PORT DEVELOPMENT IN INDIA, WITH

SPECIAL REFERENCES TO SHIPPING

PRODUCTIVITY, REGIONAL COVERAGE

AND FOREIGN TRADE.

Tele { phone Nes. : 336961, 336062, 336963 graphic Address : "UNIPUNA"

UNIVERSITY OF POONA

Ganeshkhind, PUNE - 411 007.

Ref. No. : PGS/Ph.D./Cert/7755/

Date-12.11.1992

CERTIFICATE

This is to certify that Skri Smt. PEREIRA GEORGINA.I.
is a bonafide student of this University
doing Ph.D. Course in the subject ECCNOMICS
Faculty of NEWAL FOR ALL SOCIAL SCIENCE from 31.3.1990.
Her guiding teacher is Dr. B.S.R.RAO
Herdate of registration is 31.3.1990,
To the best of my knowledge SHE bears a good moral character.

P.U.P.-10 pads of 100 pp.-11-89 (1638)

TRUE COPY

Deputy Registrar.

. TITLE :

PORT DEVELOPMENT IN INDIA WITH SPECIAL REFERENCE TO SHIPPING PRODUCTIVITY, REGIONAL COVERAGE AND FOREIGN TRADE

- 1. No. of Volumes : THESIS 1 (one)
- 2. Name of the Author : GEORGINA I. PEREIRA
- 3. DEGREE : Degree of Doctorate of Philosophy (Ph.D)
- 4. Name of the University : University of Pune.

 Pune 411 007
- 5. Name of the Department : Mental, Moral & Social Sciences.

 Humanities Faculty
 - : Economic Department University of Pune.
 - : Pune 411 007
- 6. Institute or Centre : Gokhale Institute of Politics and Economics. (G.I.P.E.)
 Deccan Gymkhana
 Near Servants of India

Society Library, Pune - 411 004.

7. Month & Year of Submission

: June, 1996.

5

APPENDIX: FORM 'A'

;	
CERTIFIED that the work in	corporated in the thesis. "PORT DEVELOPMENT IN TROTA
	RENCE TO SHIPPING PRODUCTIVITY, REGIONAL
	GN TRADE"
	(Title)
submitted by Shei/Smt. Partnal R.	- Gaustina I.
	nder my sur rvision guidence. Such material as has
been obtained from other sources ha	is been duly acknowledged in the thesis.
	- \ ·
	In amo-
Dated:	
Piace:.	(Supervisor/Research Guide)
TIGOU:	

M s. G. I. PEREIRA

ACKNOWLEDGEMENT

With sincere appreciation, I would like to hereby say "Thank you" in general to all persons, who have in any way helped, guided and encourage me to undertake the Ph.d studies during the long years of study.

I acknowledge with thanks first, the Head of the Economics Department, University of Pune, Dr. B.S. Rao for his valuable help and guidance all through these years.

I also thank, Dr. P. Wadhwa, Director, Gokhale Institute of Politics & Economics, Pune - 4 for allowing me to join and complete this study from his Institute, and the staff members, of the G.I.PE. Institute.

My thanks and gratitude to my Guide, Dr. Prof. S. Shriraman for his guidance in making this study feasible.

May, I also express my gratitude and thank the Secretary and Staff members of the Servants of India Society Library, Pune 4, for their cooperation and help.

I would also like to express the same gratitud to the Staff of Jayakar Library, Staff Members of the Ph.D Department University of Pune, Pune - 7.

With sincere appreciation, and gratitude I would like to thank the members of my family, for their encouragement and financial help, specially my sisters.

I also thank, Mrs. S.Nair and co-helpers for their kind co-operation in neatly typing out this work.

Place : Pune

Dated: June 1996

GEÔRGINA I. PERREIRA

Regd. No. 903.

University of Pune.

Pune -7.

M s. G. i. Peneina

FOREWORD-

1. This study comprises of four Parts. These Parts are inter-linked and has effective and important roles in the Development of Ports in India.

Part A - Port Development in India.(Section-1)

Part B - Shipping Productivity (Section-2)

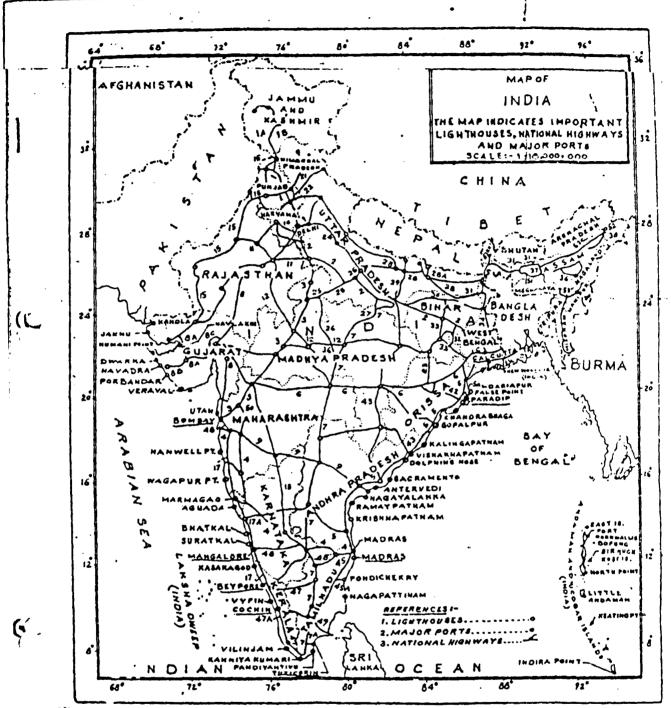
Part C - Regional Coverage (Section-3)

