WORLD ZONE
SHIPPING SERVICES LLC

ONE WORLD, ONE ZONE

The WorldZone Book

A Practical Handbook of Freight Forwarding & Logistics

The official onboarding reference of

World Zone Logistics & Shipping Services

UAE · Oman · Qatar · Bahrain · KSA · Kuwait · India

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Global Orientation

The world a forwarder works in — continents, oceans and seas, the cities and ports of world trade, how time zones actually work, and why geography is the first working skill of the trade.

Freight forwarding is, before anything else, the business of moving goods *from one place to another*. Every quote, every booking, every document begins with a simple pair of facts: **where the cargo is, and where it has to go.** A forwarder who knows the world — its land masses, its oceans, its ports, its cities, its time zones — reads a routing instantly and prices it with confidence. One who does not will misquote transit times, miss connections, phone a carrier when their office is shut, and lose money. Geography is not background knowledge; it is the **first working tool of the trade**, and this chapter builds it deliberately.

The land: seven continents

The planet's land is divided into **seven continents**: **Asia, Africa, Europe, North America, South America, Australia (Oceania)** and **Antarctica**. You should be able to place, without thinking, the continent you live in, the one you trade with most, and the rough position of all seven — because a customer who says "we're shipping to West Africa" or "ex Far East" expects you to already know what part of the map they mean.

The water: five oceans

The continents are separated by **five great oceans**:

> THE FIVE OCEANS
>
> **Pacific** (by far the largest), **North Atlantic**, **South Atlantic**, **Indian**, and the **Antarctic / Southern Ocean**. (The **Arctic** is also commonly counted.) Cargo moving between continents almost always crosses one or more of these on a deep-sea vessel.

The seas that carry the trade

Oceans are the big picture; the **seas, gulfs and straits** are where the day-to-day routing actually happens, because the common trade routes cross them. NAFL singles out the ones a forwarder must know by name — learn these, because they appear on routings constantly:

- **Mediterranean Sea** — Southern Europe, North Africa, the Levant; the gateway from Suez to Europe.
- **North Sea** — Northern Europe's great ports (Rotterdam, Hamburg, Antwerp).
- **Arabian Sea** & the **Arabian Gulf** — the waters of WorldZone's home region, linking India and the Gulf states.
- **Red Sea** — the Suez corridor between the Mediterranean and the Indian Ocean.
- **Bay of Bengal** — eastern India, Bangladesh, Myanmar.
- **South China Sea** & **Java Sea** — the busy heart of South-East Asian trade.
- **Sea of Japan** — Japan, Korea, eastern Russia.
- **Caribbean Sea** & **Gulf of Mexico** — the Americas and the Panama approaches.
- **Black Sea** — Eastern Europe, Turkey, the grain trade.

These are not trivia: a routing "India → North Europe" crosses the **Arabian Sea** → **Red Sea** → **Mediterranean** → **North Sea**, and knowing that chain tells you which chokepoints (below) and which transit time you are dealing with.

The cities a forwarder must know

A forwarder must be able to roughly place the world's major commercial cities on a map — because they are the origins and destinations on every booking. NAFL's working set:

> **WORLD COMMERCIAL CITIES TO PLACE FROM MEMORY**
>
> Singapore · Hong Kong · Tokyo · Seoul · Beijing · Bangkok · Jakarta · Manila · Mumbai (Bombay) · New Delhi · Karachi · London · Southampton · Hamburg · Frankfurt · Paris · Rome · La Spezia · Stockholm · Cairo · Nairobi · Johannesburg · Chicago · New York · Mexico City · Buenos Aires · Sydney · Perth.

And, because it is WorldZone's own backyard, the **Middle East & subcontinent** set deserves special command — these are the names on the company's daily traffic:

> **WORLDZONE'S REGION — KNOW THESE COLD**
>
> **UAE:** Dubai, Abu Dhabi · **Oman:** Muscat, Salalah · **Qatar:** Doha · **Bahrain:** Manama · **Kuwait:** Kuwait City · **Saudi Arabia:** Riyadh, Jeddah, Dammam (Dharan) · **Iran:** Tehran, Shiraz, Bandar Abbas, Esfahan · **Iraq:** Baghdad · **Levant:** Beirut, Damascus, Amman · **Subcontinent:** Karachi, Delhi, Mumbai, Hyderabad · **Egypt:** Cairo.
>
> These are the cities behind WorldZone's seven-country network and the GCC end of its primary trade lanes — China → GCC, Europe → GCC, and the owned India ⇄ Gulf corridor (Chapter 30).

How time zones actually work

The Earth **rotates once on its axis every 24 hours** — so while half the world is in daylight, the other half is dark. To keep a common reference, the world is divided into **24 time zones**, one for roughly every 15° of longitude.

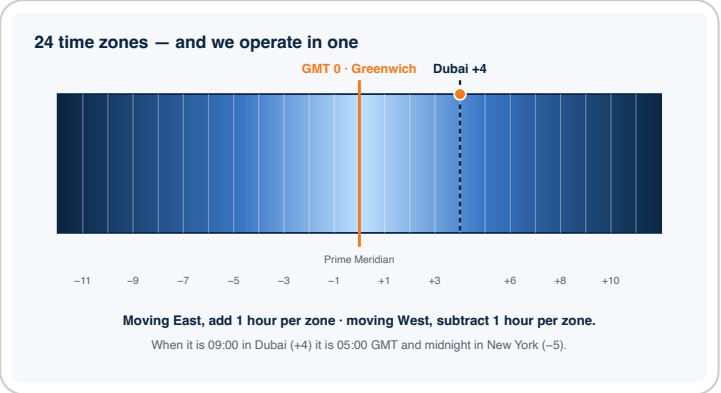

FIGURE 1.1 The 24 time zones — GMT at Greenwich, Dubai at +4. "One World, One Zone."

> **THE MECHANICS**
>
> Time zones are measured from the **Prime Meridian** — an imaginary line through **Greenwich**, near London — which marks **Greenwich Mean Time (GMT / UTC), zone "0". Moving East, add one hour per zone; moving West, subtract one hour per zone.**

Worked example. When it is **9 a.m. in Dubai** (GMT +4), it is **midnight in New York** (GMT −5), and GMT itself is **5 a.m.** (9 − 4 = 5). The gap between Dubai and New York is the difference of their offsets: +4 −(−5) = **9 hours**.

Practice — do this, don't just read it

Work out the local time in each place when it is **11 a.m. in Dubai (GMT +4)**. (Method: convert Dubai to GMT by subtracting 4, then apply each zone's offset.)

Place	Offset	Local time when it's 11:00 in Dubai
GMT / UK (winter)	0	07:00
Pakistan (Karachi)	+5	12:00
India	+5½	12:30
Singapore / China	+8	15:00
Japan	+9	16:00
Eastern Australia (Sydney)	+10	17:00
Indonesia (Jakarta)	+7	14:00
Kenya	+3	10:00
South Africa	+2	09:00
Moscow	+3	10:00
Los Angeles	−8	23:00 (prev. day)

Place	Offset	Local time when it's 11:00 in Dubai
Buenos Aires	−3	04:00

Two real-world traps NAFL flags: **India keeps a single half-hour zone (+5½)** even though the +6 line runs through it, so everyone in the country shares one time; and some countries shift seasonally — the **UK moves to British Summer Time (+1)** in summer. When you arrange a collection, a vessel cut-off, or a flight, **you must apply the time difference** or you will miss it.

WHY THIS IS OPERATIONAL, NOT ACADEMIC

WorldZone's name is its strategy: *"The world has 24 time zones, and we operate in one — One World, One Zone."* Knowing the offsets is daily work: it decides **when you can actually reach a carrier or a customs office**, and when a sailing or flight truly closes. A booking that "closes Friday" in Singapore has already closed while Dubai is still mid-afternoon.

The chokepoints that decide your transit time

A forwarder must know the **chokepoints** — the narrow passages every major route depends on. Close one and rates spike worldwide within days.

