumed by many non-Muslims and tribal people in Bangladesh.

Period of the Study: The study was conducted for a period of 6 months from April to September, 2011. Data were collected personally through face to face interview, Focus Group Discussion (FGD) and crosscheck interviews with key informants.

Data Collection: The data collection as well as field survey was under taken for six months from April to September, 2011. The data were collected using questionnaire interviews and crosscheck interview with key informants.

Questionnaire Interviews with Freshwater Turtle and Tortoise Retailers: For questionnaire survey, freshwater turtles and tortoises retailers and aratders were selected through simple random sampling method. Interviews were conducted at the market centre during marketing time.

Focus Group Discussion with Intermediaries: Information from intermediaries was collected through focus group discussion (FGD). FGD was conducted with intermediaries in different market areas to get an overview of freshwater turtle and tortoise distribution and marketing systems, constraints of freshwater turtle and tortoise marketing etc. A total of 10 FGD sessions were conducted where each group size of FGD was 2 to 5 intermediaries.

RESULTS

Freshwater Turtle and Tortoise Marketing Systems: In freshwater turtle and tortoise marketing systems, there were a number of middlemen involved in Bangladesh like in fish marketing system [10]. The market chain from freshwater turtle and tortoise collectors to consumers passes through a number of intermediaries: forias/agents, wholesalers and retailers (Figure 1).

Agents or suppliers called forias carried freshwater turtles and tortoises by vans, boats, buses, trucks, tempos, pickups or even rickshaws and sold them to aratders or wholesalers. Aratders of Baidyabazar under Sonargaonupazila of Narayangonj and Madhabdi of NarsingdiSadar were collected daily at an average of 20-25 kg and 15-20 kg of freshwater turtles and tortoises respectively. Agents or suppliers typically earned 5-10% commission for their services.

Retailers typically operate with capital of around Tk. 5,000 to 12,000 per day of market. The wholesalers possess more capital (around Tk. 20,000 to 30,000 per day of market) than retailers and have the means to control agents and retailers. Sometimes wholesalers also work as retailers and have stall in markets.

Supply of Freshwater Turtles and Tortoises in Markets: The supply of freshwater turtles and tortoises into Tatibazar market of Old Dhaka, the largest tortoise selling market of the country mainly comes from Narayangonj, Comilla, Bhairab, Patuakhali, Bhola, Barisal, Sylhet, Hill Tracts of Chittagong and from other few places. The supply of freshwater turtles and tortoises to different markets of Gopalganj, Madaripur come from nearby beels

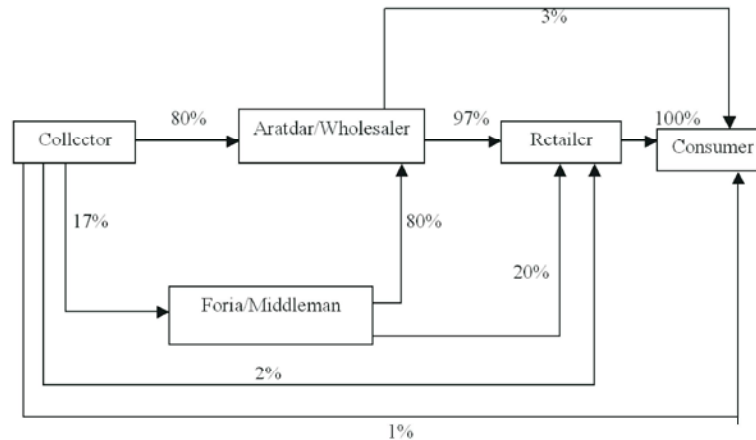


Fig. 1: Freshwater turtle and tortoise distribution chain from collectors to consumers in Bangladesh (based on survey).

and rivers of Gopalganj, Madaripur, Faridpur, Narail, Patuakhali, Bhola, Barisal, Sylhet and Hill Tracts of Chittagong. Freshwater turtles and tortoises seemed to be accepted by non Muslims of those areas.

Statistics on freshwater turtles and tortoises sale and supply were not available but according to market survey, the supply of freshwater turtles and tortoises in Tatibazar of Old Dhaka, Krisnapur Bazar of GopalganjSadar, Patkhelbari Bazar of GopalganjSadar and Takerhat under RajoirUpazila of Madaripur had been estimated to be 0.24-0.27 mt, 0.09-0.11 mt, 0.06-0.07 mt and 0.07-0.08 mt respectively during each market day.

