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## Research Article

# Constraints and Potentials of Fish Markets in Chittagong City: A Case Study of Kazir Dewari Bazar

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## Abstract

**Background and Objective:** Fisheries sector plays a significant role in the economy of the country. The marketing system with good management and environment is pre-requisite for sustainable economic structure. The present study was executed to know the existing drawbacks and potentials of Kazir Dewari Bazar. Along with some recommendations was extracted from the study area to improve the existing Bazar condition. **Materials and Methods:** The survey was conducted in 2017 for collecting the field data by using different methods (e.g., structured interview, Focus Group Discussion and Key informant interview etc.). **Results:** The Bazar is very important to the local community but with some common problems. Intermediaries had great influence on the fish seller income ( $p < 0.05$ ). The environment of the Bazar was not up to the mark. The market condition was not hygienic for handling fish due to lack of proper physical facilities. This unhygienic environment causes various health problems to sellers and buyers. Marine fishes are the common fish in the Bazar. Importantly, the fishermen and retailers got limited profits while stockists (*Aratdars*) received high profits from selling fish. Consequently, the financial condition of the fishing community and the retailers were not good enough. **Conclusion:** Physical facilities like processing, packaging, sanitation, water supply, drainage, cleaning, washing, maintenance and other necessary measures were not sufficient in the Bazar. This situation can be improved by proper management of the Bazar committee and strict monitoring from the government.

**Key words:** Drawbacks, potentials, aratdars, unhygienic, monitoring, marketing system, fisheries sector

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**Competing Interest:** The authors have declared that no competing interest exists.

**Data Availability:** All relevant data are within the paper and its supporting information files.

## INTRODUCTION

Appetite and lack of healthy sustenance stay among the most crushing issues confronting the world poor and destitute<sup>1</sup>. Around 80 to 90 million individuals must be bolstered yearly and most solid wellspring of protein for some is fish. A great number of individuals who rely upon fish are confronted day by day with the dread of food shortage<sup>2</sup>.

Fish can be regarded as the major source of animal protein that required for Bangladeshi people (Popularly known as Mache-Bhate Banglaee)<sup>3</sup>. Fish is the only source of protein and minerals to the subsistence level fishermen<sup>4</sup>. Fish contributes nearly 60% of the national animal protein consumption and 19% of the total protein intake in the average Bangladeshi diet<sup>5</sup>. Besides protein source, nearly 12 million people directly or indirectly involved in fishing activities for their living<sup>6</sup>. It offers 1.78 million people's full-time and part-time service facilities<sup>7</sup>. Importantly, fisheries play a vital role in the national economy of Bangladesh. This sector helping the economy through employment generation, poverty alleviation, the supply of animal protein and foreign exchange earnings<sup>8</sup>. Likewise, the fisheries sector contributes around 2.46% of the total export earnings, 4.39% to GDP and 22.76% to the agrarian sector<sup>9</sup>.

With the number of inhabitants in Bangladesh on the ascent, there is a relating interest for fish utilization. Consequently, there is a requirement for an appropriate agrarian framework to take care of the expanding demand for nourishment and furthermore, amplify the use of the accessible restricted assets absent much wastage. In perspective of this, coordinated fish cultivating fit precisely into this. Incorporated fish cultivating is a differentiated and composed method for cultivating with fish as the fundamental focus alongside other ranch items<sup>10</sup>.

A fish market is a commercial center utilized for promoting of fish and fish items. Fish marketing might be extensively characterized as every one of those capacities required from the purpose of getting of fish to the point of definite utilization. Like the fish as some other creation draws nearer and closer to a definitive consumer, the offering cost increments since the edges of the different middle people and functionaries are added to it. The value effectiveness is worried about enhancing the task of purchasing, offering and other associated parts of the marketing procedure with the goal that it will stay receptive to consumer course<sup>11</sup>.

