

INTEGRATED AQUACULTURE IN EASTERN INDIA
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**THE STATUS OF AQUACULTURE IN INDIA WITH SPECIAL REFERENCE TO
EASTERN INDIA**

HAYLOR G AND STEWART J A

Institute of Aquaculture,
University of Stirling
Stirling, FK9 4LA
Scotland



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HAYLOR G AND STEWART J A

IoA, Stirling, Scotland

The Indian inland aquaculture sector in general, is growing at an annual rate of 5.8% and currently produces around 1.6 million tonnes of fish, shellfish and molluscs from tanks and ponds (2.25 million ha), reservoirs (2.09 million ha), brackish waters (1.24 million ha), rivers and canals (173,000 km). In India, the role of fish in the diet is most important in the east and south of India. Correspondingly, the states of eastern India, covered by the project (shown in bold in table 1) account for more than half the inland fish production of the top ten states. West Bengal alone produces c.38% of the total production.

Table 1: Inland fish production (x10⁶) - the top ten states (data: CIFA, 1996)

STATE	1992-93	RANK	1991-92	RANK	1990-91	RANK
WEST BENGAL	612.00	1	592	1	555.00	1
BIHAR	164.07	2	184.97	2	159.93	2
A.P.	151.48	3	138.88	3	136.25	3
ASSAM	140.00	4	130.00	4	76.00	7
U.P.	121.43	5	113.31	5	104.25	4
TAMIL NADU	98.00	6	84.00	7	82.00	6
ORISSA	93.76	7	95.03	6	83.29	5
MAHARASHTRA	77.19	8	64.53	8	64.00	8
KARNATAKA	65.70	9	64.34	9	53.00	9
M.P.	55.71	10	40.68	10	36.95	-
GUJARAT	49.00	-	40.10	-	45.60	10

The production of fish seed, follows a similar trend. Table 2 shows the top 5 states in order of fry production.

Table 2: Inland fish fry production - top ten states (data: CIFA, 1996)

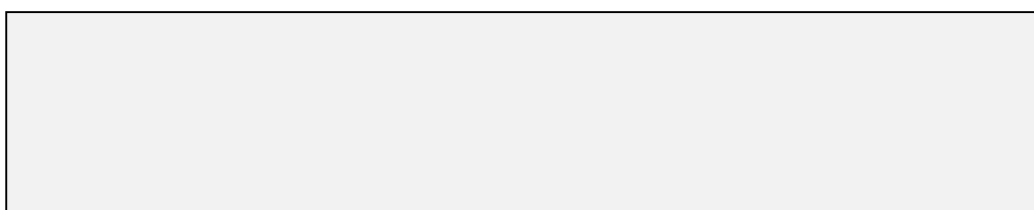
State	Annual fry produced* (x10 ⁶)	Area of water resource* ('000 ha)	Fry : water ratio (fry/ha)
West Bengal	8126.14	545	14,910
Assam	2386.95	186	12,833
Andhra Pradesh	700.00	815	859
Uttra Pradesh	479.15	445	1,077
Bihar	321.16	160	2,007

*source DoF, (1997)

These figures illustrate the current importance of the aquaculture sector both nationally, and in the project states.

National support for aquaculture development

Support for aquaculture in India comes from a number of sources. These include: the national and local line agencies, the Department of Fisheries aquaculture support schemes, the research and development efforts of the Indian Council for Agriculture Research (ICAR) fisheries institutes, the research of a number of relevant academic departments and the activities of a number of NGOs. The current aquaculture targets and recent achievements are summarised in the Ministry of Agriculture Working Group report on Agricultural Research and Education (1996). The prevailing institutional view of aquaculture development is characterised below.



The prevailing institutional view of aquaculture development

Aquaculture should:

- focus on the production of large sized Indian Major Carps
- aim to maximise production
- be a large-scale activity
- concentrate on systems involving off farm inputs
- concentrate on systems which exclude other water uses and users
- concentrate on systems involving large perennial water bodies
- develop via on-station trials
- develop via the Transfer of Technology mode of extension

CIFA has the mandate to conduct research, provide training and extension and scientific information for freshwater aquaculture development. As such they are key to the nation knowledge base. The integrated aquaculture systems advocated by CIFA are reviewed elsewhere in this document

Problems in Inland aquaculture in India

However, it is recognised in Indian aquaculture that problems exist with the process of developing and disseminating aquaculture technological innovation.

- The effectiveness of extension has been questioned, Appaji (1991) identified, in a study carried out in West Bengal, the gap between farmers aquaculture knowledge and the package of practises of composite fish culture technology developed by aquaculture scientists.
- Expected yields are not achieved by farmers, according to Sivasankar *et al.* (1991) a yield gap of 39% between on-station and on-farm yields can be identified in inland fish culture.

The socio-economic context and farmer resource use priorities are not given due consideration. Suresh and Selvaraj (1991) suggest lack of finance is a major cause for low levels of production in aquaculture. The level of feeding and fertilising is often less than that recommended, relating to 60% reduction of expected yields.

Nation and international research and development support currently available for aquaculture mostly promotes large-scale capital-intensive systems which require high levels of inputs and aim to maximise production. Aquaculture interventions based on these commonly held views can succeed in only a small set of circumstances, and explicitly favour well resourced socio-economic groups and highly productive environments.

References

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