LOGISTICS Management

S L Ganapathi

Managing Director
Shelka Marketing Services Pvt. Ltd
and
Chairman
Symatec Associates Pvt. Ltd
New Delhi

S K Nandi

Faculty ICFAI Business School (IBS) Pune



DETAILED CONTENTS

Foreword v Preface vi

Green Pallets 59

Acknowledgements x			
Features of the Book xii			
Brief Contents xiv			
List of Exhibits and Case Studies xxii			
PART I: LOGISTICS INT	RODL	ICTION AND INTEGRATION	1
1. Introduction to Logistics	3	Globalization and International	
Introduction	3	Business	32
Logistics and Supply Chain Management	4	Economic Globalization 33	
Logistics Management—Boundaries		Financial Globalization 34	
and Relationships	5	Cultural Globalization 34	
Factors Impacting Logistics	8	Globalization and Growth in	
Transportation Elements in Logistics	11	International Trade	37
Ocean Transport 11		Logistics and Supply Chain	
Air Transport 12		Management in a Globalized World	39
Road Transport 13		Key Issues in Supply Chain Management	40
Rail Transport 16		Network Configuration 41	
Inland Waterways 16		Supply Chain Integration and Strategic	
Pipeline Transportation 16		Partnerships 42	
Other Elements of Logistics	18	Information Technology 42	
Packaging and Materials Handling 19		Innovations in Logistics and Importance	
Interface with Other Functions 19		of Logistics in Supply Chains	42
Information Flow 19		Design for Logistics Optimization—	
Integrative Nature of Logistics 20	0.1	Japanese Hybrid Cubical Melons and	
Logistics Growth Drivers	21	Knocked-down Furniture 42	
Logistics in India—Current Context	22	Manufacturing Postponement to	
9 I aminting in Court Chair Court	97	Capture Larger Markets through	
2. Logistics in Supply Chain Context	27	Smart Logistics 43	
Supply Chain Management	31	International Raw Material Linkage Enabled by Logistics Strategy 44	
_			
PART II: LOGISTICS I	DELIV	ERY AND FULFILMENT 51	
3. Unitization, Palletization, and		Standards in Palletization 59	
Containerization	53	Stackability of Pallets 61	
Unitization	54	Bracing of Goods on Pallets 63	
Pre-slinging 55		Phytosanitary Compliance and International	al
Advantages of Unitization 57		Plant Protection Convention (IPCC) 64	
Palletization	58	Palletization and India Supply Chain 64	
Classification of Pallets 58		Unitization of Free-flowing Bulk	

Cargoes—Jumbo Bags

65

Bulk Liquid Unitization 66		Contract of Affreightment 117	
Packing for Various Modes of		Chartering Brokers—Important	
Transport 68		Channel Partnership	118
Containerization	69	Broad Categories of Broker 118	
Sizes of Containers and Standardization	70	Baltic Exchange	119
Advantages of Containers 71		Liner and Container Shipping 120	
Materials of Construction and Design of		Consortia Operations 121	
Containers 73		Six Generations of Container ships 121	!
Identifying a Container—Container		Service Routes	124
Unique Number 73		Hub and Spoke Approach	125
Container Safety Convention Plating 7.	5	Consolidators and Less than	
	76	Container Load Services	125
Ownership of Containers 81		Impact of IT and ITES on Container	140
Securing of Containers 82		Shipping	126
Container Lashing 86		Ship Owner Strategy—Vertical	120
Container Flows 86			126
Empty Generation and Innovative		Integration Container Logistics Cobetage and	120
Practices Arising Out of Repositioning		Container Logistics, Cabotage, and	127
Opportunities 87		Leasing	127
Last Voyage Containers 88		Container and Liner Shipping Tariff	147
Benefits of Containerization	90	Freight Structure for Less than	
Container Terminology	91	Container Load and Break-bulk	100
Twenty-foot Equivalent Unit 91		Cargoes	129
Full Container Load 91		Full Container Load Freight Rates 130	,
Less than Container Load 91		Terminal Handling Charges 130 Freight Rates for Special Containers 13	20
Container Freight Station 91		z roight z tarte july appearance	U
Container Yard 92		Surcharges 131	
Container Movements-designations 92		Role of Various Entities in Shipping	190
		Business 122	132
. Marine Transportation	99	Role of the Agent 133	22
International Maritime History	100	7 11 8 8	33
India's Maritime History	101	Stevedores 134	
Terms Associated with Ships	104	Role of Surveyors 134	
Classification Societies and Registries	104	Duties and Responsibilities of a	
of Shipping 107		Surveyor 135	135
Vessel Ownership 108		Changing Landscape of Shipping	133
Types of Ships	110	5. Air Transportation	160
Categorization Based on the Nature	110	Choice of Air Transportation	161
of Cargo 110		Classification of Aircraft	163
Classification of Ships by Sizes 113		Moving Shipments by Air	168
Types of Shipping Services 114		Labelling and Marking 169	
Voyage Charters 115		Unit-load Devices 170	
Factors that must be kept in Mind while		Dangerous Goods and Regulation	
Chartering Ships 115		of Carriage 170	
Time Charter 116		Primary Cost Comparison with	
Trip-time Charter 117		Other Modes	177
Bareboat Charter 117		Indian Air Cargo Industry	178

