

Socio-Economic Status of the Hilsa (*Tenualosa ilisha*) Fishermen of Padma River, Bangladesh

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Abstract: The present investigation was carried out to assess the livelihood status of the Hilsa fishermen of the River Padma, Bangladesh during April 2012 to March 2013. Data were collected by well-structured questionnaire. Most of the fishers were belonged to the age category of 31 to 40 years represented by 56.52-75.00% professional, 20.83-43.48% occasional and 0.00-7.69% subsistence fishermen. About 67.54% of the Hilsa fishermen of Charghat upazila were only could sign their name while 16.62%, 14.05% and 1.57% were illiterate, primary and secondary level of education respectively. In Godagari about 17.79% of fishermen had no education. Catching of Hilsa fish in Padma River was dominated by Muslim fishermen except Horisonkorpor (majorities were Hindus). It was ranged from 45.83 to 78.57% and on an average 57.14 to 78.26 % of the fishermen had four to six family members followed by 21.74 to 33.33% had one to three family members and 4.17 to 14.29% had seven to nine family members. Average annual incomes of most of them were ranged from taka 30,000 to 39,999 (85.13%) and 1.79% had above taka 50,000. About 68.14% fishermen households were dependent on village doctor and 24.05% and 7.81% received health service from the Upazila health complex and Kabiraj respectively. Most of the fishermen's housing conditions were Katcha and 90% fishermen household under Godagari upazila used the river water for drinking and other purposes. The main problems were identified as extortion by local extortionist; other problems such as inadequate credit facilities, lack of appropriate preservation facilities and frequent conflict between professional and non-professional fishermen and between Muslims and Hindus fishermen were prominent.

Key words: Livelihood • Questionnaire • Hilsa Fishermen • Padma River • Constrains

INTRODUCTION

Bangladesh has established a credible record of sustained growth within a stable macro-economic framework where fisheries play quite an important role in terms of protein supply, generation of employment and earning of foreign currency [1]. From the time immemorial, Bangladesh is called the country of hundred rivers. About 800 rivers including tributaries flow through the country constituting a waterway of total length around 24,140 km [2]. Among the all others rivers the Padma is the second longest river of Bangladesh. It is the main distributary of the Ganges which originates in the Gangotri glacier of the Himalayan. The part of the Ganga in Bangladesh is known as the Padma which enters Bangladesh from India (Murshidabad district) at Shibganj Upazila (Manakosha

and Durlavpur unions) of Chapai Nawabganj district. Its length in Bangladesh is 366 kilometers [3]. The Padma unites with the Jamuna (main channel of the Brahmaputra) and later joins the Meghna to eventually empty into the Bay of Bangladesh. Mainstream goes through Chapai Nawabganj, Rajshahi, Pabna, Kushtia, Faridpur, Rajbari and Chandpur districts of Bangladesh.

From the very beginning of human civilization, fish is considered as one of the most important food items throughout the world including Bangladesh and major protein providing source [4-6]. At present, there are about 260 species of fresh water, 475 Marine water species, 24 freshwater prawn, 36 marine shrimp and 12 exotic fishes are available in Bangladesh. Fisheries sector contributes 4.39% of gross domestic product, 22.76% for agricultural products and 2.46% of total export earnings [7].

Like other important fishes of Bangladesh, the Hilsa shad (*Tenualosa ilisha*) fishery is by far the largest single species fishery in Bangladesh. The flag-ship species of Bangladesh Hilsa is the most important fish species that links not only the transboundary ecosystem of India and Bangladesh but also the life and culture of two neighbouring countries [8]. Ilish specially the Padma Ilish (Hilsa) is not only important for its cultural and economic values but also famous for its delicious taste, odour and flavor. In the year 2011-2012, more than 11% of the country's total fish production came from Hilsa and contributes 1% to the national GDP [7]. About 2% of the country's total populations are directly or indirectly involved in the Hilsa fishery for their livelihoods [9]. Until 1972 the Hilsa fishery was more abundantly found in the estuarine rivers including Padma, Meghna, Rupsa, Shibsa and Payra. Since 1972, Hilsa fishery has severely declined in the upstream areas and is now mainly in downstream rivers, estuaries, coastal areas and the sea. Low water discharge from the river Ganges at the Farakka barrage in India and associated heavy siltation, indiscriminate exploitation of juveniles (Jatka), disruption of their migration routes, loss of spawning, feeding and nursery grounds and increased fishing pressure have all contributed to a decline in the Catch Per Unit Effort in both the marine and riverine Hilsa fishery in Bangladesh [1]. As a result the fishermen who are solely depends on this fishery for their livelihood are greatly affected due to the declination of Hilsa catch especially in inland areas.