Part D - Foreign Trade (Section-4)

This study discusses the nature of relationship, and the reason for developing ports higher, in regard to Shipping Productivity and Sea Transporation, Regional Coverage and Inland Transporation, and Regional Development, Foreign Trade and Balance of Payments, the necessity of Open Door Economy for a stable and growing National Economy.

2. Methodology :

The method used in this study is Statistical findings and observations. Information was collected from Statistical Records and other Reports, eg. Annual Reports of Major Ports, and Surface Transport Ministry's Publications e.g. Basic Port Statistics, and Indian Shipping Statistics, Economic Survey of Maharashtra, Planning Commission of India and Eighth Five Year Plans, 1992-97 etc.



(I) BASED UPON SURVEY OF INGIA MAP WITH THE PERMISSION OF THE SURVEYOR BENERAL OF INGIANO GOVERNMENT OF INDIA COPY RIGHT 1970.

(BI) THE THREITORIAL WATERS OF INGIA EXTEND INTO THE SEA TO'A DISTANCE OF TWELVE MAUTICAL MILES MEASURED FROM THE APPROPRIATE BASE LINE.

Source: annual Report 1993.94, GOI. Ministry of Surface Transport, N. Delhi.

⁽N) TAE BOUNDARY OF MEGHALAYA SHOWN ON THIS MAP IS AS INTERPRETED FROM THE NORTH-EASTSAMAREAS (REORGANISATION) ACT, 1971, BUT HAS YET TO BE VERIFIED,

CVIRESPONSIBILITY FOR THE CORRECTHESS OF INTERNAL DETAILS RESTS WITH THE PUBLISHER

the the abbilistrative head-quarters of chambigary, hartana and punias are at chambigary

7.	VII, LIST OF TABLES	
-,		
Sr. No.	Particulars	rate No.
Chapter No.	PAKI A.	
II.II. i.	The Composition of Payments in	
	a British Port Cases I a II	31
II.II. ii.	Composition of Annual Port Cost	
	for the expected Annual through-	_
	put of three Planned Berths,	
	Port Kelang, 1974	40
II.II. iii.	Indicators of Congestion of	
	Two Major Indian Ports, 1969-70	58
II.IV. i.	The Share of Conference lines	
	in Cargo Tonnace of Routes	
	into and out of Bombay.,	58
Α.	Financial Indicators	
IV. i.	The Tuticorin Port Trust	131
1V. 11.	The Visakhapatnam Fort frust .	131
.V. 111.	The Madras Port Trust	• 132
iv.	The Calcutta Fort Trust	• .
17. V.	The Bombay Port frust	133
<u>B</u> •	Port Performances.	
IV. vi.	Annual Cargo Traffic	. 159
¹V. vii.	Ships Arrival	. 16I

7. List of Teoles.

Sr.	Particulars	Page	Nos
IV. viii)	Employment in Major Ports	• •	161
IV. ix)	Average Turn-Rount Time of Ships	• •	162
IV.8 x)	Berth Occupancy in Major Ports	• •	162
Chapter VI.			
I.i.	Port Capacity as on 31-3-93/94	• •	177
vi I.11.	Commoditywise Break-up of		
	Port Capacity	• •	154
vi. I.iii.	Single Round Voyage	• •	199
VI I.iv.	Composition of Payments		
	in Indian Ports, 1984-85	• •	199
VI I.v.	Share of Port and Cost		
	expenses in Voyage Cost	• •	20
VI.III. i.	Total Container Traffic and		
	Facilities, 1973	• •	ولاح
VI.III. 2.	Port charges to the Consignee	• •	
	on Container Traffic	• •	21.
vi.iii. 3.	Charges for the Hire of Ports		51 <i>A</i>
	Floating Crafts	• •	220
VI.III.4.	Canadian Controlnon Bont		
A1.111.4.	Canadian Container Port		
<i>,</i>	Capacity, Annual Container		
	Handling and charges	• •	221
VI.III. 5.	Cost per Metric ton of Multi-		
	berth Ports	• •	221
VI.III.6.	Charges for use of Port Appliances		222
117 ***	& Plants.	• •	222
VI.IV.i.a	Tugs & Launch Service to Owners,		
	Masters and Agents of Vessels and		271
	Sailing Vessels	• •	231