- **Suez Canal** — links the Mediterranean to the Red Sea; the artery between Asia/Middle East and Europe, avoiding the long detour around Africa.
- **Strait of Hormuz** — the mouth of the Arabian Gulf; almost all Gulf-origin cargo (and much of the world's oil) passes through it.
- **Bab-el-Mandeb** — the strait between the Red Sea and the Gulf of Aden, the southern gate to Suez.
- **Strait of Malacca** — the Asia–Europe shortcut past Singapore, one of the busiest waterways on earth.
- **Panama Canal** — links the Atlantic and Pacific, critical for Asia–US East Coast trade.

2003 VS NOW

The original NAFL notes treated these passages as fixed certainties. They are not. In **2023–2024, Houthi attacks in the Red Sea** forced most carriers to abandon Suez and route around the **Cape of Good Hope**, adding 10–14 days and thousands of dollars per container to Asia–Europe and Asia–Mediterranean transits. A 2024 drought also cut **Panama Canal** daily transits. The lesson for today's forwarder: chokepoints are also *risk points* — a routing is only as reliable as the passages it depends on (Chapter 26).

Major shipping routes and ports

The world's major sea routes broadly run **east–west across the Northern Hemisphere**, because that is where most trade, manufacturing and population sit — the South Pacific and Antarctic carry almost no shipping. The ports that anchor these routes, and that recur on bookings:

MAJOR WORLD PORTS

Singapore · Hong Kong · Yokohama · Taipei (Kaohsiung) · Jakarta · Mumbai · Karachi · Colombo · **Dubai (Jebel Ali / Port Rashid)** · Jeddah · Piraeus · Genoa · La Spezia · Hamburg · Antwerp · Rotterdam · Southampton · Felixstowe · New York · Houston · New Orleans · Panama · Buenos Aires.

Major air routes and airports

Air cargo follows the same east–west pattern. The hubs a forwarder routes through:

MAJOR WORLD AIR-CARGO AIRPORTS

Singapore · Tokyo · Hong Kong · Seoul · **Dubai** · Frankfurt · Paris · Amsterdam · London (Heathrow) · Rome · Athens · Moscow · **Memphis** (the FedEx superhub, among the busiest by tonnage) · New York · Chicago · Atlanta · Montreal · Sydney.

The economic map — who trades, and why

Geography also means **economic** geography. NAFL has the trainee read the world as tiers of development, because it explains *what* moves *where*:

- **Industrialised, high-income** economies (North America, Western Europe, Japan, Australasia) — high manufacturing, services and consumption; the great importers and exporters.
- **Industrialising upper-** and **lower-middle-income** economies — manufacturing growing alongside traditional sectors (much of Asia, parts of Latin America).
- **Agricultural, low-income** economies — mostly rural, little industry (parts of Africa and South Asia — though India and Indonesia were already changing in 2003, and far more so now).
- **Major oil exporters** — including the Gulf states WorldZone serves.

In NAFL's 2003 figures, the **leading exporters** were the USA (12.4%), Germany (9.5%), Japan (7.4%), France (5.3%) and the UK (4.8%); the **leading importers** the USA (18%), Germany (8%), the UK (5.4%), Japan (5.3%) and France (5%).

2003 VS NOW — THE TRADE MAP SHIFTED EAST

The east–west axis holds, but the centre of gravity has moved decisively. **China** is now the world's largest exporter by far (a minor entry in NAFL's 2003 data), and Asia dominates the busiest-ports table — **Shanghai, Singapore, Ningbo, Shenzhen** lead globally, with **Jebel Ali** the largest in the Middle East. The forwarder's mental map must be current: today's volume runs **Asia** ⇄ **everywhere**, and the UAE sits astride the India–Gulf–Europe flows.

What to take from this chapter

1. Know the **seven continents, five oceans, and the named seas** cold — they frame every routing.
2. Be able to place the **world commercial cities** and, especially, **WorldZone's Middle East / sub-continent region** from memory.
3. Understand **how time zones work** (GMT, ±1/zone) and *apply* the difference — it decides real working windows, cut-offs and connections.
4. Memorise the **chokepoints** and treat them as **risk points**, not constants.
5. Know the **major ports and airports**, the **east–west trade axis**, and the **economic map** of who trades — geography is the foundation everything else is built on.

The Freight Forwarder's Role & the Players

Who does what in a shipment — and why the forwarder sits at the centre as the "architect of transport".

A shipment is never moved by one party. A manufacturer in one country, a buyer in another, one or more carriers, customs authorities on both ends, a bank, an insurer, a haulier, a warehouse — all of them touch the cargo. Someone has to make these independent parties act as a single chain. **That someone is the freight forwarder.**

> **DEFINITION — FREIGHT FORWARDER**
>
> A freight forwarder is a person or company that **organises shipments** for individuals or corporations to get goods from the manufacturer or producer to a market, customer or final point of distribution. The forwarder does not usually own the means of transport; it **arranges and coordinates** the carriers and services on the customer's behalf — and is often described as the *"architect of transport."*

The players in a shipment

Before the forwarder's role makes sense, you have to know the cast. These terms appear on every document in this book.

- **Shipper / Consignor** — the party sending the goods (usually the seller/exporter).
- **Consignee** — the party receiving the goods (usually the buyer/importer).
- **Carrier** — the party that physically moves the cargo: a shipping line (ocean), an airline (air), a trucking company (road), or a railway.
- **Notify Party** — whoever must be informed when the cargo arrives (often the consignee or their broker).
- **Customs authority** — the government body that controls goods crossing a border and assesses duty and tax.
- **Customs broker** — a licensed agent who clears cargo through customs on the importer's behalf.
- **NVOCC** — a Non-Vessel-Operating Common Carrier: a forwarder who issues its *own* bill of lading and acts as a carrier to its customer while buying space from the actual vessel operator (the **VOCC**).

> **DEFINITION — NVOCC VS VOCC**
>
> A **VOCC** (Vessel-Operating Common Carrier) owns or operates the ships. An **NVOCC** operates as a carrier on paper — issuing its own bills of lading and setting its own tariffs — but does not own vessels; it consolidates cargo and buys slots from the VOCC at volume rates.

What the forwarder actually does

The forwarder's value is that it absorbs complexity the customer should never have to learn. On a typical export, the forwarder will:

1. **Advise and quote** — recommend the mode, routing and Incoterm, and price the whole movement.
2. **Book** space with the carrier and reserve equipment (containers, ULDs).
3. **Arrange pre-carriage** — collect the goods and bring them to the port or airport.
4. **Prepare and check documents** — bill of lading or air waybill, invoice, packing list, certificate of origin, and any permits.
5. **Handle customs** — file export declarations and arrange import clearance, directly or through a broker.
6. **Consolidate** smaller consignments into full loads where it saves the customer money (see Chapter 13).
7. **Arrange insurance** on the customer's instruction (Chapter 7).
8. **Track and resolve** — monitor the shipment and step in when something goes wrong: a missed sailing, a customs hold, a damaged container.

The two ways a forwarder can act

This distinction is legally important and is often tested.

- **As an Agent** — the forwarder arranges transport *on behalf of* the customer and contracts with carriers in the customer's name. Its liability is limited to its own negligence in arranging the service.
- **As a Principal** — the forwarder contracts as a carrier in its *own* name (for example, as an NVOCC issuing its own bill of lading). It then takes on the carrier's responsibility for the goods.

Knowing which hat you are wearing on a given shipment determines who is liable if the cargo is lost or damaged.

WORLDZONE IN PRACTICE

WorldZone delivers all of its core services through this single coordinating role — ocean (FCL & LCL), air, customs clearance, documentation, inland haulage, consolidation & groupage, break-bulk & project cargo, and full supply-chain management. A new team member's job, whatever the desk, is some part of the eight-step list above. Understanding the *whole* chain — even the steps another colleague handles — is what lets WorldZone act as one service across seven countries rather than a relay of strangers.