	International Air Transport		Regulatory Needs of Road Transport	216
	Association and its Role	179	Economics of Road Transport	218
	Air Cargo Distribution Channels	180	Cost of Vehicle Financing 219	
	General Sales Agents 180		Employee Costs 219	
	IATA Accredited Agents 181		Capital Depletion or Replacement	
	Subagents 181		Recapture 219	
	Air Cargo Integrators and their		Standing Charges 220	
	Penetration into India	182	Price vs Costs 220	
	Air Cargo Freight Rates and Structure	183	Pricing Strategy	220
	Unit of Freight 183		Cost-plus Pricing 220	
	Currency of Airfreight 184		Value of Service Strategy 222	
	Structure of Airfreight 184		Combination Strategy 222	
	Rate Structure with Respect		Goods Consignment Notes	222
	to Commodities 185		Carriage of Goods across International	
	The Air Cargo Tariff	186	Border—CMR Convention	224
	Surcharges 186		CMR Convention 224	
	Consolidation and House Air Waybills	188	TIR Convention 224	
	Market Conditions for Air Cargo		Road Transport Industry in India	
	in India	188	and its Problems	225
6.	Surface Transport—Road	194	7. Surface Transport—Rail	235
	Introduction	195	Introduction	235
	Types of Road Transport Vehicles	197	Indian Railways Freight Infrastructure	237
	Three-wheeled Delivery Vans—		Important Elements of Indian Railways	237
	Loadability Below 500 Kgs 197		Gauge in Indian Railways 239	
	One Tonners/Sub-one Tonners 198		Locomotion 239	
	Light Commercial Vehicles	198	Freight Cars 240	
	Heavy Commercial Vehicles	200	Types of Services Offered by Indian	
	Rigid Multi-axle Vehicles 202		Railways	245
	Semi-articulated Tractor Trailers 202		Containerization in Indian Railways	247
	Full-tow Trucks 204		Containerized Cargo Commodities 248	
	Specialty Vehicles 204		Privatization Efforts in Railways	249
	High-cube Vehicles Built-on Bus Chassis		Privatization for Port Linkages 249	
	for White and Light Goods 205		Containerization and Effect on	
	Bulk-cement Carrier 206		Indian Railways 250	
	Heavy-lift Transport by Hydraulic Axles		Automobile Freight Train Operator	
	and Air-cushioned Trailers 206		Scheme 250	
	Transportation Services and Structure		Railway Freight Tariff and Comparison	
	of the Industry—Transport Contracts	207	with Containers and Road	251
	Attached Trucks 211		Dedicated Freight Corridors 251	
	Types of Services on Offer	211	Multimodal Transport—Some	
	Parcel Service 211		Unique Models in US	256
	Surface Express 211		Container on Freight Car 256	
	Full truckload Services 212		Trailer on Freight Car 256	
	Project and Heavy Lift Transport 213		Road-railer Wagons 257	
	Advantages of Road Transport Over		Suggestions for Optimal Use of Railway	
	Other Modes 215		Mode Logistics Managers 258	