Marketing plays a vital job in a bazaar economy. The job of advertising as an impetus to angle generation and

efficiency can't be overemphasized. The advertising of agrarian items in Bangladesh includes different markets or trade focuses<sup>2</sup>. The impact of the marketing system is surveyed by the capacity of the market to make time, put shape and ownership utility<sup>2</sup>. Since fast conservation and transport ended up accessible in the 19th to 21st-century angle markets can, in fact, be set up at wherever. Fish goes through different market member and trade pounds before they achieve the last shopper. These market go-betweens are the entire merchants and retailers. Both assume the imperative job in the promoting framework. Moreover, because of the bulky idea of fish dissemination channel, the local fish seller is looked with the issue of benefit expansion. In this way, the outcome is that exercises in this area are for the most part overwhelmed by private segment nearness with practically zero preparation from the legislature. Accordingly, any endeavor utilized at improving a nation's advertising framework needs to begin with a right investigation of the issue<sup>2</sup>.

Kazir Dewari Bazar is one of the most important Bazar to the local fishermen, intermediaries and consumer. It has a great impact on the economy of the country with a lot of marine fishes. The present study was carried out to know the existing problems and potentials of the Kazir Dewari Bazar. It also studied the prices of fish and also provides some future recommendations to develop the fish marketing systems in Kazir Dewari Bazar.

## MATERIALS AND METHODS

**Study area:** Chittagong city is the second largest city of Bangladesh. It is situated between 22°14' and 22°24' N and 91°46' and 91°53' E (Fig. 1). There are many Bazar in the Chittagong city. Kazir Dewari Bazar is one of them. To make angle accessible to purchasers at the opportune time and in the perfect place requires a compelling showcasing framework.

**Target groups:** Fishermen, processor, baperi, aratdar, wholesalers, retailers and consumers were selected for the present study to collect the primary data. These stakeholders are directly involved in marketing activities.

**Data collection:** Primary data were collected from the selected field on 30 May to 4 June, 2017. Oral interview, focus group discussion, key informant interviews and direct observations techniques were followed to collect the primary