2003 VS NOW

The forwarder's core role is unchanged since 2003 — but its tools are not. Booking once done by phone and fax is now done by carrier portals and **API/EDI links**; the paper bill of lading is increasingly an **electronic bill of lading (e-B/L)**; and tracking that meant calling the line is now real-time visibility on a screen. The role is the same; the speed and transparency expected of it are far higher. Chapter 25 covers these tools in full.

What the forwarder is called

NAFL notes the role goes by many names depending on country and the range of duties: **freight forwarder, forwarding agent, freight broker, third-party logistics (3PL) provider.** Whatever the title, one thing is common to all — **they sell their services**, and are judged on the quality of those services, the soundness of their advice, and above all their **reliability**.

Reliability — the forwarder's real asset

NAFL is emphatic that the relationship between forwarder and customer rests on trust. A firm confident in its forwarder's advice won't shop around among agents — it entrusts its consignments to the forwarder who has proven the quality of their service. The forwarder's daily livelihood depends on a **regular flow of traffic from satisfied customers**. The old **French Code of Commerce** captured the duty memorably:

> **"THE CARE OF A GOOD FAMILY FATHER"**
>
> The French Code of Commerce held that **"the forwarder owes to the goods entrusted to him the care of a good family father."** The practical consequence: a forwarder may **not** recommend the cheapest option if it carries undue risk — they will name the risk, quote both, and offer the better-value alternative, letting the customer decide *with full knowledge*. Sound advice over a quick sale.

Legal status and liability periods

The forwarder's legal exposure depends on whether they act as **agent** or **principal**, and on the country. NAFL illustrates with the historical position: under French-derived law a forwarder was liable for **10 years** acting as agent but only **1 year** under their own name; before EU harmonisation, time-bars to bring a claim varied — e.g. **6 months in Belgium, 9 months in Great Britain and the Netherlands, 12 months in Switzerland and the Nordics.** The lesson stands today: a forwarder must know the **time limits** during which a claim can be made against them, and within which they can pursue a party abroad — these "time bars" are absolute and embedded in international conventions.

What to take from this chapter

1. The forwarder is the **architect of transport** — it coordinates, it rarely owns.
2. Learn the **players** (shipper, consignee, carrier, consignee, customs, broker, NVOCC/VOCC) — they recur on every document.
3. Know whether you are acting **as agent or as principal** on a shipment — it decides liability.
4. WorldZone's core services are all expressions of this one coordinating role.

Cargo Calculations — Volume, Weight & the Chargeable Unit

The arithmetic every forwarder must do in their head — CBM, volumetric weight, and the chargeable weight that decides the freight bill.

Freight is sold by space *and* by weight, because a carrier is constrained by both: a container or aircraft hold fills up either when it is **full** or when it is **heavy**, whichever comes first. The whole of freight pricing rests on a single idea — the carrier charges you for whichever of the two costs them more. To quote correctly you must be able to calculate both, quickly and without error.

Volume — the cubic metre (CBM)

DEFINITION — CBM (CUBIC METRE)

The **cubic metre (m³ / CBM)** is the standard unit of cargo volume. It is found by multiplying length × width × height, with all three measured **in metres**:

Volume (CBM) = Length (m) × Width (m) × Height (m)

The single most common error a new forwarder makes is mixing units — measuring in centimetres and forgetting to convert. **Always convert to metres first.**

> ***Worked example.*** *A crate measures 120 cm × 80 cm × 100 cm. Convert: 1.20 m × 0.80 m × 1.00 m =* ***0.96 CBM****. Ten such crates =* ***9.6 CBM*** *— useful immediately, because LCL ocean freight is sold per CBM.*

Weight — gross, net and tare

- **Net weight** — the goods alone.
- **Tare weight** — the packaging / container alone.
- **Gross weight** — net + tare; the total presented to the carrier.

Volumetric (dimensional) weight — the key concept

Light but bulky cargo would let a customer fill a whole aircraft or container while paying almost nothing by actual weight. Carriers prevent this with **volumetric weight** — a notional weight derived from the volume, so that space is paid for even when the scale reads light.

DEFINITION — VOLUMETRIC WEIGHT

Volumetric (dimensional) weight converts a shipment's volume into an equivalent weight using an industry conversion factor. The carrier then bills the **chargeable weight** — the *greater* of the actual gross weight and the volumetric weight.

The conversion factor differs by mode:

Mode	Volumetric rule (the standard today)
Air freight (IATA)	1 CBM = **167 kg** (i.e. ÷ 6,000 when dimensions are in cm)
Road / courier	commonly 1 CBM = **333 kg** (÷ 3,000 in cm) — varies by operator
Sea LCL	charged per **CBM or per 1,000 kg, whichever is greater** (the "W/M" — weight or measure — rule)

2003 VS NOW

The 2003 NAFL notes taught air volumetric weight at the older factor of **1 CBM = 1,000 kg ÷ 6 = 166.67 kg**, which is still essentially correct. What has changed is enforcement and precision: carriers now capture **dimensions automatically** at acceptance (laser/"dim" scanners), so under-declaring volume to save freight no longer works — the system re-rates the shipment. Quote the volumetric weight honestly from the start.

Chargeable weight — the number on the invoice

DEFINITION — CHARGEABLE WEIGHT

The **chargeable weight** is the figure the freight rate is actually applied to. It is the **higher** of the actual gross weight and the volumetric weight.

> ***Worked example (air).*** *A shipment is 5 cartons, each 60 × 40 × 50 cm, total actual gross weight 90 kg. Volume per carton = 0.60 × 0.40 × 0.50 = 0.12 CBM → 5 cartons =* ***0.60 CBM****. Volumetric weight = 0.60 × 167 =* ***100.2 kg****. Actual = 90 kg, volumetric = 100.2 kg →* ***chargeable weight = 100.2 kg.*** *The cargo is billed as if it weighed 100 kg, because it takes up more space than its weight would pay for.*

The weight-to-volume ratio by mode — NAFL's core rule

The original handbook frames the whole of freight pricing around a single ratio per mode — the point at which a shipment stops being charged by weight and starts being charged by volume. **This is the rule every forwarder commits to memory:**

THE WEIGHT/VOLUME RATIOS

- **Sea — 1 : 1** → 1 tonne = 1 CBM. Charged on **weight or measure, whichever is greater (W/M)**.
- **Land / road — 1 : 3** → 1 tonne = 3 CBM. (Some road operators now mirror air rates for ease.)
- **Air — 1 : 6** → 1 tonne = 6 CBM, i.e. **1 CBM = 167 kg** (1,000 ÷ 6 = 166.67).

For each mode, anything **below** the ratio is charged purely on **weight** (volume is not a factor); anything **above** it is charged on **volume**.

FIGURE 3.1 What one tonne is allowed to occupy by mode — sea 1:1, land 1:3, air 1:6.

A note on tonnes the handbook is careful about: a **short ton = 2,000 lb**, a **long ton = 2,240 lb**, and a **metric tonne = 1,000 kg**. Quote in the unit your rate is expressed in and never mix them.

> ***Worked example (NAFL-style).*** *A shipment is **500 kg, 1.5 CBM**, quoted at **sea US$100/CBM** and **air US$0.55/kg**.*
>
> - ***Sea (1:1):** volume (1.5) exceeds weight (0.5 t), so charge by **volume** → 1.5 × 100 = **US$150**.*
> - ***Air (1:6):** the weight is more than one-sixth of the volume, so charge by **weight** → 500 × 0.55 = **US$275**. Quote: **US$150 sea, US$275 air.***

> ***Second example. 250 kg, 1.6 CBM.***
>
> - ***Sea:** 1.6 × 100 = **US$160**.*
> - ***Air:** volumetric weight = 167 × 1.6 = 267 kg → 267 × 0.55 = **US$147**. Quote: **US$160 sea, US$147 air** — here air is cheaper, because the cargo is light for its bulk. This is exactly why bulky-but-light consignments are often sent by air.*

Why this matters before you quote

Every freight quote in this book — ocean, air, road — resolves to *rate* × *chargeable unit*. Get the unit wrong and the whole quote is wrong: quote too low and the shipment loses money; quote too high and you lose the customer. The arithmetic here is the foundation of **Chapter 5, Freight Rates**.

