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Trends in Fish Production of Assam: An Analysis

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A B S T R A C T

Besides Agriculture, Fish farming is one of the main occupations in the North-Eastern state of Assam. 10.5% of the geographical area is occupied by surface water bodies, in which 6503 sq km is held by the river systems including the mighty Brahmaputra and 1748 sq km by natural wetlands including seasonal and permanent waterlogged, marshy areas and both natural and man-made reservoirs, ponds and tanks of size more than 2.5 ha. There has been a tremendous increase in production, from 1.90 lakh tones in 2007-08 to 3.06 lakh in 2016-17. The state has shown 1.58 times increase in fish production from 2005 to 2017 which is higher than the country's increase in production during the same period. The fish seed production of Assam is 5678 million nos. for the 2015-16 year. Although the state is endowed with abundant water bodies, it continues to reel from shortfall of fish supply. The present production is 2.94 lakh tonnes. However, the demand is 3.36 lakh tonnes a year. The optimal utilization of the available water resources in the state can boost fish production tremendously. Another solution to augment fish production can be by replacing traditional methods with scientific techniques. Spreading awareness and extending assistance to the fish farmers will further enhance the production.

Introduction

Assam, the heart of North-East India, is located between 24°08'N and 27°59'N latitudes and 89°42'E and 96°01'E longitudes, covers a total area of 78,523 sq. Km. The state is divided into three distinct geographical parts. The Brahmaputra River which flows from east to west for a length of about 700 km within the state plays significant role in the topographical land formation, hydrological balances, ecology, population distribution,

culture and economy of the state. The Barak River situated in the southern end of the state forms the Barak Valley. Barail range and Karbi plateau separates Brahmaputra and Barak river system (ASTEC, 2007). The state receives an average annual rainfall of 1780 to 3050 mm. The total surface water resource of the state is estimated to be 600 billion cubic meter. As per 'Dynamic Groundwater Resources of India – 2004', the Annual Replenishable Groundwater Resource of the State has been estimated as 27.23 billion cubic meter and Net Annual Groundwater Availability 24.89 billion cubic meter. Of the total geographical area in the state, 10.5% area is occupied by surface water bodies, of which 6503 sq km is held by all the river systems including the mighty Brahmaputra and 1748 sq km by natural wetlands including seasonal and permanent waterlogged, marshy areas and both natural and man-made reservoirs, ponds and tanks of size more than 2.5 ha (ASTEC, 2007).

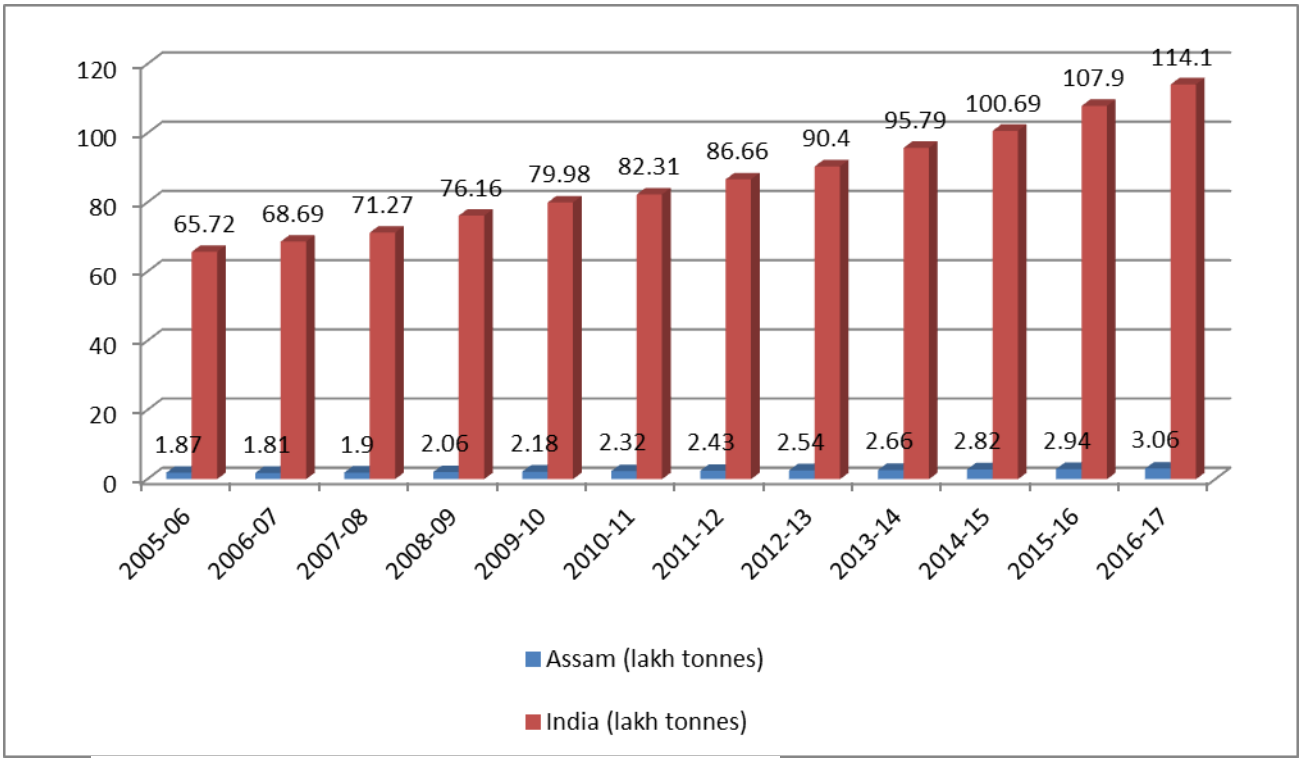
During the 11th plan, the fisheries sector in the state has registered an annual average growth of 6.4%. Assam being a predominantly fish-eating state, 90 percent of its population consumes fish, but the per capita consumption of fish is reported to be only 9.00 kg (Bhuyan *et al.*, 2017). These high proportions of fish consumers in the state thus result in high demand for fish. Contextual to this, it is an utmost necessity to increase the production of fish by utilizing the rich water resources and available production systems of the state. The concerned departments are also required to play a major role in uplifting and enhancing the production in the state.