8.4 List of r	иртев :	
Sr.No.	Particulars	Page nos.
v1.1V.1ii.b.	Pilotuse Fees	231
V1.1V.iii.c.		
· · . 111 . C .	Letting on hire of Cranes to Masters, Agents or Owners of	
	Vessels Importers or Exporters	. 232
v1.1v.1v.d.	Contestion Surcharte of Shipments	
	to Bombay and Karachi, 1973	233
VI.VI.i.a	Bertus, Moorings or Aircharges	
	dues	243
VI.vi.i.o.	Mooring Fees for the Mooring	
	buoys by the Port Authority	244
vil.i.	Annual Expenditure by Hajor	6 13
	Ports in India, for 1991-92	.247
VII.iii.i.	Port of Madras Authority	
	Tariff, 1999, Container traffic	
V II	ver tonne	251
٧ <u>4</u> 1.111.11.	Four Forts in Developing Asia	
٠ ١	Indicators of output, 1974	255
IV.i.	Shipping Tonnage	509
iV.ii.	Bulk Carbo Freight 1982-1986	322
	,	722
	(
<u> 4 </u>	RT C.	•
ı√. a.	Transport Sector - India	355
ს.	Transport Sector - Manarozotra	356
r A I	Value of Foreign Frade	395
-	The second secon	ノブノ
Als. G. I. PEREL	AA	,

AVEL: 1:6

1%

ļ.

.

 $V_{\zeta} \lesssim$

List of	Diagrams				
Sr. No.	Particulars			Page	No
Part A-F	Port Development in India:	V <u>I</u> - 1	` • •	•	
A.į,(1)	Derived Demand for Shipping & Services in the Case of Fixed				•
	ions. · · · · ·	•	•••••	•	33
A.2:(1)	Cost and Output	1 -	• •		33
A.2.(11)	Variation in Demand	••	• •		42
A.3(1)	Port Cost with Diseconomies of	Scal	le		46
A.3(11)	Average Occupancy Rate at which are minimized for a Specific No.				
• •	Berths	••	••		46
A.3(111)	Total Cost of Two Identifical 1 a one Port Alternative	Ports	and		48
A.3(1v)	Cost and Discontinuities of Por	rts.	••		48
A.4(1)	Port Congestion with Competitive Shipping	ve ••	••		51
A.4(11)	Port Congestion with Monopolise Shipowners (or Cartel)	ed .	• •	<u>.</u>	51
A.4 (111)	Demand for Ocean Transport & De Demand for Port Services.	rive	a	·	55
A.5(1)	A Port and its Hinterland	••	••		60
A.5.(11)	Demand Curve for Port Services	••	••		60
A.5(111)	Bi-lateral Monopoly	••	••	•	63
A.5(iv)	Linear Demand Curve - The Profi sing Monopolist Absorbs Part of				
	Charges				63

8. / List of Diagrams :

Sr.	Particulars		Page No.
A.5(v)	Demand for Shipping and Demand for		
	Port	•	65
A.6(1)	Kinked Demand Curve and Changes in		
	Cost	•	69
II.A.7			
(1)	Demand for the Service of a Regional		
	Transhipment Port "Small" Home Traffi	C	
	and "Large" Transhipment market .	•	76
II.A.7			
(11)	Average Cost and Transhipment Pricing		
	in Containers	•	70
II.A.7			
(111)	National Port versus Regional Port .	•	13
VI.A.2			
(1)	Variation of Port Cost and Ships time		
	with increasing Traffic	•	202
VI.A.2			
(11)	Variation in Total Cost in Ports with		
	increasing Traffic	•	202
VI.A.2			
(111)	Relation between Berth Occupancy		
	and Ships Waiting Time	•	207

	Particulars			Page No.
No				
PART B.		. *		
II.B. (I)	Changes in Demand for Shir	s		
·	Elasticity of Demand		• •	292
II.B.2	Changes in Supply of Ships	(Tonnage:	s)	292
(11)		/	,	-
II.B.2	•••	•	• •	
(111)	Profitability of Ships & V	oyaes	• • •	295
II.B.3			•	
(iv)	Average & Marginal Cost	• •	••	295
PART C.			· • •	
II.C.I				
(1)	Location Cost and Scale of	Output	••	337
II.C. 2		•	•	
(11)	Demand Cone & Transporatio	n Cost	••	337
II.C.3	•			
(111)	One Market, a One Material	Source	••	367
II.C.4				
	Population	••	• •	367
PART D.				
II.D.I	•			
(1)	Terms of Trade Changes	••	••	385
II.D.II				
(11)	Reciprocal Demand Relation	ship	••	385
II.D.IV	• •		• •	
(1)	The Edgeworth Box Diagram.	••	••	387

LIST OF GRAPHS

Sr. No.	Chapter Nos	•	Particulars Graphs		Page No
	Part A.	Fina	ncial Indicators :		
1.	GRAPH	· · A-1	Tuticorin Port	••	134
2.	GRAPH	A-2	Visakhapatnam Port	• •	135
3.	GRAPH	A-3	Madras Port	• •	136
4.	GRAPH	A-4	Calcutta Port	••	137
5.	GRAPH	A-5	Bombay Port	••	138
• .	Part A.	Port	Performances :		
6.	GRAPH	A-6	Annual Cargo Traffic	• •	163
7.	GRAPH	A-7	Employment in Ports	• •	165
8.	GRAPH	A-8	Ships Arrival in Ports	• •	164
9.	GRAPH	A-9	Average Turnaround of Ships	• •	166
10.	GRAPH		Berth Occupancy in Ports		- 167
11	Part B. GRAPH	B-1	Shipping Productivity		
• •	• •	• •	G.R.T And No. of Ships.	•	310
12.	Part C				
	GRAPH	C-1	Tranport Sector - Maharasht	ra.	
	• •	C- 2	State r Iransport Sector - India	••	357 358
13.	Part D	-		-	
	GRAPH	D-1	Foreign Trade Performance	• •	396