WORLDZONE IN PRACTICE

On an LCL or air enquiry, the first thing a WorldZone operator does with a customer's packing list is exactly this calculation — CBM, then volumetric weight, then chargeable weight — *before* a rate is ever quoted. A quote built on the wrong chargeable unit is the single most common cause of a margin loss on a shipment. Do this step carefully, every time.

What to take from this chapter

1. **CBM = L × W × H in metres.** Convert units first, always.
2. **Volumetric weight** converts space into weight; the factor depends on the mode (air ≈ 167 kg/CBM).
3. **Chargeable weight = the greater of actual and volumetric.** It is the number the rate is applied to.
4. This arithmetic underpins every freight quote that follows.

Incoterms 2020

The eleven international trade terms that decide who pays, who carries the risk, and who insures — and exactly what changed since the 2003 book's Incoterms 2000.

When a seller in one country agrees to sell to a buyer in another, two questions have to be answered before a single box moves: **who arranges and pays for each leg of the journey, and at what point does the risk of loss or damage pass from seller to buyer?** Incoterms answer both, in three letters, in a way that means the same thing in every country and every language.

> **DEFINITION — INCOTERMS**
>
> The **Incoterms® rules** are a set of standard international trade terms published by the **International Chamber of Commerce (ICC)**. They define the responsibilities of sellers and buyers for the delivery of goods under sales contracts — specifically the division of **cost**, **risk**, and the obligation to handle **carriage, insurance, export/import clearance and documentation**. They do *not* govern transfer of ownership or payment.

2003 VS NOW — THIS IS THE MOST IMPORTANT UPDATE IN THE BOOK

The 2003 NAFL notes teach **Incoterms 2000**. The current edition is **Incoterms® 2020**. Using a 2000 term on a 2025 shipment is a real commercial risk. Key changes:

- **Four terms were removed** — **DAF** (Delivered at Frontier), **DES** (Delivered Ex Ship), **DEQ** (Delivered Ex Quay) and **DDU** (Delivered Duty Unpaid). If you see these on an old document, they are obsolete.
- **DAP** (Delivered at Place) replaced DDU; **DAT** was introduced in 2010 and then **renamed DPU** (Delivered at Place Unloaded) in 2020 — DPU is the only term where the seller unloads.
- **CIP insurance cover was increased** — under CIP the seller must now buy **all-risks cover (Institute Cargo Clauses "A")**, not the minimum. **CIF stays at minimum cover (Clauses "C")**.
- **FCA + on-board bill of lading** — a new option lets the buyer instruct the carrier to issue an on-board B/L to the seller, solving a long-standing letter-of-credit problem.

The two families of Incoterms 2020

The eleven rules split into two groups. **Getting this split right is the single most useful habit** — it tells you instantly whether a term can legally be used for your shipment.

Rules for ANY mode of transport (7)

Term	Name	Risk passes to buyer when…
EXW	Ex Works	goods are made available at the seller's premises
FCA	Free Carrier	goods are handed to the carrier named by the buyer
CPT	Carriage Paid To	goods are handed to the first carrier (seller pays freight to destination)
CIP	Carriage & Insurance Paid To	as CPT, **plus seller buys all-risks insurance**
DAP	Delivered at Place	goods reach the named place, ready for unloading
DPU	Delivered at Place Unloaded	goods reach the named place **and are unloaded**
DDP	Delivered Duty Paid	goods reach destination, **import duty/tax paid by seller**

Rules for SEA & INLAND WATERWAY transport only (4)

Term	Name	Risk passes to buyer when…
FAS	Free Alongside Ship	goods are placed alongside the vessel at the port
FOB	Free On Board	goods are loaded **on board** the vessel
CFR	Cost and Freight	goods are on board; seller pays freight to destination port
CIF	Cost, Insurance & Freight	as CFR, **plus seller buys (minimum) insurance**

DEFINITION — CIF (WORD-FOR-WORD SENSE)

CIF — Cost, Insurance and Freight (… named port of destination). The seller pays the costs and freight necessary to bring the goods to the named destination port, **but risk passes to the buyer once the goods are on board** the vessel. The seller also arranges marine insurance against the buyer's risk of loss or damage in transit — under Incoterms 2020, the **minimum cover (Institute Cargo Clauses C)**.

FIGURE 4.1 Where cost and risk pass for each term — note how the C-terms split the two.

The critical trap: FOB vs FCA on containers

A mistake repeated daily across the industry: using **FOB** for **containerised** cargo. FOB passes risk when goods cross the ship's rail / are loaded on board — a concept that made sense for break-bulk loaded directly onto a vessel. But containers are handed over at a terminal **days before** loading. Under FOB, the seller therefore carries risk for goods sitting in a stack they no longer control.

> RULE OF THUMB
>
> **Containerised cargo → use FCA (and CPT/CIP), not FOB (and CFR/CIF).** The sea-only terms (FAS, FOB, CFR, CIF) are correct only when goods are loaded directly onto the vessel — bulk, break-bulk, project cargo.

The eleven terms — seller's and buyer's duties

The NAFL handbook works through each term's obligations in full. They are reproduced here, term by term, updated to the 2020 edition. For each, the key question is the same: **where does the seller's job end and the buyer's begin, and where does risk pass?**

EXW — Ex Works (... named place)

The seller fulfils delivery by **making the goods available at his own premises** (works, factory, warehouse). He need not load them onto the buyer's vehicle or clear them for export.

- **Seller:** provide goods + commercial invoice; make available at the named place.
- **Buyer:** bears all cost and risk from the seller's door onward — loading, export clearance, carriage, import, duty.
- **Note:** the **minimum** obligation for the seller. If the buyer cannot handle export formalities, use **FCA** instead.

FCA — Free Carrier (... named place)

The seller delivers when he hands the goods, **cleared for export**, to the carrier named by the buyer at the named point.

- **Seller:** deliver into the carrier's custody; clear for export; pay export taxes/fees.
- **Buyer:** nominate the carrier, contract carriage, pay freight.
- **Note:** built for **containerised/modern transport** — risk passes at hand-over, *not* at the ship's rail as under FOB. The correct replacement for FOB on container cargo.

FAS — Free Alongside Ship (... named port of shipment) · *sea/inland waterway only*

The seller delivers when the goods are **placed alongside the vessel** on the quay or in lighters.

- **Seller:** deliver alongside; provide receipt.
- **Buyer:** clear for export; bear all cost/risk from that moment; contract carriage.

FOB — Free On Board (... named port of shipment) · *sea/inland waterway only*

The seller delivers when the goods are **on board** the vessel at the named port; risk passes at that point.

- **Seller:** deliver on board; clear for export; provide a clean "on board" receipt.
- **Buyer:** nominate carrier, contract carriage, pay freight.
- **Note:** where the ship's rail "serves no practical purpose" (ro-ro, containers), **FCA is more appropriate**.

CFR — Cost and Freight (... named port of destination) · *sea/inland waterway only*

The seller **pays cost and freight to the destination port**, but **risk passes when goods are on board** at the port of shipment.

- **Seller:** contract carriage + pay freight to destination; deliver on board; clear for export.
- **Buyer:** accept delivery against invoice + B/L; arrange own insurance; handle import.
- **Note:** for containers, use **CPT** instead.

CIF — Cost, Insurance and Freight (... named port of destination) · *sea/inland waterway only*

As CFR, **plus the seller procures marine insurance** against the buyer's risk in transit.

- **Seller:** as CFR + contract insurance and pay the premium — **minimum cover (Institute Cargo Clauses C)** under 2020 unless otherwise agreed.
- **Buyer:** accept delivery against documents; bear risk from on-board; handle import.
- **Note:** for containers, use **CIP**.

CPT — Carriage Paid To (... named place of destination) · *any mode*

The seller **pays freight to the named destination**, but **risk passes when goods are handed to the first carrier**.