Fishery resources of India and Assam

The Indian fishery resource is comprised of both marine as well as inland water sector. The marine sector is comprised of 8118 km of long coastline, 2.02 million sq. Km of the Exclusive Economic Zone (EEZ) and 530,000 sq. Km continental shelf etc. On the other hand, the total inland water bodies is 73.59 lakh ha, in which rivers & canals, reservoirs, tanks and ponds, floodplain lakes/derelict waters occupy 195210 km, 29.07 lakh ha, 24.14 lakh ha, 7.98 lakh respectively. Moreover, the brackish water constituted 12.40 lakh ha area of the water body (DAHDF, 2017). Assam, being a land logged state, is devoid of the marine water sector. So its fishery resource is limited only to inland water bodies (4.91 lakh ha) which are quite less in comparison to the total fishery resources of the country (DES, 2016). These resources include rivers, beels, forest water bodies, other derelict water bodies, reservoirs, ponds and tanks.

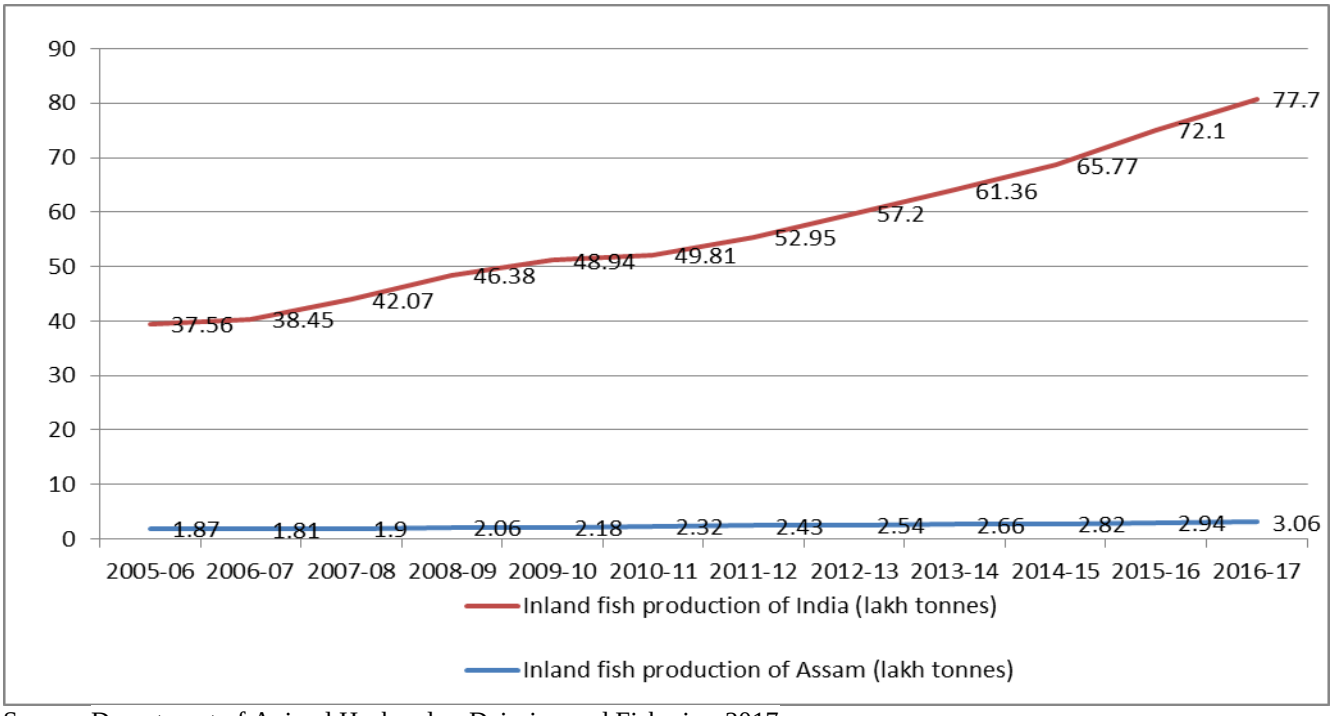