LIST OF MAPS

Section	No.	Particulars	•	Page No.
PART A	, •	•		
1) Map	A-1	Map of India	••	$v_{\mathbf{a}}$
• •	A-2 :	India Major Ports	. •	86
Map_Appdx	A-I	General Cargo Waterfront		
• •		of New York Port	••	I.i
Map Appdx	A-II	Madras Port	• •	1.2
Map Appdx	A-III	Visakhapatnam Port	• •	1.3
Map Appdx	A-IV	Paradeep Port	•	1-4
Map Appdx	A-V	New Mangalore Port	:•	I - 5
Map Appdx	A-VI	Mormugao Port	••	I-6
PART C	:	•	•	
	C-1	India Planning Regions	••	323
	C-2	Regional Planning in .		•
• • •	•	Maharashtra	• •	341
	C-3	National Capital Region.	• •	370
PART C	C-4	Regional Coverage Dimensions of Development Planning.	••	334

xxi

TABLE OF CONTENTS

Sr.	Particulars	Page No.
I.	Title	(1)
II.	Title Authors Name & details	(11)
III.	Form A	(111)
IV.	Acknowledgements	(iv)
V.	Foreword & Methodology	(v))
VI.	Abstract	(vi)
VII.	List of Tables	(xiii)
vIII.	List of Diagrams	(xvi)
IX	List of Graphs	(xix)
x	List of Maps	(xx)
PART A.	Port Development in India	
Chapters.I	INTRODUCTION	
I.	The Development of Ports	1
II.	Theortical Aspects	4
	Port Usuage and their Demand	
	Function.	4
III.	Congestion in Ports	9
IV.	Data and Historical Development.	20
V.	The objectives & National Policies	3 26
II.1.	The Theories of Port Operation	
1)	Port Activities, Services & Usuale	28
11)	The Demand Function.	29
II.2.	The Cost Function in Ports	
1)	The Short run Marginal Costs	36
11)	The Average Cost Function.	38
111)	The variation in Demand.	39

11:>

M s. G. I. PEREIRA

xxii

Sr.	Particulars	Page No
II.3.	The Economies of Scale in Port Operation	
i)	Services of the Port and Size of Plan	t 43
ii)	Location of the Port	45
111)	Occupancy of Berths	45
II.4	Congestion in Ports	
1)	The Congestion Theory	50
11)	A Monoplist Steamship Service	54
111)	Other Forms of Congestion.	57
II.5.	Profit Maximization Theory	59
i)	National Optimal Pricing	62
11)	Bi-lateral Monopoly	64
111)	Port charges on Traders & Consumers.	64
11.6.	Competition in Shipping Industry	
i)	Perfect Competition	66
11)	Imperfect Competition in Shipping Monopoly.	67
II.7.	The Supply Theory & Variation	68
1)	The Kinked Demand Curve	70
11)	Price Discrimination	71
111)	Discrimination among Goods	72
iv)	Discrimination among Conferences	73
II.8.	Competition Theory	-
1)	Competitive Pricing among Ports	74
ii)	Competition in Transhipment	74
111)	Containerization Effects.	77

Sr.	Particulars	Page Nos
No.		
II.8.	Port Tariffs and Multi-part Tariffs	<u>.</u>
i)	Lease-a quay (LAQ)	81
ii)	Shippers Licences to use the PORT (LUP) 82
111)	Percentage Levy	3 ك
iv)	Allocation of Resources by Rule.	84
	PART A	
CHAPTERS III.	Data and Historical Development	
1)	The Port of Bombay	8 7
2)	The Port of Calcutta	92
3)	The Port of Madras	96
4)	The Port of Visakhapatnam	102
5)	The Port of Tuticorin	106
6.	The Port of Cochin	109
7.	The Port of Kandla	113
8.	The Development of Port Paradeep	119
9.	The Port of New Mangalore	124
10.	The Port of Mormugao.	127
IV.	Financial Indicators	
1.	Tuticorin Port Trust	139
ii.	Visakhapatnam Port Trust	143
111.	Madras Port Trust	147
iv.	Bombay Port Trust	151
V.	Calcutta Port Trust	155
vi.	Annual Cargo Traffic	168
· vii.	Ships Arrival in Major Ports	172
viii.	Employment in Major Ports	⊥74
ix.	Average Turn Round Time (Ships)	177
X.	Berth Occupancy Rate.	180