More freshwater turtles and tortoises were generally consumed during festivals. During *PahelaBoisakh* in April, 2011 and Pujas of Hindu community such as *Durga Puja*, *Kali Puja* the demand of freshwater turtles and tortoises became higher that lead the price of freshwater turtles and tortoises to be higher than other months.

History of Freshwater Turtle and Tortoise Trading:

Freshwater turtles and tortoises trading first started among the markets in since independent of Bangladesh. Before freshwater turtle and tortoise marketing, few retailers (25%) had no job and others were involved in agriculture, small business, fishing and fish farming. Freshwater turtle and tortoise trading was so good during 1980 to 1998. During this time freshwater turtles and tortoises were caught without consideration and many species got place in last of threat of extinction. So, due to the threat of extinction both local and international marketing of freshwater turtles and tortoises was banned in 1998. But freshwater turtle and tortoise trading was continuing as before. Due to opportunity of earning through freshwater turtles and tortoises capture,

and sold and export in international markets, many people involved themselves in this business. But nowadays people who got this business through hereditary, only those people were involved in freshwater turtle and tortoise trading inside the country.

Season and Time of Freshwater Turtle and Tortoise Marketing:

The season of freshwater turtles and tortoises trading was around the year. In Tatibazar of Old Dhaka retailers were engaged in freshwater turtle and tortoise trading from early morning 7 am to 10.30 am, while in Sashikar Bazar under KalkiniUpazila of Madaripur District, Kazibazar of GopalganjSadar 3 pm to 6 pm. Retailers in Tatibazar of Old Dhaka spend more time due to higher amount of freshwater turtles and tortoises supply and large number of consumers bought freshwater turtles and tortoises from this market. The number of freshwater turtles and tortoises retailers, suppliers and day laborers were also higher in this market than other markets.

Amount of Freshwater Turtles and Tortoises Sold:

According to the survey, it was found that a freshwater turtle and tortoise retailer of Tatibazar of Old Dhaka, Krisnapur Bazar of GopalganjSadar, Patkhelbari Bazar of GopalganjSadar, Takerhat Bazar under RajoirUpazila of Madaripur district sold an average 40 kg, 27 kg, 30 kg and 25 kg freshwater turtles and tortoises per market day respectively. There around 7 retailers were involved in Tatibazar of Old Dhaka, 3 in Krisnapur Bazar of GopalganjSadar, 2 in Patkhelbari Bazar of GopalganjSadar, 3 in Takerhat Bazar under RajoirUpazila of Madaripur district (Figure 4). The daily supply of freshwater turtles and tortoises in Tatibazar of Old Dhaka, Krisnapur Bazar

Table 1: Average price of different species in four retail markets

Species	Tatibazar, Old Dhaka (Tk/Kg)	Krisnapur Bazar, GopalganjSadar (Tk/Kg)	Patkhelbari Bazar, GopalganjSadar (Tk/Kg)	Takerhat Bazar, Rajoir,Madaripur(Tk/Kg)
Indian flap shell turtle (<i>Lissemyspunctata</i>)	400-450	350-400	350-400	400
Indian peacock soft shell turtle (<i>Aspidereteshurum</i>)	400-500	600-700	600-700	600-700
Indian soft shell turtle (<i>Aspideretesgangeticus</i>)	400-500	*Nil	Nil	Nil
Indian eyed turtle or yellow turtle (<i>Moreniapetersi</i>)	250-300	250-300	250-300	250-300
Indian roofed turtle (<i>Kachugatecta</i>)	200-220	Nil	Nil	Nil
Spotted pond turtle (<i>Geoclemyshamiltonii</i>)	200-250	Nil	Nil	Nil

* Nil indicates absence of respective species in the specific markets.

Table 2: Number of freshwater turtle and tortoise species in four retail markets

Name of the Markets	Species number
Tatibazar of Old Dhaka	6
Krisnapur Bazar of GopalganjSadar	3
Patkhelbari Bazar of GopalganjSadar	3
Takerhat Bazar, Rajoir, Madaripur	3

Table 3: Availability of different species of freshwater turtles and tortoises in four retail markets