Livelihood comprises the capabilities, the assets (natural, physical, human, financial and social capital), the activities and the accesses to these (mediated by institutions and social relations) that together determine the living gained by the individual household. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in future, while not undermining the natural resource base [10]. One of the most vulnerable communities in Bangladesh is a fisherman who lives hand to mouth and they are considered as the poorest among the poor [4]. Per capital annual income of the fisherman are BDT 2,442 i.e. about 70% lower than the per capital income of the country as a whole [11]. Hilsa fishery of Bangladesh is characterised by the usual common property conditions where the available resources are exploited by a large number of poor fishermen, they now facing a great problem due to the declination of the Hilsa fishery in the upstream region, mostly in the Padma River. Fisheries sector is considered as the second largest export earner

for Bangladesh after ready-made garment where 1% of the country's total populations are directly or indirectly involved in the Hilsa fishery for their livelihoods but unfortunately no study has been carried out yet for assessing their socio-economic condition and its sustainable management. Therefore, considering the above facts the present study was carried out to assess the present socio-economic condition of the Hilsa fishermen along the Padma River.

MATERIALS AND METHODS

Study Area and Study Period: This study was conducted in different villages of Godagari and Charghat upazila under Rajshahi district along the River Padma. Four villages, two in each upazila namely Kathalbaria and Horisonkorpor under Godagari upazila, Yousufpur and Chock Muktapur under Charghat upazila of Rajshahi district were selected for the analysis of socio-economic condition of the Hilsa fishermen, because most of the fishermen of the selected villages were professional and they engages in fishing all the year round. The survey was carried out from April 2012 to March 2013.

Data Collection Technique: The study was based on collection of primary data. Before collecting the primary data, a draft questionnaire was developed which was pre-tested with a few fishermen of study areas. In the pre-testing, much attention was given to any new information in the draft questionnaire in order to reach the objective of the study. According to the experience gained in pre-testing, the final questionnaire was improved, rearranged and modified. The final questionnaire included the questions on the socioeconomic condition, age distribution, family size, literacy status, occupation, source of earning, income level, housing condition, health facilities and daily catch of Hilsa etc. Primary data were also collected through Household survey using multiple methodological Participatory Rural Appraisal (PRA) tools such as Focus Group Discussion (FGD) and Crosscheck Interviews (CI) with key informants. FGD sessions were held at the selected village, where fishermen were spontaneous.

Data Analysis: The data obtained in the questionnaires was subjected to descriptive statistical analysis in form of frequencies and percentages by using SPSS V 20.0 developed by SPSS (mac) and MS Office 2010 developed by Microsoft Corporation.

RESULTS AND DISCUSSION

In this study a total of 101 fishermen were interviewed from four different villages along the Padma River, a wide range indicators were collected in various aspects of livelihood characteristics of the fishermen. A detailed analysis were made on the following parameters and presented in the following section.

Fishermen Types: The fishermen mainly depended on fishing for their income and nutrition and their income varied with their capability and quantity of the capturing fish. Hilsa fishermen were categorized with present study into three groups on the basis of standard practice. They were Professional fishermen (who depended on fishing almost year round for their livelihood), Occasional fishermen (who used to fish during a part of the year as income earning) and Subsistence fishermen (who used to catch fish for their own consumption only). It was found that most of the Hilsa fishermen of the study areas were professional (56.52-75.00%), followed by occasional Hilsa fishermen (20.83-43.48%) and subsistence fishermen (0.00-7.69%) (Table 1). A very similar 3 types of fishermen were described by Kabir *et al.* [4] in old Brahmaputra River, Bangladesh.

Sex: There was no female fisherman found in any of the study area. All the fishermen (100%) were male. The main reason of no involvements of female in Hilsa fishing was the social problems and fishing in river was hard work which was correspondents with the findings of Halder *et al.* [12].