- **Seller:** contract carriage + pay freight; deliver to first carrier; clear for export; furnish transport documents.
- **Buyer:** accept delivery at hand-over to the first carrier; handle import.
- **Note:** more advantageous to the seller than CFR — he can be paid once goods are with the first carrier, before loading.

CIP — Carriage and Insurance Paid To (... named place of destination) · *any mode*

As CPT, **plus the seller procures cargo insurance**.

- **Seller:** as CPT + insurance and premium — **all-risks cover (Institute Cargo Clauses A)** under 2020 (this is the key change from 2000/2010, which required only minimum cover).
- **Buyer:** accept delivery at first carrier; handle import.

DAP — Delivered at Place (... named place of destination) · *any mode* · replaced DDU (2010)

The seller delivers when the goods are **placed at the buyer's disposal at the named place, ready for unloading**, import not cleared.

- **Seller:** bear cost/risk to the named place; carry out export and transit formalities.
- **Buyer:** unload; clear for import; pay duties and taxes.

DPU — Delivered at Place Unloaded (… named place of destination) · *any mode* · re-named from DAT (2020)

As DAP, **but the seller also unloads** the goods at the named place. The **only** term where the seller unloads.

- **Seller:** bear cost/risk to the named place **and** unload.
- **Buyer:** clear for import; pay duties and taxes.

DDP — Delivered Duty Paid (… named place of destination) · *any mode*

The seller delivers the goods at the named place **cleared of all import requirements — duty and tax paid by the seller**.

- **Seller:** bear all cost/risk to destination **including import duty, tax and clearance**.
- **Buyer:** receive the goods.
- **Note:** the **maximum** obligation for the seller (the mirror image of EXW). Use with caution — the seller takes on foreign customs liability.

2003 VS NOW — THE RETIRED "D" TERMS

The 2003 book taught four "D" terms that **no longer exist**: **DAF** (Delivered at Frontier — used for rail/road border deliveries), **DES** (Delivered Ex Ship — goods handed over on board at destination), **DEQ** (Delivered Ex Quay — handed over on the wharf, duty paid) and **DDU** (Delivered Duty Unpaid). On a modern document these have been replaced by **DAP** and **DPU**. If a counterparty quotes one of them, convert to the current equivalent before contracting.

The six general guidelines for using Incoterms

NAFL lists six rules that still hold under Incoterms 2020:

1. Incoterms **do not** decide when payment is made or when **ownership** passes — those go in the sale contract separately.
2. The parties may **add variations** to a term in their contract; such special provisions override the standard rule (e.g. specifying all-risks cover under CIF).
3. A single Incoterm **does not settle the whole legal relationship** — breach, consequences and title are outside its scope.
4. The contract is still **subject to applicable national law**.
5. **Banks pay against documents, not Incoterms** — under an L/C, make sure the documents called for match the term (e.g. a CIP multimodal move needs an intermodal transport document, not a marine B/L).
6. If export/import needs a **government licence**, make the contract conditional on obtaining it — otherwise a party risks damages for non-performance.

WORLDZONE IN PRACTICE

The first thing to establish on any enquiry is the **Incoterm**, because it defines exactly which legs WorldZone is being asked to handle and where the customer's risk begins and ends. A customer who says "CIF Jebel Ali" is asking for ocean freight **and** insurance to the destination port; one who says "FCA origin" only needs the export leg. Quoting the wrong scope — or letting a customer ship containers on FOB — is a classic, avoidable error. When in doubt, confirm the Incoterm *and* the edition (2020) in writing.

What to take from this chapter

1. Incoterms split **cost** and **risk** between seller and buyer — they do **not** cover ownership or payment.
2. Use **Incoterms 2020**; DAF, DES, DEQ and DDU are gone — DAP and DPU replace them.
3. Know the **two families**: 7 any-mode terms, 4 sea-only terms.
4. **Never use FOB/CFR/CIF for containers** — use FCA/CPT/CIP.
5. Under 2020, **CIP requires all-risks insurance; CIF stays at minimum.**

Freight Rates & Surcharges

How an ocean or air rate is actually built — the base rate plus the alphabet of surcharges (BAF, CAF, THC, GRI, PSS) that turn a quote into the real number.

A freight rate is almost never a single number. The figure a carrier publishes is a **base rate**, and on top of it sits a stack of **surcharges** that move with fuel, currency, congestion and demand. A forwarder who quotes only the base rate will lose money on every shipment; the skill is knowing the full stack and which parts of it will change before the cargo sails.

The base rate and the chargeable unit

Recall from Chapter 3 that freight is billed on a **chargeable unit**, and the rate is applied to it:

- **Ocean FCL** — priced **per container** (per 20'/40'/40'HC box), regardless of how full it is.
- **Ocean LCL** — priced **per CBM or per 1,000 kg, whichever is greater** (the W/M rule).
- **Air** — priced **per kg of chargeable weight** (the greater of actual and volumetric).

> DEFINITION — FREIGHT RATE
>
> A **freight rate** is the price charged by a carrier for moving a unit of cargo between two points by a given mode. It is quoted against a defined **chargeable unit** (per container, per CBM/1,000 kg, or per kg) and is normally **exclusive of surcharges**, which are added separately.

Recall the **weight/volume ratio framework** from Chapter 3 — it sits underneath every rate: **sea is charged 1:1 (per CBM or per 1,000 kg, whichever is greater — the "W/M" rule), land ~1:3, air 1:6 (1 CBM = 167 kg).** The base rate is applied to whichever unit the ratio selects. Get the chargeable unit right first (Chapter 3); *then* build the surcharge stack below.

The surcharges — the alphabet you must know

These appear on quotes and invoices as line items. The exact set varies by carrier and lane, but these are the ones a Middle East / India forwarder sees constantly:

Code	Surcharge	What it covers
BAF	Bunker Adjustment Factor	swings in marine fuel (bunker) price
CAF	Currency Adjustment Factor	exchange-rate movement (rates often set in USD)
THC	Terminal Handling Charge	the port/terminal's cost to handle the container (charged at origin **and** destination — OTHC/DTHC)
GRI	General Rate Increase	a carrier's across-the-board rate rise on a trade lane
PSS	Peak Season Surcharge	extra charged in high-demand periods
ISPS	Security charge	mandated port/vessel security costs

Code	Surcharge	What it covers
DOC	Documentation fee	issuance of the B/L and paperwork
War risk / ERS	War-risk or emergency surcharge	routing through high-risk waters

2003 VS NOW

The 2003 notes treat surcharges as a short, stable list. Two big shifts since then:

- **IMO 2020** capped sulphur in marine fuel at 0.5%, forcing carriers to burn more expensive low-sulphur fuel — many replaced or supplemented **BAF** with a **Low Sulphur Surcharge (LSS / LSF)**. (Covered fully in Chapter 26.)
- **The 2021–2022 disruption** made **GRI** and **PSS** far more aggressive and frequent, and added **congestion** and **equipment-imbalance** surcharges that barely existed in 2003. A quote can now be valid for **days**, not weeks — always state validity.

Building a real quote — worked example

A customer asks for an all-in price, Shanghai → Jebel Ali, one 40' container:

> *Base ocean rate: **USD 1,200 / 40'** + BAF: **USD 180** + THC origin (OTHC): **USD 130** · THC destination (DTHC): **USD 150** + DOC fee: **USD 40** **All-in carrier cost ≈ USD 1,700**, before the forwarder's own margin and any local delivery/customs.*

The customer hears "USD 1,200" from a competitor and asks why you are higher. The answer is that the competitor quoted a **base rate** and the surcharges will appear later. **Quote all-in, and itemise** — it is the difference between a transparent quote and a dispute at invoicing.

Validity, and why rates move

Ocean and air rates are **time-bound**. They move with:

- **Fuel** (BAF/LSS) and **currency** (CAF).
- **Supply and demand** — capacity on the lane vs. cargo wanting space; this drives GRI and PSS.
- **Disruption** — a closed chokepoint, a congested port, a blanked sailing (Chapter 26).