Species	Tatibazar, Old Dhaka	Krisnapur Bazar, Gopalganj Sadar	Patkhelbari Bazar, Gopalganj Sadar	Takerhat Bazar, Rajoir, Madaripur	Availability
Indian flap shell turtle (<i>Lissemyspunctata</i>)	✓	✓	✓	✓	Common
Indian peacock soft shell turtle (<i>Aspidereteshurum</i>)	✓	✓	✓	✓	Common
Indian soft shell turtle (<i>Aspideretesgangeticus</i>)	✓	-	-	-	Rare
Indian eyed turtle or yellow turtle (<i>Moreniapetersi</i>)	✓	✓	✓	✓	Few
Indian roofed turtle (<i>Kachugatecta</i>)	✓	-	-	-	Common
Spotted pond turtle (<i>Geoclemyshamiltonii</i>)	✓	-	-	-	Few

✓ = Yes; - = No (Based on survey)

of GopalganjSadar, Patkhelbari Bazar of Gopalganj Sadar, Takerhat Bazar under RajoirUpazila of Madaripur district were about 0.24-0.27 mt (average 7 retailers × 38 kg), 0.09-0.11 mt (average 3 retailers × 27 kg), 0.04-0.05 mt (average 2 retailers × 25 kg), 0.06-0.07 mt (average 3 retailers × 23 kg) respectively.

Price of Some Freshwater Turtles and Tortoises' Species: There were different species of freshwater turtles and tortoises such as Indian flap shell turtle (*Lissemyspunctata*), Indian roofed turtle (*Kachugatecta*), Spotted pond turtle (*Geoclemyshamiltonii*), Indian soft shell turtle (*Aspideretesgangeticus*), Indian peacock soft shell turtle (*Aspidereteshurum*), Indian eyed turtle or yellow turtle (*Moreniapetersi*) were available in four markets. Due to limited secondary data, it has not been possible to do any proper price analysis. The price of freshwater turtles and tortoises was comparatively higher in the Tatibazar of Old Dhaka than other markets. Table 1 showed the average price of different species of freshwater turtles and tortoises in four markets.

Freshwater Turtles and Tortoises Species Availability in the Markets: Bangladesh has many rivers, canals, haors, baors, beels and ponds, which were resources for freshwater turtles and tortoises. The number of species landed in the four retail markets was ranged from 3-6. Table 2 shows number of freshwater turtle and tortoise species found during the survey in four markets.

During the survey it was observed that Indian flap shell turtle (*Lissemyspunctata*), Indian soft shell turtle (*Aspideretesgangeticus*), Indian peacock soft shell turtle (*Aspidereteshurum*) have the highest demand in all specific markets. It was found that Indian roofed turtle (*Kachugatecta*), Spotted pond turtle (*Geoclemyshamiltonii*) were not available in two markets (Table 3).

Species Selection: The average number of species that occurred in these four markets was 3-6. Among these only 3 species (*Lissemyspunctata*, *Aspidereteshurum* and *Moreniapetersi*) were selected for their availability, demand, market price and consumer's choice and observed the monthly (April to June) price fluctuation in the markets.

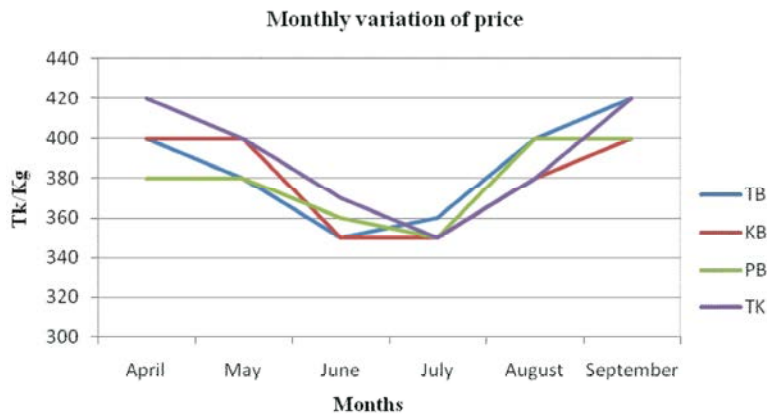


Fig. 2: Monthly variation of price of *Lissemys punctata* in the four retail markets



Fig. 3: Monthly variation of price of *Aspidereteshurum* in four retail markets

Indian Flap Shell Turtle (*Lissemys punctata*): In the present study *L. punctata* was the most common (100% of all visits). *L. punctata* was adapted to a variety of habitats. The ability of *L. punctata* to adapt to the various manmade and altered habitats may be a reason for its abundance. Because of the wide distribution and availability of *L. punctata*, it was consumed on most occasions by non Muslims. It was estimated that most of the ethnic groups in the northeast, northwest and southeast consume at least one *L. punctata* per week per household. The price of Indian flap shell turtle (*L. punctata*) ranged from 350-450 Tk. /kg. Figure 2 shows the monthly price fluctuation in the markets.