Age Structure: In estimating potential productive human resources, the knowledge about age structure of fishermen is important. In this study, it was found that most of the Hilsa fishermen of Padma River of Rajshahi district were 31 to 40 years of age (Figure 1). It was also found that young generation of all study areas lost their attention toward fishing in Padma River due to the decrease of fish biodiversity as well as catch of the Hilsa fish. Therefore, they seeks others works to lead their livelihood. This result was more or less similar to the findings of Hossain *et al.* [13]. Ali *et al.* [14] also reported that fish farmers (50%) belong to age group of 31 to 40 years in Mymensingh district.

Marital Status: Inquiries were made to see the marital status of the fishermen communities. In all study areas, it was found that 90-95% of the fishermen were married,

while the unmarried fishermen were represented by 5-10% only. The finding of the present study was more or less similar to the finding of Halder *et al.* [12].

Educational Status: Hilsa fishers were categorized into 4 categories on the basis of the level of education. Out of 50 fishermen of Padma River of Godagari upazila, on an average 17.79% had no education (illiterate), 64.43% can only sign, 11.86% had primary level, 5.93% had secondary level of education whereas the educational level of the Hilsa fishermen of Charghat upazila of Rajshahi district along the Padma River, on an average were 16.62% (illiterate), 67.54% (can only sign), 14.05 (primary level) and 1.57% (secondary level) (Figure 2). This finding was not similar to the findings of Ali *et al.* [14] and Mahbubur [15]. They reported that most of the fishermen was illiterate and these value were 88% and 68% respectively, means they were not able to sign and count. But the present study found that most of the Hilsa fishermen of the selected areas were able to sign and on an average this value ranged from 64.43 to 67.54%, this is might be due to afford of some NGO(s) for the development of the educational status among the fishermen in the study areas.

Religion: It was found that except Horisonkorpor fishing was dominated by Muslims in all study areas of Rajshahi district and it ranged from 45.83 to 78.57% (Figure 3). It was also found that most of the professional fishermen of Horisonkorpor were Hindus and fishing was their ancestral occupation. There was not found any others religious people in fishing. It was also reported by the fishermen that involvement of the number of Muslim fishermen increasing day by day in the study areas. The involvement of Muslims in fishing activities may be understood on the ground of changing socio-economic structure, lack of employment opportunity and realization of the potential as a source of income. Very similar findings were reported by Kabir *et al.* [4] and Hossain *et al.* [13] and Khan *et al.* [16].

Family Size: Family size is an important socio-economic indicator as it affects the income, food consumption and socio-economic wellbeing of the households. The family size and its composition were related to occupation, income and were likely to have an important influence on fishing practice. Data on family members of Hilsa fishermen in the study area were presented in Table 2. It was revealed that 57.14 to 78.26% of the fishermen had four to six family members, 21.74 to 33.33% had one to

Table 1: Types of Hilsa fishermen in four villages under Rajshahi district along the Padma River.

Types of Fishermen	No. of fishermen							
	Rajshahi							
	Godagari upazila				Charghat upazila			
	Kathalbaria		Horison-korpor		Chock Muktarpur		Yousufpur	
	No	%	No	%	No	%	No	%
Professional fishermen	17	65.39	18	75	13	56.52	20	71.43
Occasional fishermen	7	26.92	5	20.83	10	43.48	7	25
Subsistence fishermen	2	7.69	1	4.17	0	0.00	1	3.57
Total	26	100	24	100	23	100	28	100

Table 2: Family size of Hilsa fishermen in study areas

No. of Family member	Rajshahi							
	Godagari upazila							
	Godagari upazila				Charghat upazila			
	Kathalbaria		Horison-korpor		Chock Muktarpur		Yousufpur	
	No	%	No	%	No	%	No	%
1-3	6	23.08	8	33.33	5	21.74	8	28.57
4-6	17	65.38	15	62.50	18	78.26	16	57.14
7-9	3	11.54	1	4.17	0	0.00	4	14.29
≥10	0	0.00	0	0.00	0	0.00	0	0.00
Total	26	100	24	100	23	100	28	100