WORLDZONE IN PRACTICE

Every WorldZone quote should carry three things in writing: the **all-in figure with surcharges itemised**, the **validity date**, and the **Incoterm scope** (which legs are included). This protects both the customer and the margin: it prevents the "but you quoted less" dispute, and it makes sure a rate that has since moved isn't honoured at a loss weeks later. The chargeable-unit arithmetic from Chapter 3 plus this surcharge stack *is* the quote.

What to take from this chapter

1. A rate = **base rate + a stack of surcharges**; never quote the base alone.
2. Learn the codes — **BAF, CAF, THC, GRI, PSS** — they are on every invoice.
3. **IMO 2020** reshaped fuel surcharges (LSS); disruption made GRI/PSS volatile.
4. Always state the **all-in price, validity date, and Incoterm scope.**

Documentary Credits & Terms of Payment

How exporters get paid and importers get protected — open account, advance payment, collections, and the Letter of Credit that ties payment to documents.

International trade has a trust problem: the seller wants to be paid before releasing goods; the buyer wants the goods before paying. Thousands of kilometres and different legal systems sit between them. The mechanisms in this chapter exist to bridge that gap — and the freight forwarder's documents (above all, the bill of lading) are what make them work.

The four ways to pay, from riskiest to safest for the seller

> DEFINITION — TERMS OF PAYMENT
>
> The **terms of payment** define when and how the buyer pays the seller. They range along a spectrum of risk: what is safest for the seller is riskiest for the buyer, and vice-versa.

1. **Open Account** — goods shipped and delivered before payment is due (e.g. 30/60/90 days after). Cheapest and simplest; **highest risk for the seller**. Common between trusted, long-standing partners.
2. **Documentary Collection** — the seller ships, then routes documents through banks that release them to the buyer only against **payment (D/P)** or against the buyer's **acceptance of a time draft (D/A)**. Banks handle documents but do **not** guarantee payment.
3. **Letter of Credit (Documentary Credit)** — a bank guarantees payment provided the seller presents compliant documents (below). Balanced protection for both sides.
4. **Advance Payment (Cash in Advance)** — buyer pays before shipment. Safest for the seller, **riskiest for the buyer**.

The Letter of Credit (L/C)

> DEFINITION — LETTER OF CREDIT
>
> A **Letter of Credit (L/C)**, or **documentary credit**, is an undertaking by a bank (the **issuing bank**, acting for the buyer) to pay the seller (the **beneficiary**) a stated amount, **provided the seller presents documents that strictly comply** with the terms of the credit within a set time. The bank deals in **documents, not goods** — it pays against paperwork, not against the cargo itself.

The mechanism turns the trust problem into a documents problem: the buyer's bank, not the buyer, is now obliged to pay — but only if the documents are exactly right.

The parties to an L/C

- **Applicant** — the buyer/importer who asks their bank to open the credit.
- **Beneficiary** — the seller/exporter who will be paid.
- **Issuing bank** — the buyer's bank that issues and guarantees the credit.
- **Advising / confirming bank** — a bank in the seller's country that advises the credit and (if it *confirms*) adds its own payment guarantee.

The documents typically required

The credit lists exactly what the seller must present — commonly:

- **Bill of Lading** (the document of title — see Chapter 8)
- **Commercial Invoice**
- **Packing List**
- **Certificate of Origin**
- **Insurance certificate** (if the Incoterm requires the seller to insure)
- Any inspection or specialised certificates the buyer demands

The three basic forms of documentary credit

NAFL distinguishes three forms, by how secure they are for the seller:

1. **Irrevocable, Confirmed Credit** — the strongest. Four parties: buyer, **issuing bank** (buyer's), **vendor/exporter**, and the **confirming bank** (in the seller's country). Both the issuing *and* confirming banks give a **definite, independent undertaking to pay**. The buyer cannot cancel or alter it without all parties' agreement. Safest for the seller; the buyer bears the issuing cost.
2. **Irrevocable, Unconfirmed Credit** — three essential parties (the issuing bank may also be the remitting bank). The issuing bank's undertaking is firm and **cannot be cancelled or changed without the vendor's agreement**, but no second bank adds its guarantee — so the beneficiary should know **where the credit is payable** (local payment is more convenient than mailing documents abroad).
3. **Revocable Credit** — the weakest. The issuing bank can **amend or cancel it at any time**, acting on the buyer's instructions. It demands full trust between partners who know each other well; its bank commissions are much lower. (Rare today.)

The L/C process, step by step

NAFL walks the flow through five steps — the sequence to picture:

1. **The contract** is concluded between buyer and seller. *(The forwarder is not yet involved.)*
2. The **buyer applies** to his bank to open the credit; the bank checks the buyer's financial standing.
3. The **issuing bank notifies** the seller's (advising/confirming) bank that the credit is opened (and confirmed, if applicable).
4. The **advising bank notifies the seller**, who then **dispatches the goods** per the credit's terms and conditions.
5. The seller **presents the documents** to his bank and is **paid**; the documents pass to the issuing bank, which debits the buyer and releases the documents so the buyer can claim the goods.

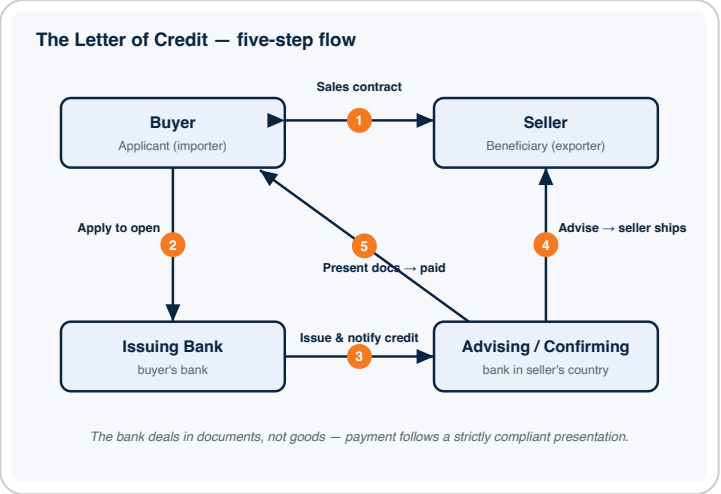

FIGURE 6.1 The L/C in five steps — the bank pays against compliant documents, not against the goods.

Conditions stipulated on a credit — and the forwarder's role

The credit spells out conditions the seller must meet: description, value, terms of sale, documents required, and critically **date of validity / latest shipment date, transhipment allowed or not, part-shipment allowed or not**, even the **age/class/flag of the carrying vessel**. This is precisely why the forwarder **must see the L/C**: only the forwarder can confirm whether a vessel can be secured in time, whether direct shipment or transhipment is possible, and whether a specified flag is available. If any condition **cannot** be met, the forwarder must alert the principal **immediately** so an amendment can be requested through the banks — *before* shipment. An amendment after shipment is too late, and a discrepant presentation will be refused.

Variants worth knowing

NAFL mentions, briefly, that credits can be:

- **Transferable** — to a second beneficiary (e.g. when the seller is a middleman).
- **Red clause** — allowing an **advance** to the seller before shipment.
- **Back-to-back** — a second credit opened on the strength of the first, used when there's an intermediary between seller and final buyer.

Strict compliance — where shipments go wrong

Banks examine documents against the credit with no tolerance for error. A misspelt name, a description that doesn't match the invoice, a presentation one day late, a weight that disagrees between documents — any of these is a **discrepancy**, and a discrepant presentation can be refused. Most L/C problems are not fraud; they are **clerical mismatches** between documents that should agree.

2003 VS NOW

The L/C concept is unchanged, but the rulebook and the medium have moved on. The governing ICC rules are now **UCP 600** (in force since 2007, replacing the UCP 500 of the NAFL era). Presentation is increasingly **electronic** (eUCP), and the underlying transport document is shifting toward the **electronic bill of lading** (Chapter 25). The discipline is the same; the paperwork is faster and, done right, less error-prone.