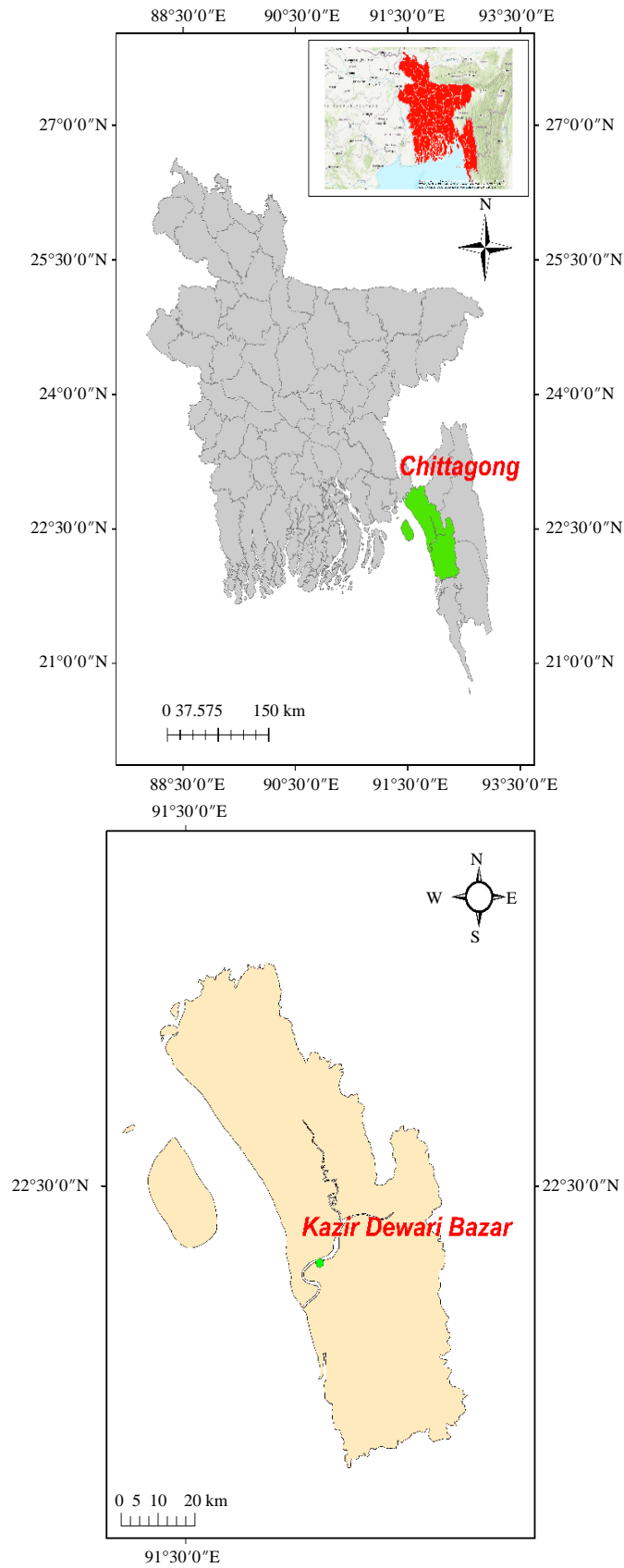


Fig. 1: Research site (Map created by ArcGIS v.10.3, ©Md. Simul Bhuyan)

data<sup>12-14</sup>. This technique was implemented because most of the coastal fishing community and fish sellers were uneducated and some have a low level of education<sup>15</sup>. Some basics questions were asked to the respondents. The questions were:

- What is the name of the market?
- What factors affecting the fish sold?
- What types of constraints they face?
- What is the price of available fish?
- What are the recommendations to solve the existing problems?

**Data analysis:** The collected primary data were then secondary data were reviewed. Data were collected in local unit converted into a standard unit to reduce inaccuracy. Finally, the data were then put into the table and transferred to a computer. Calculations were performed by using MS-Excel<sup>16</sup> 2013. Descriptive statistics and One Way ANOVA analysis was executed to find out community perception percentage and significant impact of a factor on fish seller income.

## RESULTS

The Kazir Dewari Bazar fish market is getting crowded at any level. Infrastructure facilities are important for marketing fisheries products domestically and for the physical development of markets. In city corporations and municipalities often provide infrastructure facilities in the form of pakka roofs, tin shades, pakka platforms, raised selling places and water connections. However, washing and cleaning of spaces dedicated to selling fish and disposal of wastes and residues do not meet hygienically acceptable standards. The intermediaries system had a significant impact on the income of fish seller ( $p < 0.05$ ). The marketing channel of Kazir Dewari Bazar was presented in (Fig. 2).

The activities associated with solid waste management from the point of generation to final disposal may be finally grouped into functional elements as illustrated in the simple flow chart given in (Fig. 3).

Although solid waste management also included financing, operation and equipment management.

Market management structure/committee consists of different kinds of people. They also conduct the market

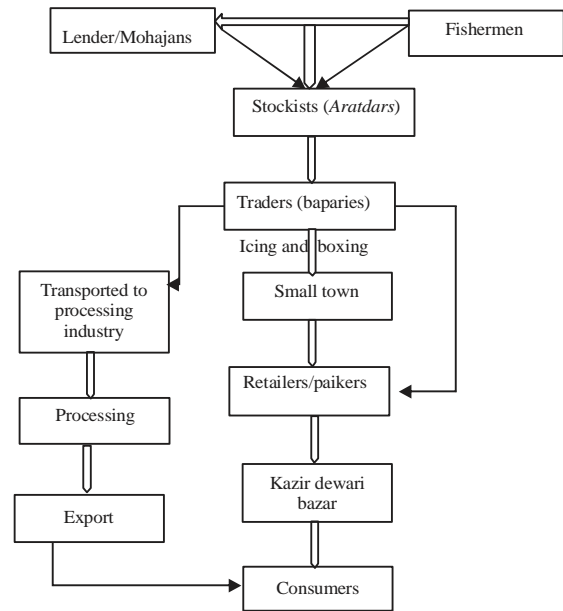


Fig. 2: Marketing channels at Kazir Dewari Bazar

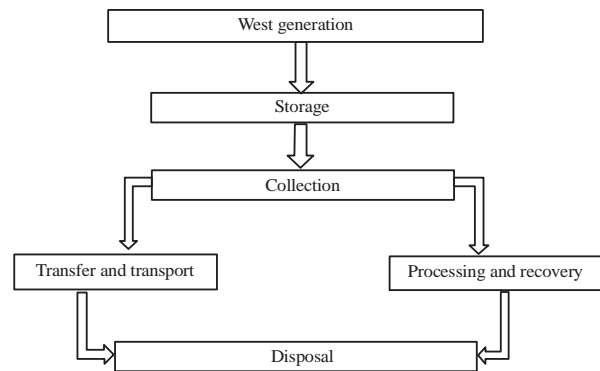


Fig. 3: Basic functional elements of a solid waste management system

management system. This management committee consists of one secretary, one general secretary, one joint secretary and different kinds of people (Fig. 4). This kinds of committee are very essential for the market management system.