Indian Peacock Soft Shell Turtle (*Aspidereteshurum*): Indian peacock soft shell turtle (*A. hurum*) was demanded due to its high delicious flesh. The price of Indian soft shell turtle ranged from 500-700 Tk. /kg. Figure 3 shows the monthly price fluctuation in the markets.

Indian Eyed Turtle or Yellow Turtle (*Moreniapetersi*): It was found that consumers can afford easily Indian eyed turtle or yellow turtle (*M. petersi*) as its price was less. The average price ranged from 200-250 Tk. /kg. Figure 4 shows the monthly price fluctuation in the markets.

Income of Freshwater Turtle and Tortoise Retailers: Freshwater turtle and tortoise retailers were trying to improve their socio-economic condition through freshwater turtle and tortoise trading. During survey, the average gross profit of retailers was found higher in Tatibazar of Old Dhaka than other markets, because of higher supply of freshwater turtles and tortoises as well as higher demand. From the survey, it was found that the average gross profit of a freshwater turtle and tortoise retailer in Tatibazar of Old Dhaka, Krisnapur Bazar of GopalganjSadar, Patkhelbari Bazar of GopalganjSadar and Takerhat Bazar under RajoirUpazila of Madaripur was estimated at each market day Tk. 1700 /day, Tk. 1200/day, Tk. 1000/day and Tk. 1000/day respectively (Figure5).

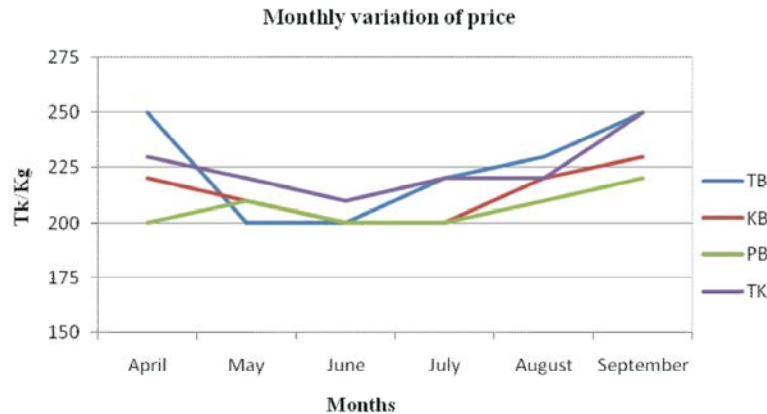


Fig. 4: Monthly variation of price of *Moreniapetersi* in the four retail markets.

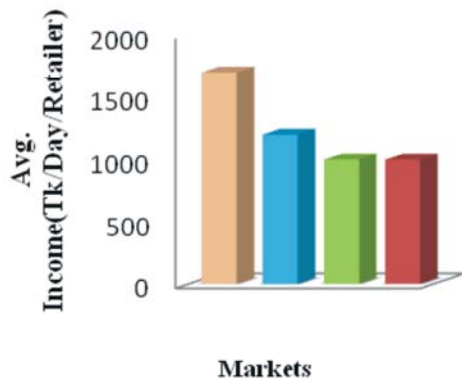


Fig. 5: Average daily incomes (Tk/day) of retailers in four retail markets of Bangladesh.

The average income of retailers in four markets was estimated at Tk. 1225/day/retailer. The temporal daily income fluctuated was due to fluctuation of freshwater turtle and tortoise supply, availability of cash money, different occasions and the supply and price of other commodities.

Consumers' Perception: Turtle meat was a delicacy in the diets of Hindu and Christian communities in Bangladesh because good turtle nesting sites were widespread and also due to past importance of turtle meat. The Hindu and Christian communities vernacularly called freshwater turtle meat 'aquatic mutton'. These communities believed that turtle meat can cure many different diseases. For example, gout may be cured by Peacock softshell turtle (*A.hurum*) meat especially that of small Peacock softshell turtles. There was a saying that "if you eat meat from seven small Peacock softshell turtles on consecutive days you will be completely free of gout throughout your life". Paralysis and dyspnoea may be cured by consuming