WORLDZONE IN PRACTICE

When a shipment moves under an L/C, the forwarder's documents must match the credit **exactly** — the bill of lading description, the consignee, the port names, the dates. A discrepancy the forwarder caused can delay or block the seller's payment, even when the cargo arrived perfectly. The practical rule: when a customer says "this is on L/C," treat every document as if a bank will reject it for a single wrong character — because one will.

What to take from this chapter

1. Payment terms trade risk between buyer and seller: **open account** (seller-risk) → **advance payment** (buyer-risk), with **collections** and **L/Cs** in between.
2. An **L/C** makes a bank pay against **strictly compliant documents** — it deals in documents, not goods.
3. Most L/C failures are **discrepancies** — clerical mismatches between documents.
4. Under an L/C, the forwarder's paperwork must match the credit **exactly**.

Cargo Insurance

Why goods in transit must be insured, what the Institute Cargo Clauses (A, B, C) actually cover, and how insurance ties back to the Incoterm.

Cargo can be lost or damaged at any point in a journey — a container overboard in heavy seas, water damage, theft, a handling accident, a general average declaration after a fire. The carrier's liability for this is **strictly limited** by international convention and is **far less** than the value of most cargo. Insurance closes that gap. A forwarder who understands cargo insurance protects the customer from a loss the carrier will never fully pay.

> DEFINITION — MARINE CARGO INSURANCE
>
> **Marine cargo insurance** is a contract of indemnity that compensates the cargo owner for physical loss of or damage to goods during transit, in return for a premium. "Marine" covers the whole transit — including inland and air legs — not only the sea voyage.

Why the carrier's liability is not enough

Carriers limit their liability by weight under international conventions (the Hague-Visby Rules for sea, the Montreal Convention for air). These limits are typically a small amount **per kilogram**, with no regard to the actual value of the goods. For anything valuable relative to its weight — electronics, machinery, branded goods — the carrier's maximum payout is a fraction of the loss. **Cargo insurance, not carrier liability, is what makes the owner whole.**

The Institute Cargo Clauses — A, B and C

The market-standard wordings are the **Institute Cargo Clauses (ICC)**, published by the (London) Institute of Underwriters. There are three levels of cover:

> DEFINITION — INSTITUTE CARGO CLAUSES
>
> - **Clauses (A) — "All Risks."** The widest cover: all risks of loss or damage except specifically listed exclusions. The standard choice for most general cargo.
> - **Clauses (B).** Named-perils cover — a defined list including, e.g., fire, vessel stranding/sinking, collision, jettison, washing overboard, water entering the hold.
> - **Clauses (C).** The narrowest — major casualties only (fire, stranding, sinking, collision, jettison). Excludes water damage, washing overboard and many handling risks.

All three exclude inherent vice, ordinary leakage, insufficient packing, delay, and (separately insured) war and strikes — the latter added back via **War** and **Strikes** clauses where the route demands.

How insurance ties back to the Incoterm

This is where Chapter 4 and Chapter 7 meet. Only **two Incoterms oblige the seller to insure** on the buyer's behalf — **CIF** and **CIP** — and Incoterms 2020 set *different* minimum levels for each:

Term	Seller's insurance obligation (Incoterms 2020)
CIF (sea only)	minimum cover — **Institute Cargo Clauses (C)**
CIP (any mode)	**all-risks — Institute Cargo Clauses (A)**

2003 VS NOW

Under the **Incoterms 2000** of the NAFL book, **both** CIF and CIP required only **minimum** cover. **Incoterms 2020 raised CIP to all-risks (Clauses A)** while leaving CIF at minimum (Clauses C). The practical consequence: under a modern **CIP** contract the seller must buy the *wide* cover — getting this wrong under-insures the shipment and breaches the contract. The Institute Cargo Clauses themselves were also revised (the 2009 wordings replaced the 1982 versions taught in 2003).

Under all other terms, insurance is **optional** and a commercial decision — but a forwarder should always *offer* it. On **CFR** or **FOB**, for instance, no one is contractually obliged to insure, yet the buyer carries the risk at sea and is dangerously exposed without cover.

The older naming — FPA, WA, AR

NAFL teaches the market's traditional clause names, still seen on older policies and in some banks' L/C wording. They map onto today's A/B/C:

- **FPA — Free from Particular Average** ≈ the narrowest cover (≈ Clauses C): general average, "perils of the sea" (stranding, sinking, fire, collision), total loss of whole parcels, and named catastrophes (earthquake, flood). A parcel arriving part-broken would **not** qualify. Adequate only for **bulk/unpacked** cargo (logs, iron bars, pipes).
- **WA / WPA — With (Particular) Average** ≈ a wider cover including partial losses and damage (often with a franchise percentage, or **IOP** "irrespective of percentage" if fully liable).
- **AR — All Risks** ≈ Clauses A: the widest, standard for general cargo — but still **excludes war, strikes, riots and civil commotion (W & SRCC)**, which must be added separately, plus the standard exclusions (inherent vice, inadequate packing, delay, wilful misconduct, ordinary wear).

NAFL's standing advice: unless FPA-only cargo, contract **"all risks, including pilferage, breakage, wetting by sea/rain water, including W & SRCC."**

Open cover — how forwarders actually insure

Rather than insuring each shipment one by one, NAFL recommends the **open contract** (floating policy / open cover):

DEFINITION — OPEN COVER

An **open cover** is a standing agreement under which **all** the insured's consignments are automatically covered the moment they start their journey, on agreed terms and rates — provided the insured **declares** them all to the insurer (good faith is essential). Because the policy stays with the insured, individual shipments are evidenced by an **insurance certificate**, not a separate policy. Under an L/C, ask for a **certificate of insurance**, not a policy.

Claims and how settlement is calculated

When properly insured cargo suffers a covered loss, the insured submits a claim with: the policy/certificate, invoice, survey report (if any), claim letters/reserves, short-landing or loss certificate, and repair/replacement invoices. NAFL's settlement rules:

- Settlement is **proportional** to the insured value. *Example:* 10 cases insured for $12,000 (value $10,000 + margin); one case lost → pay **1/10 = $1,200**, even if a replacement costs $1,350.
- *Pilferage example:* goods worth $862 lost, insured value $12,000 on $10,000 value → compensation = 12,000 × 862 ÷ 10,000 = **$1,034.40**.
- **Survey:** no survey is usually required for small claims (commonly under ~**$500**), since a survey itself costs $100–200 — but the insured must still make reserves and pursue the responsible party.
- **General average settlement:** if cargo is jettisoned, the insurer pays the owner in full, then recovers under the average adjustment — with the payout adjusted for the contribution the goods would have borne had they arrived.

Duties of the insured party

The insurer pays **only if the insured safeguarded the goods**: taking all measures to preserve/salvage cargo and minimise loss, issuing valid **reserves** to protect the **right of recourse** against the carrier or party at fault, and (on settlement) signing a **letter of subrogation**. NAFL stresses this is exactly where forwarders must be careful — a forwarder receiving goods on a client's behalf who fails to note damage and reserve rights commits "a serious mistake."

Key terms a forwarder should recognise

- **Insured value** — usually **CIF value + 10%** (cost, insurance, freight, plus a margin for expected profit/expenses).
- **General Average** — an ancient principle: when part of a cargo or vessel is sacrificed to save the whole (e.g. jettison, or salvage after a fire), **all cargo owners contribute proportionally** to the loss. Without insurance, an owner whose goods arrived safely can still face a large general-average bill.
- **Subrogation** — after paying a claim, the insurer takes over the owner's right to recover from whoever caused the loss.

WORLDZONE IN PRACTICE

Cargo insurance should be **offered on every shipment, and arranged whenever the customer instructs it** — especially under CIF/CIP where it is a contractual duty. Two habits prevent the worst outcomes: insure to **CIF + 10%**, and on **CIP** shipments make sure the cover is **all-risks (Clauses A)**, per Incoterms 2020. A customer who declined insurance and then suffers a loss will discover the carrier pays only a few dollars per kilo — make sure that conversation happened *before* the cargo sailed, in writing.