Sr.	Particulars	Page Nos
No		
Capter V.	National Objectives and Policies	
	for Port Development.	183
a)	General Transport Policies	184
b)	The Common Transport Policy(CTP)	1 184
c)	The High Cost of Maintaining Peak	s 104
d)	Three Major Objectives	185
II.	National Transportation Policy.	186
III.	Pricing in Public Utilities.	lಶರ
VI.	The Emperical Results	192
I. i)	Port Activities, Services and Usu	age 194
11)	The Demand Function	195
II. i)	The Cost Function in Ports	201
11)	The Short Run Marginal Cost and i	ts 20d
111)	The Average Cost Function	210
iv)	Variations in Demand	211
III.	The Economies of Scale	213
1)	Services of the Port, size of the	
ii)	Location of the Port	213 214
111)	Occupancy of Berths.	216
IV.	Congestion in Ports.	224
1)	Berth Capacity	2 24
11)	Advantages of congestion pricing .	. /227
111)	Disadvantages	·227
iv)	Causes of Congestion	227
v)	Abnormal Congestion	22೮
vi)	Congestion Surcharges	229
vii)	Surcharge and Type of Service.	1229
viii)	Bilateral Monopoly .	230

šř. No.		Particulars	Page	Nos
v.		Profit Maximization in Ports	2	54
	ii)	A Monopolist Shipowner	23	37
	111)	Maximising Benefit to Nationals	_	39
	iv)	The Gains to National Owners of Cargo	23	39
VI.		The Supply Function & Variations	24	10
	11)	Discrimination by Origin	24	1 0
	111)	Other variations in Cost.	24	4⊥
٠		PART A.		
Chapt	er Nos			
VI	i)	Competitive Pricing among Ports	24	45
	11)	Transhipment Competition	24	46
	111)	Container Service Mainline and Feeder	• 24	46
VI.	1)	Port Tariffs and Multi-part Tariffs	24	4ප
	11)	General Trend of charging Tariffs	24	4 d
	111)	Shippers Licence to use the Port (LUF) 2:	52
	iv)	Percentage levy	-	o3
	v)	Allocation by Rule.	2	56
vII.		SUMMARY :		
	I)	The Significant Role of Ports in Indi	a 2	57
	II)	Theortical Arguments	2	59
	III)	Review of the Major Ports in India	2	62
	i)	Port Administration in India		ے 2
	11)	Performance of Ports in India	2	b4
	111)	Port Activities in India	2	6' <i>i</i>
IV.		Emerging Role of Ports in India		
	1)	Policy of Ports System		260
	11)	Investment through various Five Year Plans.		270
	111)	Manpower at Major Ports		272

M s. G. I. PEREIRA		xxvi
Sr.	Particulars Page	Nos
	Poster of Don't Efficiency	077
v) 1.	Review of Port Efficiency Importers view on Port Efficiency	273
11.	The Shipper's/Exporters view is identical to that of the Importers The efficiency of Ports Depends upon	273 274
111.	Advantages gained	277
ivì	Other National Transport Objectives.	279
Chapter VIII.		
i)	Effects of Port Development on	282
- /	Shipping Productivity, Regional	202
	Coverage and Foreign Trade.	
	a) Variable Trends in Port Development	282
•	b) Port Capacity	283
	c) Effects of Ports Higher	284
	Development on Regional Development	204
11)	Links of Port Development to the Three	
As Carlo	other=Sectors	2ʊ5
12.PART B.	Shipping Productivity.	
Chapter 1.	Introduction	
1)	The Important Role of Sea-Transport	2ප6
11)	Theortical Aspect.	287
111)	Review of Indian Shippins	289
iv)	Problem of Peak	290
2.	Theories :	
1)	The demand Theory for Ocean Liners.	291
11)	The Supply of Tonnage.	293
111)	a) The Profitability of Ships & Voyages.	29.
	b) The Average and Marginal Cost.	296
	c) The cost and Classification of Ships Theory.	296

Sr.		Particulars Page 1	.No.
12. PAR		Miles Miles and A David Mark and a Company	203
	1v)	The Theory of Freight rates.	297
	v)	Special Ships, the Economics of	200
		Running Big Ships.	299
III.		Data and Historical Development	
	1)	Shipping India 1993	. 302
	2)	Shipping bodies	302
	3)	Shipping Companies	302
	4)	Coastal Shipping	303
8	· 5)	Ship Building	303
•	6)	Ship-repairs	303
	7)	National Ship Design and Research	
		Centre (NSDRC)	304
II.		Indian Registrar of Shipping.	304
III.		Container Corporation of India (Concor)	305
IV.		The Participation of the Indian Overseas	
		Trade by Shipping Corporations.	306
v.		Growth of Indian Shipping in post Inde-	
		pendence period.	307
		a) Composition and Ship size.	308
		b) Fleet Ownerships.	308
Chapter	IV.	Ships Performance and Revenues	
•	v.	National Objectives and Policies	312
	i	a) India's Shipping Policy	312
•		b) The Merchant Shipping Act, 1951.	312
Chapter	VI.	Empericial Results	
	1. .	The Demand Theory for Ocean Liners	313