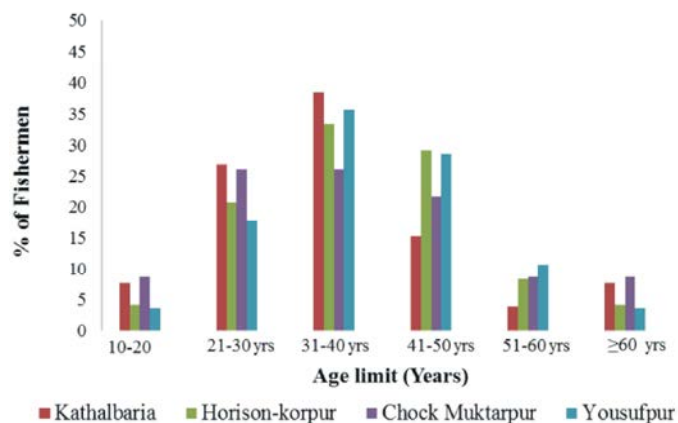


Fig. 1: Age structure of fishermen in study areas

three family members and 4.17 to 14.29% having seven to nine family members which also corresponds well with the findings of Kabir *et al.* [4] and Hossain *et al.* [13] and Ali *et al.* [14].

Alternative Occupation: Fishing in Padma River was the main work for the entire fishermen. Some of them also have other occupation. In the study they were found to be involved in catching fish, some of them were engaged in agricultural and day labour activities as their secondary occupation. Most of the fishermen (52.17 to 75.00%) of all

four villages were found to be involved only in fishing for conducting their livelihood (Table 3). This analysis revealed that Hilsa fishermen of the four villages of Rajshahi district were not only found to be involved in catching Hilsa fish, many of them have alternative occupation which was more or less similar to the findings of Alam and Bashar [11] and Kabir *et al.* [4].

Income of Fishermen: It was found that the average annual income of most of the Hilsa fishermen (on an average 85.13%) of Godagari and Charghat upazila of

