

**DEPARTMENT OF COMMERCE  
MAHATMA GANDHI SCHOOL OF  
ECONOMICS AND COMMERCE  
ASSAM UNIVERSITY, SILCHAR-788011  
Silchar- 788011, Assam, India**

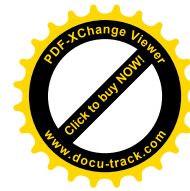
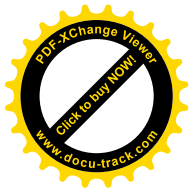
### **DECLARATION**

I, Nongmaithem Dadina bearing Registration No. Ph.D 635/2008 dated 21/04/2008, hereby declare that the subject matter of the thesis entitled **A Study on The Problems and Prospects of Fish Farming in Manipur** is the record of work done by me and that the contents of this thesis did not form the basis for award of any degree to me or to anybody else to the best of my knowledge. The thesis has not been submitted in any other University/ Institute.

Place: Silchar

Date:

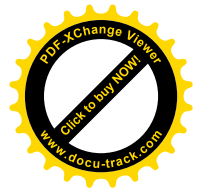
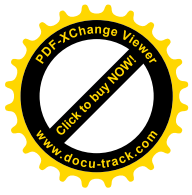
Candidate



## PREFACE

*Fisheries is a sunrise sector of our economy. This sector plays an important role in the Indian economy by its contributions to employment generation, income augmentation, foreign exchange earnings and providing food and nutritional security. Inland fisheries and aquaculture is getting growing recognition for its possibilities and potential of fish production and augmenting the income of the rural people. But in spite of enormous potentials, much progress has not been made. The level of production and productivity has not been adequate, leaving a huge gap between actual and potential yield. Studying the problems should be the starting point in the development process. In this study an attempt has been made to examine the various problems namely, financial, marketing and other infrastructural problems faced by fish framers that impede the development of fish farming in the state of Manipur, India. By solving all these constraints through an increased and more active role of government, financial institutions and other concerned authorities, it would be expected that the intensive fish farming technology would bring self sufficient very shortly in inland fish production from all water holdings, through self employment of rural youth. There are immense potentials for growth of fish farming by encouraging agricultural entrepreneurship or agripreneur with the resource endowment available in this region. The educated unemployed youth could be encouraged to use this available resource for productive purposes through various self employment schemes provided by the government. The study is based on the data collected from fish farmers of the valley districts of Manipur.*

Nongmaithem Dadina



## ACKNOWLEDGEMENT

*I express my deepest and sincere gratitude to my supervisor, Dr. Nikhil Bhusan Dey, Professor, Department of Commerce, Assam University, who guided me with constant inspiration, encouragement, valuable suggestions and useful ideas in completing this work.*

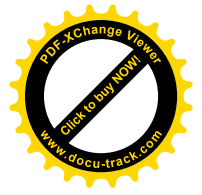
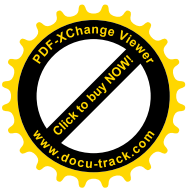
*I would like to express my heartfelt and deep sense of gratitude to Dr. Kh Tomba Singh, Associate Professor, Department of Commerce, Manipur University for his valuable suggestions, kindness and affection that largely contributed in the execution of this work.*

*I also express my profound sense of gratitude to Huidrom Biramani Singh, Project Officer, Fisheries Department, Manipur for his constant encouragement and make available all the necessary data.*

*I am also thankful to all the teaching and non-teaching staff of the Department of Commerce, Assam University, Silchar, for extending their cooperation and support during this work.*

*I acknowledge the library staff of Assam University, Silchar, Central Inland Fisheries Research Institute, Barrackpore, West Bengal and M.U., Manipur, for their kind cooperation and providing different kinds of relevant information in pursuance of my research work.*

*I also extend my special thank to Khumujam Binoy Kumar Singh (Secretary, All Manipur Fish Farmers Ngayok Marup Welfare Association, Mayang Imphal) , Longjam Somendro Singh (All Manipur Fish Farmers Ngayok Marup Welfare Association, Mayang Imphal) and Yumnam Robindro Singh, fish farmer for helping me in collecting primary data. I also express my sincere thanks and gratitude to 370 fish farmers of Manipur without whose cooperation the data base for the study could not have been built.*