Sr.	Particulars Page	No.
No.		
Chapter VI	PART B.	
ĬĬ	The Average and Marginal Cost	314
II	a) The Classification of Shipping Cost	315
	b) The Profitability of Ships & Voyages	316
III	The Supply of Tonnage.	316
IV	Freight Rates and Pricing .	317
v.	The Special Economics of Running Big	700
	Ships.	320
Chapter VII.	Summary	
1)	The importance of Shipping Productivity.	323
11)	The Theortical Arguments.	324
111)	Historical Review of Shipping in India	325
Charles UTT	Complustons	
Chapter VIII.		
1)	Effects of Shipping Productivity on	r
	Foreign Trade, Regional Coverage and	
	Ports Developments.	326
11)	Links.	326
13. PART C.	Regional Coverage	
Chapters I)		
1)	Introduction	329
11)	Theoretical Aspect	331
111)	Objectives of Regional Coverage.	332
n.	Theories of Regional Economics	
1)		335
±/	Location, Cost and Scale of Output	336
	a) Minimising Cost	
	b) Receipts and Locations.	336

sr.	 	Particulars Pag	e Nos
Chapter	s II,	13. PART C. Regional Coverage	
_	11)	The Long Run Model of an Open	
		Economy.	338
	111)	The Population Theory.	340
III.	1)	A case study of Maharashtra State	
		for Regional Development to meet	
		the Foreign Requirements of Bombay	
		Port	341
	11)	Regional Planning in Maharashtra	353
		1) Bombay Metropolitan Region.	353
IV.	1)	Maharashtra State Performance and	
		Finances	359
		1) Transport and Communications.	359
		11) mState Income Current and Constant (1980-81)	360
		iii) Per Capital Income	360
v.	1)	Policies and Planning in the State of	
		Maharashtra and in India and their	
		Objectives	361
	11)	Centralised Planning and Decentralised Planning *	364
	111)	Corrective Planning & Development	
		Planning	365
Chapter	VI.	Empricial Results	
	iþ	Location Cost and Scale of Output	366
	11)	The Long Run Model of an Open Economy	368
	111)	The Population Theory	368

	•	X	XX
•	sr.	Particulars Page	e Nos
	OART C.*13	Regional Coverage.	
	Chapter VI.	Summary	
	` 1.	The Aim of Regional Development	371
	ii.	Theoretical Arguments	372
	iii.	Maharashtra States & Review.	372
	VIII.	Conclusions.	
	i.	Effects of Regional Coverage,	
	•	Shipping Productivity, Port	
		Development and Foreign Trade.	374
	ii.	Links.	376
	14. PART D.	FOREIGN TRADE	
,	Chapter I.	•••	
	i)	Introduction	377
	11)	Theoretical Aspect	377
	111)	Problems of Foreign Trade	380
	II. 1)	The Classical Theories of Foreign	
		Trade	3 d3
	. 11) .	The Theory of offer Curves	385
	111)	The Box Diagram Theory	<u> 3</u> ან
	· į iv)	The Balance of Payment Theory	3 89
	III. a)	Data and Historical Development of	
		India's Foreign Trade	3 9 0
	b)	Monetary Events since 1971	392
	c)	International Finance Corporations	
	đ)	Organisation	393
	e)	United Nations Conference on Trade	
		and Development (UNCTA)	393

393

M s. G. I. PEREIRA

			xxxi
Sr. No.		Particulars	Page Nos
14.P/	RT D.	FOREIGN TRADE	
IV.		Foreign Trade Performance	397
v.		National Objectives and Policies,	
		of Foreign Trade.	401
VI.	•	EmpricallResults	
	· 1)	The Classical Theories of Foreign	
		Trade.	403
	11)	The Theory of Offer Curves.	404
	111)	The Box Diagram Theory	404
	iv)	The Balance of Payment Theory	405
		a) Foreign Trade Multiplier	405
		b) Trade has certain effects.	407
vII.	a)	Summary	408
	h)	Theortical Arguments.	409
viii.	•	Conclusions	
	i.	Effects of Foreign Trade on Port	
		Development, Shipping Productivity	
		and Regional Coverage	411
• •	11.	Links	412
15.		General Conclusions	413
16.		Appendices	I - V
17.		Reference s .	¥±
18.	• • •	Terms and Abbreviations	VII
_ • •			

16. List of Appendixs

Sr. No.	Particulars		Page Nos.
PART A.			
Appdx.A.I	Passenger Traffic at Major 1	Ports in	
• • • •	Ind1a	•• ••	II.1
Appdx.A.II	Number of Major & Minor Port	ts in the	•
	Maritime Sttes. 1993-94	••. ••	II.2
Appdx.A.II	I. Quequeing time Service time	ne ratios	
VI.A.xbqqA	Dracts and Lengths of Berths	3	11.3
Appdx.A.V	Trands of Cargo Traffic Hand	dled at	
	Various Major Ports	•• ••	II.4
Appdx.A.VI	Trend of Container Traffic h	nandled	
	at Major Ports (Port wise)	V• ••	11.5
Appdx.A.VI	I, Port Locations and Existin	Na	
	Infrastructure	•• ••	II.6
Appdx.A.	Outlay Expenditure in Ports	During	
VIII	Seventh/Eighth Plan & Annual	Plan	•
4	(Expenditure)	•• ••	11.7
Appdx.A.IX	Containe Traffic handled fro	m Major	
•••	Ports	••	II.8
PART B.	*	•	
	World fleet (By flag) As on	ist July	III.1
Appdx.B.II	Indian and World Shipping To	nnage.	III.2
Appdx.B.	Growth of Indian Shipping -	Growth	
III.	of Overseas Fleet by Type	••	111.3
Appdx.B.iv	Indian Shipping Tonnage - Co	mpanywise	
• • • • •	Puployment & Age Profile of		
	Overseas Shipping.	•••	III.4