Spotted Flapshell (*L.punctata*), Peacock Softshell Turtle (*A.hurum*), Bengal Eyed Turtle (*Moreniapetersi*), Roofed Turtle (*Kachugatecta*), Gangetic Softshell Turtle (*A.gangeticus*), Giant Asian Softshell turtle (*Pelochelyscantorii*) and Estuarine River Terrapin (*Batagurbaska*), *Chitraindica*, *Hardellathurjii* and other turtles. The ashes from the carapace of Bengal Eyed Turtle (*M.petersi*), Roofed Turtle (*Kachugatecta*) was mixed with coconut oil to make a paste which was used to treat cancer and eczema. They also believe that since the turtle is a long-lived animal, its meat carries natural elements which promote longevity. When the people of these communities become old, they desire to eat turtle meat. They think that if they eat turtle meat they will live long. So, their relatives collect rare and expensive turtle meat to fulfill the old man's desire. Some believe that turtle meat has aphrodisiac properties and gives a lot of energy for activities.

Aratders Perception: One of the aratders of Sonargaon Meghnaghat, Narayanganj named Sumon said that four or five years ago they usually used to collect about ten species of freshwater turtles. But the condition is worse at present. According to him, Kalikatta (*Hardellathurjii*) was available in his arat two years ago, now days they hardly found this species.

Present Status of Freshwater Turtles and Tortoises in Bangladesh: Till 1997, 17 species of freshwater turtles and tortoises were found to sell in different markets of Bangladesh [11]. During the present study only 6 species were seen to sell in different markets.

Among the six species of soft-shelled turtles found in Bangladesh only three species of soft-shelled turtles- *L.punctata*, *A.hurum* and *A.gangeticus* were often seen

nowadays while the other species were hardly met. In the present market survey (April 2011-July 2011) *L.punctata* was the most common (100% of all visits) among these three; *A.hurum* was uncommon (75% of the visits) and *A. gangeticus* was rare (25% of the visits). *Chitraindica* has not been traded for more than 15 years: a couple or more *Pelochelyscantorii* got caught in fishing nets in a year and *A. nigricans* was only confined to a shrine pond in Chittagong. According to a retailer of Tatibazar named Shubol, Crowned Turtle (*Hardellathurjii*) was hardly caught now days. Estuarine River Terrapin (*Batagurbaska*) was not found for couple of years. This depicts the precarious situation of the freshwater turtles and tortoises in Bangladesh. This was also true globally for all the freshwater fauna whereby the rate of loss of freshwater species was six times higher than the terrestrial fauna.

DISCUSSION

During the present study it was found that price of *Kachugatectawas* 200-250 Tk. /kg and price of *L. punctata* was 400-450 Tk. /kg. The price was higher in Tatibazar of Old Dhaka followed by other markets. Rashid and Swingland[12] found that the meat of the turtles which die off during transportation was consumed locally and was sold at the rate of 50-55 Tk. /kg and that of *L. punctata* 15 Tk. /kg, *Kachugatecta* is being sold in the country markets at the rate of 10-15 Tk. /kg. The price of *Kachugatectawas* 40-50 Tk. /kg and price of *L. punctata* was 100-150 Tk. /kg [11].

In the present study it was observed that agents or suppliers got 3-8% commission from aratders. Among the five different markets agents of Tatibazar, Old Dhaka got maximum benefit (8%) followed by Krisnapur Bazar of GopalganjSadar (6%), Patkhelbari Bazar of GopalgonjSadar (5%) Takerhat Bazarunder RajoirUpazila of Madaripur (3%) and Madhabdi of NarshingdiSadar (4%). It depended on their investment. Higher amount of investment provided maximum commission. Similar findings were found by Sarker and Hossain [11] at different freshwater turtle markets.

During the present study, only 6 species were observed to sell in different markets. It was perhaps due to unavailability of freshwater turtles and tortoises in nature of Bangladesh at present. Rest of the species probably occurred in very less number in nature of Bangladesh. Das [13] reported selling about 18 species of freshwater turtles and tortoises in different local markets of Bangladesh. Sarker and Hossain [11] also reported around 17 species were being sold in different markets.

The consumers believed that turtle meat could cure many different diseases such as gout, paralysis, eczema etc. There is not any evidence to support turtle's medicinal qualities and no scientific data has been collected to support any claims. Some researchers and herbalists had argued that there was no real benefit of turtle consumption at all. But turtle has a significant ecological value and it's a part of aquatic ecosystem. The countries like Malaysia, Srilanka, India are implementing strict conservation measures for protecting wild life and developing their ecotourism section [14, 15].

Recommendations: Strict execution of laws regarding trade control; captive breeding; conservation education and awareness both at national level and community level; scientific research; establishment of turtle hatcheries and protection of nesting sites will help to save this threatened species from extinction.

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