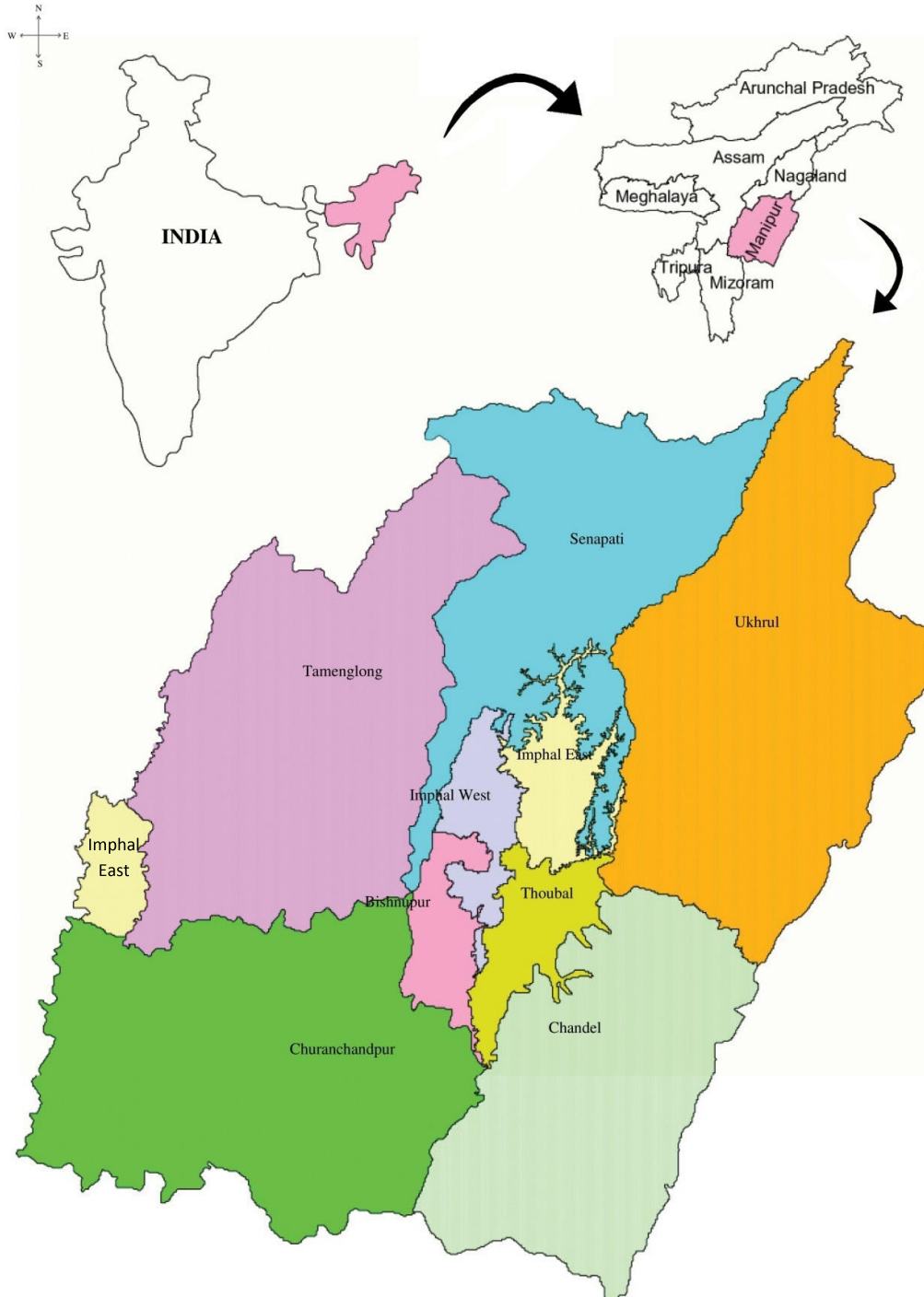
*Over and above, I am indebted to my father, Nongmaithem Iboyaima Singh and mother, RK Barunisana Devi for their constant inspiration and encouragement throughout the course of this work. I also express my sincere thanks to my grandfather, grandmother, uncle, aunty, sister, brother and my friends for their help and support in the successful completion of this work.*