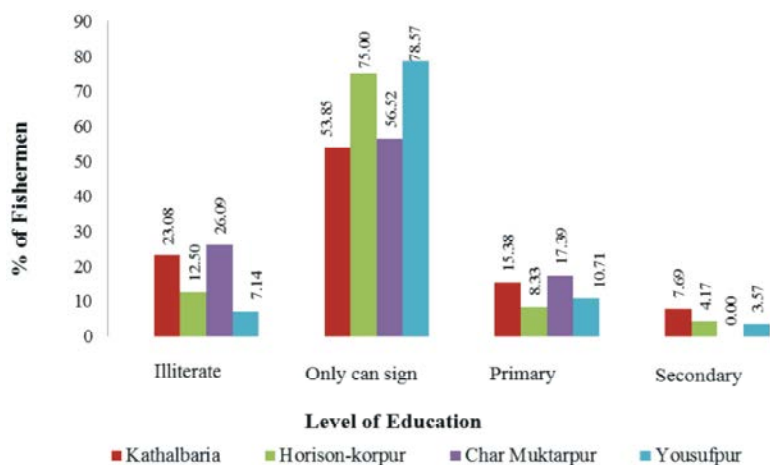


Fig. 2: Educational status of the Hilsa fishermen in study areas

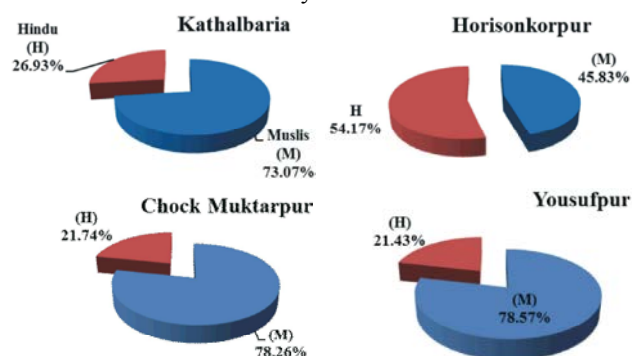


Fig. 3: Religious status of fishermen in study areas

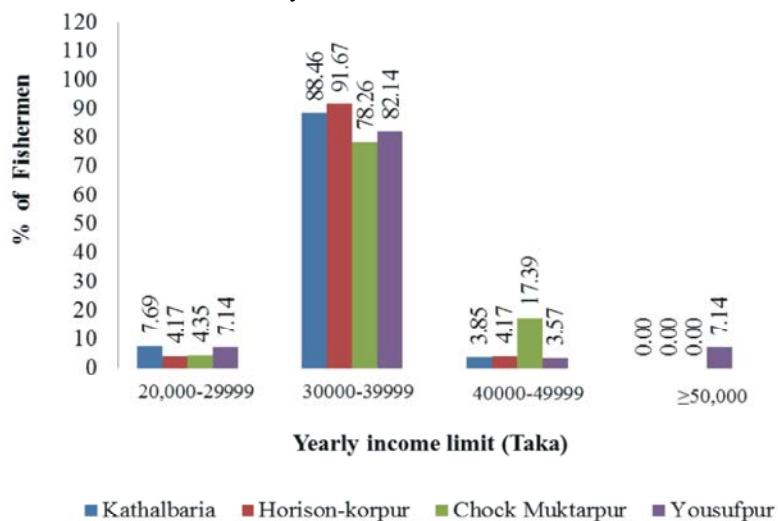


Fig. 4: Yearly income (1 taka= 0.0133 USD) of the Hilsa fishermen of Padma River

Rajshahi district along the Padma River belongs to the range of taka 30, 000 to 39,999 followed by 40000 to 49999 (7.25%), 20000 to 29999 (5.84%) and 50000 and above (1.79%) (Figure 4) which was more or less similar with the findings of Kabier *et al.* and Ali *et al.* [4, 14].

Housing Condition: There were four types of houses in the study area such as: Kacha (made of bamboo and trees leaves with mud floor), Tin shed (made of tin), Semi-pacca (made of brick in one part either floor or wall but the roof was in wood or tin) and Pacca (made of brick).

Table 3: Occupation of the fishermen of Padma River in study areas.

Occupation	Rajshahi							
	Godagari upazila				Charghat upzila			
	Kathal-baria		Horison-korpur		Chock Muktarpur		Yousuf-pur	
	No.	%	No.	%	No.	%	No.	%
Only fishing	15	57.69	18	75.00	12	52.17	15	53.57
Fishing and Agriculture	3	11.54	2	8.33	3	13.04	7	25.00
Fishing and Day Labour	8	30.77	4	16.67	9	39.13	6	21.43
Total	26	100	24	100	23	100	28	100

Table 4: Housing condition of Padma River fishermen in selected study areas

Housing condition	Rajshahi							
	Godagari upazila				Charghat upazila			
	Kathalbaria		Horison-korpur		Chock Muktarpur		Yousufpur	
	No.	%	No.	%	No.	%	No.	%
Kacha	21	80.77	18	75.00	20	86.96	23	82.14
Tin shed	2	7.69	1	4.17	0	0.00	0	0.00
Semi-pucca	2	7.69	5	20.83	2	8.70	5	17.86
Pucca	1	3.85	0	0.00	1	4.35	0	0.00
Total	26	100	24	100	23	100	28	100

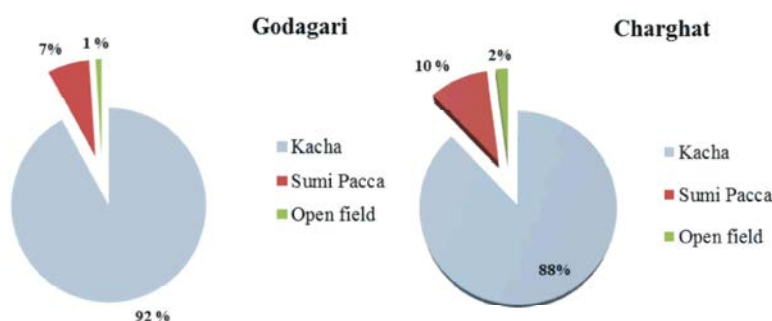


Fig. 5: Sanitary facilities of the Hilsa fishermen in study areas

In Godagari and Charghat, it was found that 75.00-80.77% and 82.14-86.96% of the fishermen's housing conditions were kacha respectively (Table 4). This is because most of the fishermen are poor and they do not have the ability to build their house with brick or wood. Alam and Bashir [11] found that about 82.22% of household structures of the fishers of Basantapur beel were kacha whilst 11.11% were semi-pacca and only 6.66% were pucca which is more or less similar to the present findings.