The comparison of fish production in Assam with the country was made by collecting available data published by Department of Animal Husbandry, Dairying and Fisheries, 2018 from 2005 to 2018 (Table 1). In the light of fish production, India has a long tradition of fish culture since the era of independence, and it has occupied its position as the second largest producer of fish in the world (114.10 lakh tonnes), the top place being occupied by China (69.96 MMT). But in comparison to China, the production of fish in India is lagging far behind. As per the report of as shown in Figure 1, the production of fish in the country indicated an increasing trend. The production in the country has increased approximately by 1.736 times 2005 to 2017-18. The increasing production trend of the country during 2005-2006, 2006-07, 2007-08, 2008-09, 2009-10, 2010-11, 2011-12, 2012-13, 2013-14, 2014-15, 2015-16, and 2016-17 were 65.72 lakh tonnes, 68.69 lakh tonnes, 71.27 lakh tonnes, 76.16 lakh tonnes, 79.98 lakh tonnes, 82.31 lakh tonnes, 86.66 lakh tonnes, 90.40 lakh tonnes, 95.79 lakh tonnes, 100.69 lakh tonnes, 107.90 lakh tonnes, 114.10 respectively.

Fig.1 Fish production of India and Assam



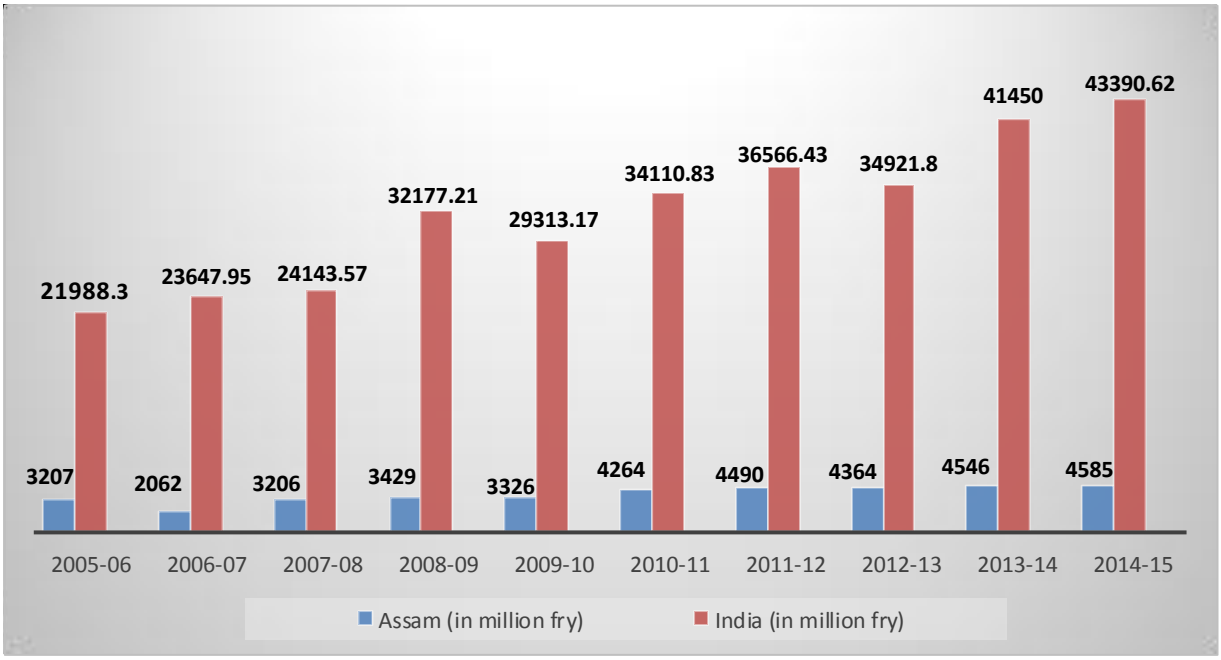
Source: Department of Animal Husbandry, Dairying and Fisheries, 2017