**Physical facilities were not good enough:** Fish traders and market managers were not well educated in maintaining sanitary and hygienic places for handling fish. This results not only in lower prices but also pose health hazards. The spaces in these markets were found inadequate for handling highly perishable fish. Intermediaries system (51.4%) and less price (14.3%) was reported the most devastating factor in the reduction of fish income (Table 1). At the landing point, the number of intermediaries was low. Normally, the first

Table 1: Factors affecting the fish sold at Kazir Dewari Bazar

Parameter	Factors	What factors affecting the fish sold?			
		Frequency	Percentage	Valid (%)	Cumulative (%)
Valid	Unhygienic environment	9	12.9	12.9	12.9
	Lack of icing	15	21.4	21.4	34.3
	Intermediaries	36	51.4	51.4	85.7
	Less price	10	14.3	14.3	100.0
	Total	70	100.0	100.0	

Table 2: Problems faced by the fish seller at Kazir Dewari Bazar

Parameter	Problems	What types of constraints they face?			
		Frequency	Percentage	Valid (%)	Cumulative (%)
Valid	Intermediaries system	21	30.0	30.0	30.0
	Loan from government	9	12.9	12.9	42.9
	Lack of monitoring	20	28.6	28.6	71.4
	Drinking and sanitation	14	20.0	20.0	91.4
	Lack of chillier rooms	6	8.6	8.6	100.0
	Total	70	100.0	100.0	

Table 3: Price of commercially important marine fish in May 2017 in Kazir Dewari Bazar

Scientific name	English name	Local name	Retail price (Tk kg <sup>-1</sup> )	Quantity of monthly trade (t)
<i>Hilsha ilisha</i> , 1st quality	Shad	Ilish	1000	1-1.5
<i>Hilsha ilisha</i> , large, good size	Shad	Ilish	1050	2.0
<i>Hilsha ilisha</i> , average quality	Shad	Ilish	800-850	2-2.5
<i>Hilsha ilisha</i> , 2nd quality	Shad	Ilish	750	1.0
<i>Penaeus monodon</i> , average quality	Shrimp	Shrimp	550-600	3-4
<i>Penaeus monodon</i> , big size	Shrimp	Shrimp	800-900	2.5
<i>Coilia ramkarati</i>	Pointed-tailed anchovy	Olua	200-280	2.0
<i>Harpodon nehereus</i> , average quality	Bombay-duck	Lotia (Loitta)	100-125	5-6
<i>Congresox talabonoides</i> , large quality	Eel	Kamila	350	3.0
<i>Lates calcarifer</i> , average size	Cock-up	Bhetki (koral)	450	6-7
<i>Lates calcarifer</i> , big size	Cock-up	Bhetki (koral)	550-600	10-12
<i>Panna microdon</i> , average size	Panna croaker	Poa	350	3.5-4.5
<i>Lepturacanthus savala</i> , small size	Ribbon fish	Chhuri	100-125	2-2.5
<i>Lepturacanthus savala</i> , big size	Ribbon fish	Chhuri	250-300	3.0
<i>Euthynnus affinis</i> , small size	Spanish mackerel	Mitty	150	2.0
<i>Euthynnus affinis</i> , big size	Spanish mackerel	Mitty	600	4-5
<i>Pampus argenteus</i> , average size	Silver pomfret	Foli chanda	450-550	7-8
<i>Pampus chinensis</i> , big size	Chinese pomfret	Rupchanda	800-850	8-10
<i>Therapon</i> sp., average size	Therapon perch	Barguni /Girpai	350-450	4-5
<i>Hilsha kanagurta</i> , average size	Shad	Chanda ilish	550-650	5-6

Source: Field survey, 2017

Nikary/Paiker-retailer did not allow this to happen and secured the lot for himself. Therefore, the poor fisherman often falls prey to the Nikari/Bepari/Paiker-retailer's crude exploitations.