*I am also grateful to the UGC AUS Fellowship for granting me the fellowship for my research work. Without this fellowship this research work would have faced financial constraint.*

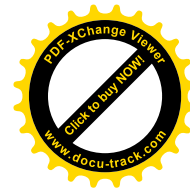
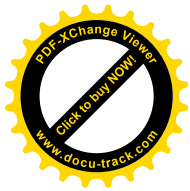
*I express gratitude to all those who helped me directly or indirectly in completing the research work.*

*Last not the least, I would like to thank God for the blessing in the course of the research work.*

Nongmaithem Dadina

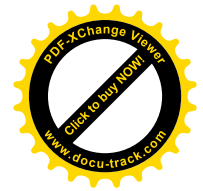
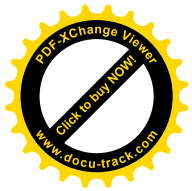


Map : LOCATION MAP OF MANIPUR



## CONTENTS

	Page No.
Preface	i
Acknowledgement	ii-iii
List of Tables	iv-viii
Lists of Figures/Diagrams	ix
<b>Chapter 1: Introduction</b>	<b>1-37</b>
1.1 Introduction	
1.2 An Overview Of World Fisheries And Aquaculture	
1.3 Statement of the problem	
1.4 Review of literature	
1.5 Objectives of the study	
1.6 Hypotheses	
1.7 Methodology	
1.8 Significance of the study	
1.9 Limitations of the study	
1.10 Chapterization of the study	
<b>Chapter 2: Brief profile of Fisheries Sector In India: Growth and Sustainability</b>	<b>38-64</b>
2.1 Introduction	
2.2 Fishery resources of India	
2.3 Fish production	
2.4 Growth of Fisheries Sector in India	
2.5 Indian status in global fisheries	
2.6 Export of fish	
2.7 Livelihood and Employment issues	
2.8 Fisheries and sustainability	
2.9 Development Programmes and Institutional Support	
2.10 Support Systems for Fisheries Development	



**Chapter 3: Fisheries sector in Manipur: 65-81**  
**A brief profile**

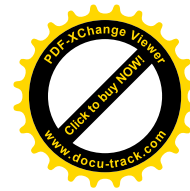
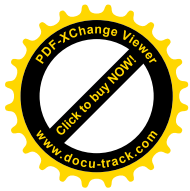
- 3.1 Introduction: A brief profile of Manipur
- 3.2 Fish farming in Manipur
  - 3.2.1 Fishery Resources of Manipur
  - 3.2.2 Growth of fisheries sector in Manipur
  - 3.2.3 Fisheries Cooperative societies in Manipur
  - 3.2.4 Development programmes and schemes for Fisheries Development in Manipur
  - 3.2.5 Importance of ICTs in Fisheries

**Chapter 4: Fish Farmers in Manipur: 82-103**  
**A Socio-economic analysis**

- 4.1 Introduction
- 4.2 Socio-economic conditions of fish farmers: Results and Discussion
- 4.3 Conclusion

**Chapter 5: Problems of Fish Farming: 104-148**

- 5 Introduction
  - 5.1 Financing of Fish Farm: Results and discussion
    - 5.1.1 Importance of Records and Accounts
    - 5.1.2 Working capital management
    - 5.1.3 Cost- benefits analysis of fish farming
  - 5.2 Marketing Problem: Results and discussion
    - 5.2.1 Production
    - 5.2.1 Pricing
    - 5.2.3 Main actors and activities in fish marketing
    - 5.2.4 Market channels and margins
    - 5.2.5 Marketing problems
  - 5.3 Related infrastructural problems: Results and discussion



**Chapter 6: Prospect of Fish farming 149-164**  
**in Manipur**

- 6.1 Introduction
- 6.2 Prospect of fisheries development in Manipur
- 6.3 Fish farming systems for sustainability
- 6.4 Loktak Lake: The main source of fish
- 6.5 *Ngari*: An indigenous fermented fish product of Manipur
- 6.6 Entrepreneurship Development through Ornamental fish farming
- 6.7 Prospect of eco-tourism through fish farming
- 6.8 Prospects of Integrated fish farming in Manipur