Fig.2 Inland fish production (lakh tonnes)



Source: Department of Animal Husbandry, Dairying and Fisheries, 2017

Fig.3 Fish seed production of Assam and India



Source: Department of Animal Husbandry, Dairying and Fisheries, 2017

Table.1 Fish production of Assam in respect to country (India)

Year	Production (lakh tonnes)	
	India	Assam
2005-2006	65.72	1.87
2006-2007	68.69	1.81
2007-2008	71.27	1.90
2008-2009	76.16	2.06
2009-2010	79.98	2.18
2010-2011	82.31	2.32
2011-2012	86.66	2.43
2012-2013	90.40	2.54
2013-2014	95.79	2.66
2014-2015	100.69	2.82
2015-2016	107.90	2.94
2016-2017	114.10	3.06

Source: Department of Animal Husbandry, Dairying and Fisheries, 2017

Table.2 Total fish production of all districts of Assam from 2014-16

District	Fish production (in tonnes) 2014-15	Fish production (in tonnes) 2015-16
Barpeta	17230	19730
Baksa	5561	6278
Bongaigaon	7147	7590
Cachar	20350	23023
Chirang	1950	2116
Darrang	10050	10485
Dhemaji	5510	5800
Dhubri	15130	15760
Dibrugarh	10600	11227
Goalpara	7660	8380
Golaght	8510	8860
Hailakandi	10180	10848
Jorhat	13720	14245
Kamrup	22150	22630
Karbi Anglong	2220	2310
Karimganj	17750	18393
Kokrajhar	4100	4320
Lakhimpur	12350	13330
Morigaon	13950	14290
Dima-Hasao	790	830
Nagaon	29610	31485
Nalbari	11340	11940
Sibsagar	11260	11850
Sonitpur	8160	8595
Tinsukia	7289	7675
Udalguri	7250	2210
Total:	**2.82 lakh tonnes**	**2.94 lakh tonnes**

Source: Department of Animal Husbandry, Dairying and Fisheries, 2017

Hence, it got reflected that during each period from 2005 to 2017, the production in the country had been increasing approximately by 1.03 times.

While in the state of Assam, the production as reported during 2007-08, 2008-09, 2009-10, 2010-11, 2011-12, 2012-13, 2013-14, 2014-15, 2015-16, 2016-17, were 1.90 lakh tonnes, 2.06 lakh tonnes, 2.18 lakh tonnes, 2.32 lakh tonnes, 2.43 lakh tonnes, 2.54 lakh tonnes, 2.66 lakh tonnes, 2.82 lakh tonnes 2.94 lakh tones and 3.06 lakh tones respectively (Department of Animal Husbandry, Dairying and Fisheries, 2017). However, during the period 2005-06 to 2006-07, the production in the state was decreased by 0.06 lakh tonne, i.e., decreased from 1.87 to 1.81 lakh tonnes. Though the production in Assam is very less in comparison to the country, the state has shown an increase of 1.58 times in fish production from 2005 to 2017 (Fig. 2). On the

other hand, the country's increase in fish production from 2005 to 2017 was 1.53 times which was somewhat lower than the state of Assam.

Fish seed production of Assam and India

The fish seed production of Assam is 5678 million nos. for the 2015-16 year. But the production data of the country is not yet available in the published document for the 2015-16 year (Fig. 3). The total fish production of all the districts in Assam from 2014 to 16 was presented in the Table 2.

Assam being a predominantly fish-eating state, 90 percent of its population is fish eaters. The increased fish production, however, is yet to meet the demand which is 3.36 lakh tonnes a year. To achieve the gap, Assam still depends on other leading fish producing states such as Andhra Pradesh because of not having facilities which are required to produce fish in large scale. Improper management of water bodies could be another reason, and also due to lack of awareness among the fish farmers. There are about 3.93 hectares of rivers, beels, forest water bodies, other derelict water bodies, reservoirs, ponds, and tanks in the state. Bringing these water bodies into the ambit of fisheries will boost fish production tremendously and hence expansion of fisheries in these water bodies is one of the focus areas of the fisheries department for increasing fish production. Therefore, expansion of area under aquaculture has to become a significant option to increase fish production.

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