**In the fish market, the fish seller faced various problems:**

Among them, intermediaries interference was the greatest as reported by 30% respondent. Moreover, lack of proper bazar monitoring system (28.6%) was mentioned another contributing factor that reduced fish income (Table 2). About 20% respondent reported that drinking water facilities were not good enough and sanitation system was not hygienic in the bazar. Icing facilities were documented as a crucial factor by the respondent (8.6%) that responsible for economic loss due to perishable fish (Table 2).

**Commercially important major species of marine fishes:** The market was characterized by marine fish along with freshwater fish. Consumers mostly relied on domestically produced and imported marine water fish. The list of commercially important marine fish species along with their retail price documented in Table 3. Larger fish fetched a considerably higher price on a per weight basis. Larger good quality *Hilsha ilisha* fish was found to sell 1050 tk per kg. Healthy big size *Penaeus monodon* shrimp was sold at 800-900 tk per kg. *Pampus chinensis* was sold at a good rate (800-850 TK/G) in the market because of good size (Table 3). *Harpodon nehereus* and *Lepturacanthus savala* fish was found most popular fish to all categories of the consumer due to their low price and taste. Both the fish was sold at a very low price (100-120 tk kg<sup>-1</sup> according to size) in the market (Table 3).

Table 4: Recommendations to solve the existing problems at Kazir Dewari Bazar

Parameter	Factors	What are the recommendations to solve the existing problems?			
		Frequency	Percentage	Valid (%)	Cumulative (%)
Valid	Easy loan	18	25.7	25.7	25.7
	Co-operative society	2	2.9	2.9	28.6
	Chillier rooms	8	11.4	11.4	40.0
	Strict bazar monitoring	22	31.4	31.4	71.4
	Minimize effect of intermediaries	18	25.7	25.7	97.1
	Other	2	2.9	2.9	100.0
	Total	70	100.0	100.0	

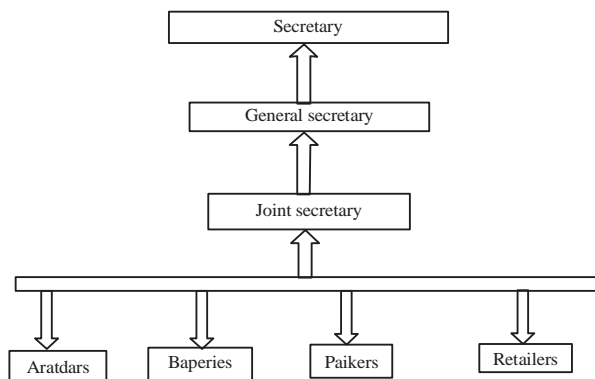


Fig. 4: Market management structure/committee at Kazir Dewari Bazar

To improve the bazar facilities some recommendations were provided by the respondent. Most of the respondent (31.4%) emphasized the strict bazar monitoring system (Table 4). While 25.7% of the respondent mentioned easy loan and minimization of intermediaries effect was strong measures to improve the bazar condition (Table 4).

### DISCUSSION

The environmental condition of the fish market is very important. The condition of Kazir Dewari fish market was not upto the standard. Bhuyan and Islam<sup>3</sup> found the similar environment in the fish market of the Narsingdi. A well-organized marketing system is necessary to transport fish to consumers. A marketing system for fish includes transportation to and from the market, handling, storing, packaging, sorting, merchandising, etc. An efficient marketing system enables the consumer to obtain fresh fish fresh at a reasonable price. Marketing margins include costs of marketing and profit or loss incurred by all intermediates in the marketing channel. The marketing margin is the price intermediaries charge for all functions them perform<sup>17</sup>. The marketing system of the present study was similar to the marketing channel stated by Begum *et al.*<sup>18</sup> in the Chittagong

region and almost similar to the marketing system reported by Faruque *et al.*<sup>16</sup> in Asadganj Dry Fish Market, Chittagong.