B. Ports, Harbours, Dock	s,	Bulk Cargo Ship Unloading Systems	279
and Terminals	265	Container Terminals 279	
Introduction	265	RO-RO Terminals 280	
General Description of H	arbour,	Single-buoy Moorings 281	
Port, and Docks	267	Container Handling and	
Harbour 267		Transportation Equipments	282
Port 267		Equipment Required for Efficient	
Dock 268		Container Terminal Operations	284
Dry Docks 269		Ship Loading Cranes 284	
Important Features of a F	Port 269	Yard Cranes and Shifting and Lifting	•
Draft 269		Equipment 285	
Dredging 270		Yard Gantries—Rubber-tyred/Rail-	
Channel 271		mounted 285	
Towage 271		Lifting and Moving 285	
Hinterland 271		Importance of Software For Yard and	
Lighthouse 272		Terminal Operations 288	
Facilities Inside Docks	272	Indian Ports and Development	288
Marine Terminals 272		Indian Ports 289	
Bulk Terminals 273		Container Terminals—Build-Own-	
Bulk Terminal Storage	273	Operate–Transfer or Build–Operate–	
Bulk Yards 275		Transfer System of Operations 290	
General Cargo or Multi-p	vurpose	Indian Port Traffic 292	
Terminals 276		Benchmarking Global Ports vs	
Oil Berths 277		Indian Ports 295	
Terminal Warehouse and	Storage	Issues of Drafts in Indian Ports 296	i
Areas 278		Tariff in Indian Ports and Tariff	
Bulk Material Handling	Systems in Port	Authority for Major Ports 297	
Terminals 278		Role of Inland Container Depots	
Bulk Cargo Ship Loading	z 279	and Container Freight Stations	298
PART III: LOGISTIC	S DOCUMENTATION	N AND PROCESSES—ALIGNING	
TO NAT	TIONAL AND INTERI	NATIONAL TRADE	307
). Role of Customs in Reg	, ,	Customs House Agents 316	
International Trade	309	Declarations and Averments	
Role of Customs in India	's	by Merchants 318	
International Trade	309	Indian Customs Automation 318	
Role of Carriers in Custo	ms	Harmonized System of Commodity	
Process 311		Classification or HS Codes 320	
Import General Manifest		Construction of HS Codes 322	
Manifest and Security		Principles of Classification 323	
Inland Container Depots	and	Customs Process through Indian Cust	oms
Sub-manifests 314		and Excise Gateway 324	
Consolidation Manifests	314	Export Clearance 324	
Flight Check 315	215	Clearance Process for Imports 327	
Export General Manifest		Import Clearance Process at Customs	200
Role of Custodians 315	7	through Electronic Data Interchange	328

Some Critical Factors in		On-board Bill of Lading 365	
Customs Clearance 330		Clean or Claused Bill of Lading 365	
Methods of Valuation 331		Types of Bills of Lading—Commercial	
Customs Clearance and		Applications 366	
Foreign Exchange 333			367
Accredited Clients Programme 333		Forwarders Cargo Receipt 369	
Authorized Economic Operator		Minimizing Transaction Costs through	
Programme 334		Simple Forms of Ocean Transport	
Customs Tariff and Structure 334		Documents 370	
Import Duty 334		Number of Bills of Lading	37
Export Tariff 339		BIMCO Paramount Clause General 37	71
Miscellaneous Acts and Rules Affecting		Terms and Conditions of Carriage 371	!
Customs Clearance 339		Contours of the Conventions or Acts 37	
Appeal Procedures 340		Carriers' Legal Liability and Limits 37	7 <i>3</i>
• •		Need for Limitation of Liability 373	
10. International Trade		Special Drawing Rights and its need 37	<i>73</i>
Documentation and International		Freight Payment 374	
Finance	350	Delivery 374	
Importance of Documentation in		Lien 374	
Logistics	350	Claims 375	
Indian Foreign Trade Policy and		Definition of Package 375	
Procedures	351	Charter Party Bill of Lading 375	
Foreign Trade Policy	352	House Bill of Ladings and Master Bills	
Duty Remissions and Exemption		of Ladings 375	
Schemes	353	Air Waybills 376	
Duty Remission Scheme 354		Consignee or Notify Party 377	
Duty Exemption Scheme 354		Limitation of Liability for Air	
Standard Input–Output Norms 355		Shipment 377	
Export Promotion Capital Goods		House and Master Airwaybills 378	
Scheme 355		CMR—Document Covering	
Tax Free or Concession Enclaves 355		International Transport by Road 379	
Logistics Process and Export Promotion	<i>356</i>	International Transport of Goods	
Status Holders 357		by Rail	38]
International Commercial Terms	358	Payment Methods in International	
Decision Alternatives Regarding		Transportation and UCP 600	383
Incoterms	360	Documentary Payments 383	
Precautions while Choosing		Letter of Credits and UCP 600 385	
INCOTERMS and Agreeing with		SWIFT 386	
Sellers about the Choice 361		Types of Letters of Credits 386	
Variations 361	0.00	Irrevocable Letter of Credit 386	
Transport Documentation	362	Confirmed Letter of Credit 386	
Issuer of Transport Document 363		Transferable Letter of Credits 387	
Functions of Transport Document 363		Revolving Letter of Credit or Standby	
Bill of Lading and Sea Waybills 364		Letter of Credit 387	
Format and Construction of the Bill of		Back-to-Back Letter of Credit 387	388
Lading 364		Export Financing in India	
Said to Contain 364		Factoring and Forfeiting	388