**Chapter 7: Summary of Major Findings, 165-177**  
**Suggestions and Conclusion**

- 7.1 Summary of major findings
- 7.2 Suggestions
- 7.3 Scope for further Research
- 7.4 Conclusion

**Bibliography 178-184**

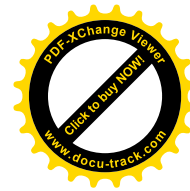
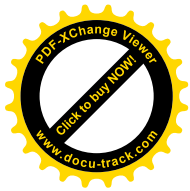
**Appendices 195-241**

Appendix I: Questionnaire

Appendix II: List of name of fish found in Manipur

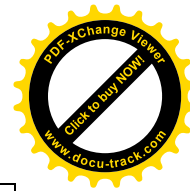
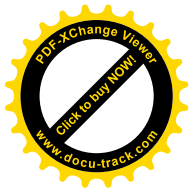
Appendix III: Publications



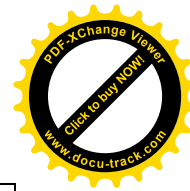
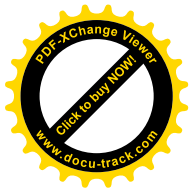


## List of tables

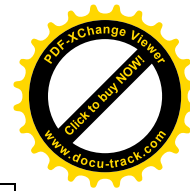
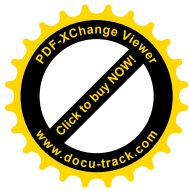
Sl. No.	Table No.	Description	Page No.
1	1.1	Sample size distributions	30
2	2.1	Fisheries Resources of India	38
3	2.2	State wise Marine Fisheries Resources of India	39
4	2.3	State wise Inland Fisheries Resources of India	39
5	2.4	Changes in the structure of fish production in India	41
6	2.5	Fish seed production	42
7	2.6	Fish Production over the Plan Periods	43
8	2.7	Contribution of fisheries sector in India	44
9	2.8	Contribution of India to World Fish Production	45
10	2.9	Development of India's Export of fisheries product	46
11	3.1	Profile of Manipur according to 2011 census (Provisional)	65
12	3.2	Distribution of area, population, density of population and sex ratio by districts of Manipur as per 2011 census (Provisional)	67
13	3.3	District wise literacy rate as per 2011 Census	68
14	3.4	Distribution of workers in 2001 census	69
15	3.5	Distribution of land holding	70
16	3.6	Fisheries Resources of Manipur.	73
17	3.7	Fish production in Manipur	74
18	3.8	Government Fish Farms in Manipur	75
19	3.9	Gross State Domestic Product of Manipur at current prices	76



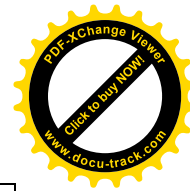
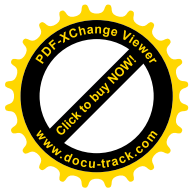
20	3.10	Fisheries Cooperative Societies in Manipur (1998-99 to 2007-08)	77
21	4.1	Classification of age groups of the sampled respondents	84
22	4.2	Classification of sampled respondents according to gender	85
23	4.3	Classification of sampled respondents according to religion	85
24	4.4	Classification of sampled respondents according to social groups	86
25	4.5	Classification of sampled respondents according to occupation	87
26	4.6	Classification of sampled respondents according to ownership	88
27	4.7	Classification of sampled respondents according to educational qualification	89
28	4.8	Classification of sampled respondents according to nature of family	90
29	4.9	Classification of sampled respondents according to size of the family	91
30	4.10	Classification of sampled respondents according to type of house they stay.	91
31	4.11	Classification of sampled respondents according to sources of drinking water	92
32	4.12	Classification of sampled respondents according to medium of lighting.	93
33	4.13	Classification of sampled respondents according to consumption habit	94
34	4.14	Classification of sampled respondents according to experience of fish farming	95
35	4.15	Classification of respondents according to level of production	96