Sanitary Facilities: It was observed that sanitary conditions of the fishermen were very poor. In Godagari upazila, it was found that about 92% of fishermen's toilets were kacha while 7% were semi-pacca and remaining 1%

had no sanitary facilities. On the other hand, in the Charghat upazila it was found that about 88% and 10% of toilets were kacha and semi-pacca respectively while 2% had no sanitary facilities (Figure 5). The present study revealed that the sanitary conditions of the fishermen were satisfactory than fishermen of old Brahmaputra River where Kabir *et al.* [4] in his study found that about 70% of fishers had sanitary facilities.

Food Taken Facilities: Fishermen were found to work hard all day long to manage their food. In spite of such heavy labour they were found to be the poorest community suffering from the scarcity of daily bread. During ban period of Hilsa fishing, the poor fishermen household suffered food shortage and withstood the

Table 5: Drinking water facilities of the Hilsa fishermen in study areas.

Drinking water sources	Charghat upazila		Godagari upazila	
	No. of fishermen (n=51)	% of total fishermen	No. of fishermen (n=50)	% of total fishermen
Tube-wells	51	100	45	90
River water	0	0	5	10

Table 6: Health facilities of the Hilsa fishermen of Padma River.

Health facilities	Rajshahi							
	Godagari				Charghat			
	Kathalbaria		Horison-korpor		Chock Muktarpur		Yousufpur	
	No.	%	No.	%	No.	%	No.	%
Village doctor	18	69.23	16	66.67	15	65.22	20	71.43
Upazila health complex	6	23.08	7	29.17	6	26.09	5	17.86
Kabiraj	2	7.69	1	4.16	2	8.69	3	10.71
Total	26	100	24	100	23	100	28	100

situation by reducing the member of meal taken and through consuming less expensive foods. In the study area, it was found that most of the professional fishermen sold their all catch that being captured from Padma River except some low value fish and most of the times when they want to take animal protein they buy some low priced culture fish from the nearby market. As such, they had very little fish to eat. They depended on vegetables.

Drinking Water Facilities: The provision of clean and safe drinking water is considered the most valued elements in the society. The study showed that, 100% of Hilsa fishermen households of Charghat upazila used tube-wells water for drinking purposes either used their own tube-well or used neighbors tube-well (Table 5) which was more or less similar to the findings of Kabir *et al.* [4] and Pravakar [17]. But, on an average 90% Hilsa fishermen household of Padma River of Godagari upazila used the river water for drinking and other purposes this is might be due to the lowering ground water table and scarcity of tube-wells as well as they are habitual to drinking the river water and remained 10% used tube-well.

Health Facilities: Health status is the reflection of the livelihood status. The health facilities enjoyed by the fishermen were not at all satisfactory. Generally, fishermen take medium health was from unskilled, non-professional village doctor. In present study, it was found that about 68.14% of fishermen households were dependent on "village doctors" who did not have any understanding and knowledge on modern medical science, while 24.05%

and 7.81% got health service from the Thana Health Complex and Kabiraj respectively (Table 6) which was more or less similar to the findings of Kabir *et al.* [4] and Ali *et al.* [14].

Socio-Economic Constraints of the Hilsa Fishermen: Hilsa fishermen have faced various types of problems. The main problems were identified as extortion by local extortionist; other problems were inadequate credit, lack of appropriate preservation facilities (lack of ice factory or no cold storage facility). Government help for their restoration is not adequate for them during the banned period of Hilsa catch, which corresponds well with the findings of Kabir *et al.* [4] and Paul *et al.* [18]. Additionally, most of the fishermen of Hindus community of Horisonkorpor reported that, as there increase the number fishermen from Muslim community there occurred frequent conflict with those Muslim fishermen. They also reported that though fishing in the Padma River is their ancestral profession but they now getting threats by the increasing number of Muslim fishermen when they are fishing in the river. There was also occurred frequent conflict between the elite groups (Non-professional fishermen) of people and the professional fishermen because during the breeding season of Hilsa fish the elite groups of people catches fish by using destructive fishing gears like mosquito net (locally known as Kapa jal), Current jal etc. It was also found that, being very poor fishermen's children often do another job or go with the fishermen rather than to school. As a result, generation after generation they remain illiterate and not being able to contribute for the betterment of their community.

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