Sr. No.	Particulars	Page No.
Appdx.B.V.	India's Overseas Trade - 1992-93	III.5
PART C.		
Appdx.C.I	Regional Coverage	· IV.1
Appdx.C.II	State Income - Graph	14.5
Appdx.C.	State Income - Notes ••••• Per Capital Income - Graph •••••	IV. 2a IV. 3
Tiár	Per Capita Income - Notês · •• ••	IV.3a
Appdx.C.	Annual Growth Rates in State & National Income - Graph	14.4
Appdx.C.	Per Capita Income Growth rates of	
III.a	Important States during 1980-81	IV.5
Appdx.C	Trends in State Income and National	
IV.a.	Income at constant (1980-81) prices.	. IV.6
Appdx.C. V.	Population of Maharashtra - Graph	. IV.7
Appdx.V.a	Three Year moving average of Birth, Death and infant mortality rates	
	1981-1993. Notes	3VI
Appdx.VI.a	Factories and Factory Employment Gra	ph 17. 9
Appdx.C.	Percentage share of employment in	
	different industries in Maharashtra	IV.10
•	State	IV.11
PART D.		
Appdx. D.I	Direction of India's Import Trade	
	During 1991-92, 1992.93	V.1
Appdx.D.II.	.Import of Principal Commodities	
	During 1991-92 & 1992-93	V. 2

Sr.	Particulars		Page No.
Appdx.D.	Direction of India's Export Trade During 1991-92 & 1992-93	••	V.3
Appdx.D.	Export Performance of Principal Commodities During 1991-92. & 1992-93		V. 4
Appdx.D.W	India's Exports (Including Re- exports) Imports and Balance of Trade during 1981-82 to 1992-93	••	V.5
Appdx.D.VI.	Estimated Share of Foreign Trade Sea in Total Foreign Trade of Ind by all modes of Transport During	_	
Appdx.D.	1980-81 to 1992-93	••	V.6
VII	Foreign Trade - A.Annual	••	V.7
Appdx. D. VIII	Foreign Trade - B.Monthly	••	V. 8



(vi)

6. ABSTRACT

Introduction :

The study of Port Development that was undertaken by myself was to show the main objective and examine the importance of Ports, (Sea-ports) on our long coast line in developing our Nation's economy (Ma No.A-1.)

Emerging Roles of Ports:

To-day as we review India's progress in the 20th century and record the development in the surface Transport Sector, the coastal steamship, navigation, the Island Water Way, the developing and changing pattern of ports from way-side wharfs and fishing ports, to coastal trade, and the present day commercial and Major Ports of India, handling export and import trade to various countries, and competing in International World Trade. The productivity of shipping play a significant role in International Trade.

Functions of Ports :

Dominance of Ports creates a regional development and gives rise to regional imbalances in various parts of the country, drawing the population of the lesser developed regions to the port cities, causing the need for construction of inland roads and transport, Trade of Agriculture produce, setting up of industries, and work-shops, and utilisation of scarce resources, encouraging the growth of cities and metropolitian areas around the port in the most efficient way leading to regional Growth, increase in per capital income and State's income.

⁽i) Chintz B. Freight and the Metropolis, New York 1960, pp.11

The Aim of Port Development:

The nation's main aim is to widen its Foreign Trade, and achieve a favourable Balance of Trade. The present days main objectives are to encourage rapid and sustained growth, to facilitate imports, necessary inputs for sustaining industrial growth for modernisation and technology upgrading in order to build up scientific and technology capabilities and gain self-reliance and efficiency.

The Principle objectives for export is to encourage the productivity, modernisation and competitives of Indian industry, agriculture, services to compete internationally with standards of quality to develop the countries Research and Development (R & D) and technological capabilities and encourage the globisation of Exports freely abroad.

To achieve these objectives and aims, the study is undertaken of Port Development in the perspective of increasing the Shipping Productivity, catering to large vessels, which are more economical in handling bulk and general cargo traffic.

Review the change from labour intensive to capital intensive, and its impact on the working population of the Regions. Examining the Financial needs of the Particular Major Port, and improving its performance increasing its capacity and modernising the cargo handling facilities, which will in turn improve the shipping productivity.

Bigger ports needs a progressive hinterland, which in turn, require the construction of Inland transporation of Roads transport and Railways, the construction of Highways, and Bridges and hence the development and improvement to the Regional hinterland.