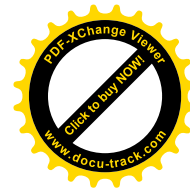
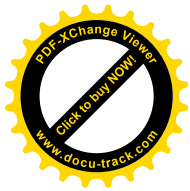
36	4.16	Net income of fish farmers	97
37	4.17	Saving of fish farmers	97
38	4.18	Relationship between selected Socio-economic variables and productivity of fish.	98
39	4.19	Reason for taking up fish farming:	99
40	4.20	Classification of respondents according to the training programme attended	100
41	5.1	Distribution of respondent according to type of ownership and book of account	107
42	5.2	Distribution of respondents according to necessary of capital and financial constraint	108
43	5.3	Distribution of respondents according to seeking of financial assistant.	109
44	5.4	Distribution of respondents according financial assistance received (Source wise)	109
45	5.5	Distribution of respondents according to reason for not taking loan.	110
46	5.6	Distribution of respondents according to duration for getting loan	111
47	5.7	Distribution of respondents according to the cost of fish seeds incurred.	113
48	5.8	Distribution of respondents according to the cost of fish feeds incurred.	113
49	5.9	Distribution of respondents according to the cost of fish medicine incurred.	114
50	5.10	Cost table	115
51	5.11	Distribution of respondents according to the size of fish farm	119
52	5.12	Distribution of respondents according to the type of fish cultured	120
53	5.13	Distribution of respondents according to purpose of fish farming	121



54	5.14	Distribution of respondents according to production cycle	122
55	5.15	Producer, wholesale and retail price of fishes	123
56	5.16	Problems faced by fish farmers	129
57	5.17	Classification of degree of problem of inadequate availability of fish seed of respondents according to the productivity of fish	133
58	5.18	Classification of degree of problem of high price of fish seed of respondents according to the productivity of fish	134
59	5.19	Classification of degree of problem of high fingerlings mortality faced by respondents according to the productivity of fish	135
60	5.20	Classification of degree of problem of maintenance of pond faced by respondents according to the productivity of fish	136
61	5.21	Classification of degree of problem of netting of respondents according to the productivity of fish	136
62	5.22	Classification of degree of problem catching of respondents according to the productivity of fish	137
63	5.23	Classification of degree of problem of lack of technical knowledge of respondents according to the productivity of fish	138
64	5.24	Classification of degree of problem of lack of training and supervision of respondents according to the productivity of fish	139
65	5.25	Classification of degree of problem stealing of respondents according to the productivity of fish	139
66	5.26	Classification of degree of problem of Small	140



		size of fish at harvest of respondents according to the productivity of fish	
67	5.27	Classification of respondents according to their problems	141
68	5.28	Distribution of satisfaction level of government policies of the respondents according to educational qualifications	142
69	5.29	Distribution of satisfaction level of government policies of the respondents according to type of ownership	143
70	5.30	Distribution of satisfaction level of Bank services of the respondents according to type of ownership.	144
71	5.31	Distribution of satisfaction level of bank services of the respondents according to educational qualifications	144
72	5.32	Distribution of satisfaction level of training of the respondents according to ownership types	145
73	5.33	Distribution of satisfaction level of training programme of the respondents according to educational qualification	146
74	5.34	Distribution of satisfaction level of training programme of the respondents	146
75	5.35	Distribution of respondents' satisfaction level of selling price of fish according to type of ownership	147
76	5.36	Distribution of respondents' satisfaction level of selling price of fish according to size of farm	147



## List of Figures

Sl. No.	Figure No.	Description	Page No.
1	1.1	World inland and marine fish production (2004-09)	5
2	1.2	World capture and aquaculture production (2004-09)	6
3	1.3	Major producer countries of capture fisheries	7
4	1.4	Aquaculture producer countries	8
5	1.5	Exporters of fish and fisheries products	11
6	1.6	Importers of fish and fisheries products	11
7	4.1	Classification of sampled respondents according to religion	87
8	4.2	Classification of sampled respondents according to occupation	87
9	4.3	Classification of sampled respondents according to ownership	88
10	4.4	Classification of sampled respondents according to experience of fish farming	95
11	5.1	Sources of Rural Credit	105
12	5.2	Distribution of respondents according to marketing channel	126
13	5.3	Marketing channel	128