The available fish in the market was mostly marine fish. *Harpodon nehereus*, *Hilsha ilisha*, *Penaeus monodon*, *Lepturacanthus savala*, *Lates calcarifer* and *Coilia ramkarati* were the dominant fish species. *Harpodon nehereus* make the huge portion of fish in the market. The similar results were also reported by Barman<sup>19</sup> in the Karnafully river, Chittagong and Begum *et al.*<sup>18</sup> in Chittagong district. It appears that in the long-term, prices of marine fish are increasing in real terms. It was not possible to obtain price series during the course of the survey, this observation is mainly based on statements made by traders in a number of important fish markets in Kazir Dewari Bazar. Most of the fishes were marketed for domestic consumption while very few quantities are exported for the international market. This trend is similar to the finding of the Begum *et al.*<sup>18</sup>. On the other hand, Ahmed and Sturrock<sup>20</sup> mentioned the negative scenario with respect to the present study in coastal Bangladesh.

In the market system, Aratdars were the highest beneficiaries from fish sell. This results similar to the findings of Kleih *et al.*<sup>21</sup>, Amin<sup>22</sup> and Faruque *et al.*<sup>16</sup>. The marketing cost and margin of intermediaries in Chittagong city fish market included the total cost of handling fish (mixed species) per kg from catch fish to ultimate consumer stands at Taka 661 on average (Tk 6.61/kg)<sup>23</sup>.

Traders/Baperies were involved in marketing as purchasers of fish from fish seas or transporting fish from assembly markets to Aratcentres. Traders/Beparies costs comprised of transportation, wages, market tolls, Aratdar's commissions, containers, etc. Total cost per kg incurred by Traders/Baperies was Tk 401 Tk, 125 by *Aratdars* and Tk 135 by retailers<sup>23</sup>.

The icing was found very poor in the Kazir Dewari market. Fish is a perishable commodity and transportation is more hazardous for fish than for crop products. In the present study, the sanitation system was found unhygienic in the market. Sanitation faces its own set of challenges, with only 56% of the population in the market estimated to have had access to

adequate sanitation facilities in 2017. The government adopted a number of policies to remedy the challenges in the sector, including National Policies for Safe Water Supply and Sanitation, both of 1998, a National Water Policy of 1999, a National Water Management Plan and a National Policy for Arsenic Mitigation, both of 2004 as well as a National Sanitation Strategy of 2005. Most of the people found with low-level consciousness about diseases from poor sanitation in the market. This is mostly due to a lack of knowledge. Water and sanitation facilities were recorded very poor for handling, washing, sorting, grading, cleaning and icing of fish<sup>20</sup>.

Solid waste management accomplished in an efficient and orderly manner. In the present study, Bazar management committee sometime used some chemical to disinfect the market environment. A similar result was stated by Faruque *et al.*<sup>16</sup> in Asadganj where market management committee uses chemicals to manage solid waste.

### **CONCLUSION AND FUTURE RECOMMENDATIONS**

From the findings of the present study, it can be concluded that the fish market is necessary for the successful management of fish. Fish are marketed here in fresh and iced condition. But the existing drawbacks of the market in terms of environment and intermediaries system make the fish market challenging. Proper management of the fish market needed strict monitoring of the market by both government and the private sector.

From the research findings following recommendations can be made to improve the Bazar condition:

- Fish marketers should form a co-operative society
- Need easy loan
- The environment should be hygienic
- Drinking and sanitation system must be available
- The government should monitor the Bazar on a regular basis
- Fish advertisers should shape a co-agent society
- The government ought to give chillier rooms to empower angle advertiser to get angle available to be purchased less demanding
- There ought to be endowment in the cost of fish by the legislature so everyone will approach angle, this is on account of larger part of the purchasers

- The government ought to likewise give transportation facilities and great infra-structural facilities
- Fish marketers should form a co-operative society

### **SIGNIFICANCE STATEMENT**

This study discovered the problems and potentials of the Kazir Dewari Bazar that can be beneficial for the policy maker, future researchers and the government. This study will help the researchers to uncover the critical areas of Kazir Dewari fish market that many researchers were not able to explore. Thus a new theory on the fish market may be arrived at.

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