Port activity like many other industries is highly localised. The demand for the Port services originates to some extent in the Region whose industries produces goods for sale in foreign markets and exchange goods from abroad. Ports are called Gateways to the Nations Foreign Trade.

Ports are used for important transhipment point of domestic trade. Port serve as an important Centre for Trade and Industry, attracting labour and capital.

Important cities and Metropolis have developed, because of the dominance of Ports like, Bombay, New York, London, Calcutta, Madras, Tokyo, Marseilles, Amsterdam etc.

We need to examine and study the development of Ports from small trading centres to Major Commercial Centres, like Bombay, Calcutta, Madras, After Independence these Ports become the Major Ports of our Country, and is being (systematically developed and modernised during the Five Year plans). At present, there are 10 Major Ports, 25 Intermediate Ports and 168 Minor Ports or sub-ports with a berthing capacity of about 170 berths to 200 berths in all these Ports.

Leading Ports in the World like New York Port have above 400 vessels berthing simulatneously (1)

⁽¹⁾ Chintz B. "Freight & the Metropolis, New York 1960, pp.9

at the Port's General Cargo and bulk handling piers. In comparision this could provide scope for increasing in terms of berthing capacity to an economical meaningful scale, to a few thousand berths altogether for all our Major Ports around the country and making the best use of countrys large costline.

While reviewing the development of Ports, we have to take into consideration the economics of Port construction in regard to Sea-routes, weather location, hinterland development. The Government of India has set up a Committee to review Plans and Schemes and the performance at various ports, such as.

- i) Port Efficiency, administration and management.
- ii) Efficiency of Operation, their capacity and conditions of working.

Marginal cost is used as the basis for all ports tariffs a high service charges results in Port congestions and delays to several other sectors of the Economy.

Depending on the flow of traffic the design and layout of the Port keeps on changing. Specialised cargo handling facilities, the modernization of ships and their designs. The demand for ships is a derived demand for the uses of Port Services. High service charges results in Port congestion and vessels waiting in the roads for berths.

There are Economics of Scale in construction of large ports. The langer the Ports, the lesser the cost, such as speed, fuel intake etc.

Congestion is felt also in transhit sheds, inland transporation, due to overcrowing of the Port site, and storage space.

Profit Maximation is due to the revenue of a port, because of its location and congestion charges, the Monopolist Port Authority and the Monopolist Shipowner causing a bi-lateral monopoly in the availability of ships and the elasticity of supply and demand of the commodity.

The Minimization of Price, leads to competitive behaviour of Port services and uses. Following the basic principle of "What the Traffic can Bear", and ability to pay", dis-crimination in regard to various Commodities, goods, their destinations and the tramp owner or Conference liner, has to be considered.

Tariffs are raised on rents of berths, hire of Cargo handling facilities, entry into a Port, causing a multiplicity of tariffs and complication to the accounting procedures of the Individual port.

Financial assistance mainly from World Organisation like "World Bank" (WB), International Development Bank (IDB) International Board for Reconstruction and Development (IBRD) and International Monetary Fund. (IMF).

Ports are usually self-finance entities and pays for their own developments over the years. Government borrowings and loans are also taken by the Port Authority.

The formulation of Port Projects has been made more complicated in recent years by the magnitude and capacity of technological changes. Bulk Lash Vessels,

(xi)

ദ്രാ

Hovercrafts, Hydrofoils all add new concepts to the handling of cargo and passenger traffic and new designand dimensions to the complication of ports layout and capacity.

Ship-building is the next important stage in the construction of Ports, to suit the particular port, increase the productivity of Shipping to allow the ships to have a quick-turn round, spend less days waiting to berth and increase the speed of the loading/unloading Operations such as the growing trends towards containerization as a labour saving device.

Objectives:

The general objectives at the core of Regional Developmental efforts are, economic expansion, improved patterns of human settlement, industrial locations of balancing of population and migration with employment the promotion of social progres, together with social and economic development and effective legal organisations to ensure stable administrative patterns for carryying out the objectives and aims of Regional Development.

The efficient specialisation of the product to create the Comparative Advantage in which the country specialises by way of production, labour, capital and specialised managerial ability in building the Foreign Trade of a country, has links to the development of Port, and hence leads to Ports Higher Development in achieving the goals and targets of overseas trade, lessening the regional imbalances, by promoting growth and stability, economical to the regions hinterland, and encouraging the Research and Development of Shipping Productivity.

⁽³⁾ ibid Carmichael A.J. Journal of maritime Law & conscious Commerce (A world bank Report) N. 10rk, 1972.pp 123-124.

The development of a shipping fleet can bring numerous benefits to a country, such as contributing to promotion of Exports and Imports of a country and to developing economic relations. Savings of foreign exchange for a country carrying its own cargo, as well as carrying anothers country cargo, earning foreign exchange, as bringing down the freight rates for the country export-import trade.

The relationship between trade and growth described by Adam Smith, mainly working via the links between trade and efficiency, income and investment leading to growth in the National Economy.

Thus Exports is the Key to Growth for Developing Countries. Ports Higher Development are Gateways not only for Foreign Trade, but also for Shipping Productivity and Regional Development of the National Country.