11. Documentation for Domestic		History of Insurance	422
Transport and Compliance	400	Lloyd's of London 423	
Principle of Value-added Tax and		Lloyd's Agency 423	
Logistics	401	London Market 423	
Documents Accompanying Trucks		Insurance	424
for Border Clearances	405	Need for Insurance 424	
Entry Taxes in States and Impact		Insurance Process 425	
on Logistics 405		Perils at Sea	426
Road Permits 405		Functions of Insurance	427
Mumbai or Maharashtra Octroi	406	Types of Insurance	427
Octroi Issues and Mumbai as an		Self Insurance	428
Entry Port or Airport for the		Underlying Principles of Insurance	428
Nation 407		Claim and Claim Notice 433	
Value-added Tax and Inter-state		Open Policy and Open Cover 433	40.4
Procedures	408	Claim Settlement	434
Central Excise and Logistics 408		Warehouse or Storage Insurance	434
Service Tax on Transporters 408		Insurance Companies and	
Goods and Services Tax 409		Regulation in India	435
· ·	409	Insurance Regulatory and	
Goods Consignment Note and		Development Authority	436
Carriage of Goods by Road Act 2007	411	Reinsurance	436
		Carriers' Legal Liability Insurance	437
12. Insurance and Risk Management		General Average	437
in Logistics	421	Example of General Average 438	
Introduction	421	Adjustment and Claim Settlement	438
PART IV: LOGISTICS STRATE	GY A	ND SUPPLY CHAIN MANAGEMENT	463
13. Logistics Strategy, Systems		Achieving Excellence in Global	
Planning, and Implementation	465	Logistics Operations 479	
Significance of Logistics in		Measuring Supply Chain	
Strategic Decisions	466	Performance	480
Logistics as Backbone of Business			
Proposition	468	14. Warehousing	484
IT Reselling 468		Introduction	484
Maintenance, Repair, and Overhaul		Evolution of Warehousing	485
Supplies 469		Role and Functions of Warehousing	486
Lean Manufacturing Strategy and		Storage 488	
Logistics Services 469		Product Mixing 491	
Logistics Strategy in a Globalized		Cross Docking 491	
World	470	Assembly and Product Postponement	192
Uniqueness of Global Operations	472	Transit Storage and Duty Deferment	193
Integration of Operations	474	Types of Warehouses	493
Elements of Supply Chain Design	475	Classification of Warehouses Based	
Procurement 475		on Ownership 493	
Logistics Network Design 477		Classification of Warehouses Based	
Logistics Strategy and Planning 478		on Material Stored	497

	Food Grain Warehouses 497 Consumer Products Warehouses 497		Lot Sizing Models for Probabilistic Demand 529	
	Refrigerated Warehouses 498		Some Modern Techniques of	
	Chemical or Hazardous Material		Inventory Management	531
	Warehouses 499		inventory management	331
	Tankage	499	16. Technology in Logistics	535
	Warehouse Operations	500	Role of Information Technology	
	Receiving 500	300	in Logistics	536
	Put-away and Storage 501		Logistics Information System	537
	Order Picking 501		Enterprise Resource Planning 538	
	Checking and Packing 502		Electronic Data Interchange 538	
	Shipping 502		Barcoding 541	
	Warehouse Location Decisions	502	Radio Frequency Identification 543	
	Design and Layout Decisions	504	Global Positioning System	545
	Information Technology in Modern		Warehouse Management System and	
	Warehousing	506	Automated Storage and Retrieval	
	Trends in Modern Warehousing	507	System	546
	Modern Warehouse Construction 507	,	19 T 1 C 1	
	Automation in Material Handling 50	98	17. Logistics Services and	
	Contract Logistics and Warehouses	511	Intermediaries, Service Providers,	
		2.2	and Outsourcing in Logistics	550
15.	Inventory Management	515	Logistics Services	550
	Need for Inventory	515	Road Transport 552	
	Types of Inventory	516	Rail Transport 552	52
	Functions of Inventory	517	Warehousing and Contract Logistics 5.))
	Decisions Involved in Inventory	710	International and Cross-border Logistics Services Providers 554	
	Management	518	Listing of Logistics Players and	
	Functional Classification of Inventor	•	Characteristics	554
	Classification Based on Usage	520	Logistics Services and Third-party	334
	Cost Considerations in Inventory	700	Logistics 554	
	Management	520	Profile of Outsourced Services under	
	Unit Cost or Price of Items 520		Third-party Logistics 557	
	Ordering Costs 521	501	Third-party logistics in India 557	
	Inventory Holding or Carrying Costs Stock-out Costs 522	521	Some Disadvantages of Third-party	
	Inventory Data System Costs 522		Logistics System 559	
	Other Important Considerations	522	Fourth-party Logistics 559	
	Demand Patterns 522	322	Lead Logistics Service Providers	563
	Replenishment Lead time 523		Integrators	563
	Inventory Management Under		Fourth-party Logistics and India	563
	Different Conditions	523	Logistics—Service Quality Indices,	
	Lot Sizing Models When Demand	040	Service Level Agreements, and	
	is Constant 524		Deliverables	565
	Lot Sizing Models for Time Varying		Logistics Service Contracts	567
	Demand 528		<u> </u>	

Index 575 About the Authors 583