What to take from this chapter

1. The carrier's liability is **limited by weight** and rarely covers the cargo's true value — insurance closes the gap.
2. Cover comes in three levels: **Clauses A (all-risks), B (named perils), C (major casualties only).**
3. Only **CIF and CIP** oblige the seller to insure; under **Incoterms 2020, CIP = all-risks (A), CIF = minimum (C)**.
4. Insure to **CIF + 10%**, understand **general average**, and **offer cover on every shipment.**

Core Shipping Documents

The paperwork that moves with every shipment — the bill of lading, air waybill, invoice, packing list and certificates — what each one does and why it must be exactly right.

A shipment is controlled by its documents. The cargo may be sitting in a container, but who owns it, who can collect it, what duty it attracts, and whether the seller gets paid are all decided on paper. NAFL makes the point bluntly in the documentary-credit section: banks, customs and carriers **deal in documents, not goods**. A forwarder who prepares clean, accurate, consistent documents moves cargo smoothly; one who does not creates delay, dispute and cost.

The Bill of Lading (B/L)

The bill of lading is the single most important document in ocean freight, because it does **three jobs at once**.

> DEFINITION — BILL OF LADING
>
> A **Bill of Lading (B/L)** is a document issued by a carrier to a shipper that serves three functions simultaneously:
>
> 1. a **receipt** for the goods, confirming they were received (and in what apparent condition);
> 2. evidence of the **contract of carriage** between shipper and carrier;
> 3. a **document of title** — whoever lawfully holds the original B/L controls the goods and can claim them at destination.

Clean vs claused

NAFL stresses that a B/L should be **"clean"** — bearing no clause, notation or comment recording damage, shortage or defective packing. A *claused* (or "dirty") B/L records that the goods or packaging were not in good order, and under a letter of credit a claused B/L will normally be **rejected** by the bank. Before a B/L is issued the forwarder must confirm the goods were received in good condition and tally in every respect with the supplier's documents.

Freight prepaid vs freight collect

The B/L must show either **"freight prepaid"** (the shipper has paid the ocean freight) or **"freight collect" / "freight payable at destination"** (the consignee pays on arrival). Which one applies follows directly from the Incoterm and the agreement with the agent — getting it wrong means freight is billed to the wrong party.

”To order” bills and endorsement

A B/L made out **“to order”** (e.g. “to order of Deutsche Bank”) is negotiable: title passes by **endorsement** (signing it over) and delivery of the original. This is what lets a bank hold the goods as security under an L/C and release them only once the buyer has paid. A **“straight”** B/L consigned directly to a named consignee is not negotiable.

2003 VS NOW

The 2003 handbook assumes a paper B/L moving physically between shipper, banks and consignee — a process NAFL itself notes can take **20 days**, often leaving cargo sitting at the port waiting for documents to arrive. Today the **electronic bill of lading (e-B/L)** is rapidly replacing paper: title transfers digitally in minutes, removing the classic problem of goods arriving before their documents. Chapter 25 covers the digital document chain in full. The B/L’s three functions are unchanged; the medium is becoming electronic.

The Air Waybill (AWB)

The air-freight equivalent of the B/L — with one crucial difference.

DEFINITION — AIR WAYBILL

An **Air Waybill (AWB)** is the document covering carriage of goods by air. It is a contract of carriage and a receipt, it identifies shipper and consignee, describes the goods, shows the routing and the freight calculation — **but it is *not* a document of title.** It is non-negotiable: the goods are released to the named consignee, not to “whoever holds the original.”

The AWB is issued in three originals — one for the **carrier**, one for the **consignee**, one for the **shipper** — and must be signed (or stamped) by both carrier and shipper. Air carriage is governed by the **Warsaw Convention** (1929, as amended by the Hague Protocol 1955) and today the **Montreal Convention** (1999). Air documentation is covered in full in Chapter 19.

The commercial invoice

The seller’s bill for the goods. It must **correspond exactly** to the goods described in the sale contract and the letter of credit — the description, quantity, value and currency must match. The invoice amount must be as authorised in the credit (either the exact amount or within stated limits). Invoices are normally supported by the packing list and/or weight list.

The packing list

An itemised list of what is in each package — contents, dimensions, weights, marks and numbers. It lets the carrier, customs and consignee check the cargo against the documents without opening every box, and it is essential for customs examination and for sorting and redistribution at destination.

The certificate of origin

A document stating the **country in which the goods were produced**, usually issued and certified by the **Chamber of Commerce** in the country of origin. It is needed for customs duty assessment (preferential rates depend on origin), for quota goods, and is frequently required under letters of credit.

Other certificates

Depending on the goods and the trade, the contract or L/C may call for further certificates, each issued by a recognised authority or inspection body:

- **Inspection / conformity certificate** — issued by a specialised firm after inspecting the goods.
- **Phytosanitary certificate** — for plants and plant products (pest/disease free).
- **Veterinary / health certificate** — for animals and animal products.
- **Analysis certificate** — for chemicals and the like.
- **Dangerous goods declaration** — the shipper's declaration for hazardous cargo (Chapter 21).
- **Insurance certificate** — required when the sale is on CIF or CIP terms (Chapter 7).

The forwarder's instructions waybill

When a forwarder ships through an agent at destination, the two are tied together by an **instructions waybill** — the forwarder's own form, telling the agent everything needed to handle the consignment: vessel, supplier, consignee, goods, terms, insurance status, how the B/Ls are made out and distributed, notify party, special instructions and charges. It is the internal control document that makes a two-office shipment behave as one. (A worked example runs through Chapter 9.)

WORLDZONE IN PRACTICE

Documentation **is** the forwarding service — it is one of WorldZone's core services for good reason. The discipline that prevents the most costly errors: every document on a shipment must **agree with every other** — the B/L, invoice, packing list and certificate of origin must show the same description, quantities, marks, consignee and ports. A single mismatch is a customs hold or a rejected L/C presentation. When a shipment is under a letter of credit, treat every character as if a bank will reject it (Chapter 6) — because one will.

What to take from this chapter

1. The **B/L** is receipt + contract + **document of title**; keep it **clean**, show the right **freight terms**, and understand **"to order"** + endorsement.
2. The **AWB** does similar jobs for air but is **not** a document of title and is non-negotiable.
3. The **invoice, packing list and certificate of origin** must all agree with each other and with the L/C.
4. Consistency across documents is the forwarder's core discipline — mismatches cause holds, rejections and cost.

Export & Import Procedures

How a forwarder actually runs a shipment end to end — quoting, booking, vessel selection, documents and delivery — under each Incoterm, with worked transit-time examples.

This is the operational heart of forwarding. Everything in the earlier chapters — Incoterms, rates, documents — comes together here, in the actual sequence of running a shipment. NAFL devotes more pages to this than to any other topic, because it is where a forwarder earns their reputation: not just moving a box, but *mastering* the movement rather than putting up with it.

Before you quote: the basic facts

NAFL lists the factors a forwarder must weigh **before** recommending a method of transport or routing:

- **Nature of the goods** — general cargo, or special (perishable, hazardous, live animals, bulk, out-of-gauge)?
- **Voyage** — direct, or with transhipment/transfer?
- **Time element** — how urgent is it?
- **Cost** — cheapest, quickest, or safest?
- **Safety / security** — containerised or conventional?

> **SEA OR AIR? — THE DECISION NAFL DRILLS**
>
> It is obvious that 100 tonnes goes by sea. It is **not** obvious for 150–200 kg. Because sea is charged on **measurement** and air on **weight** (the 1:6 ratio, Chapter 3), a **bulky-but-light** consignment can cost almost the same by air — and arrive far faster and more safely. For small, bulky, high-value or urgent cargo (pharmaceuticals, scientific apparatus), always compare the air rate. A well-run forwarder keeps air and sea desks in close contact; sending by sea something that would cost no more by air is, in NAFL's word, "incompetent."

The quotation

To quote, the forwarder needs: type of goods (for the rate category), volume **and** weight (volume for sea, weight for inland), value (for insurance), whether collection/delivery and export packing/marking are included, the customer's preferred mode, and what clearance/documents are required. NAFL's rules for a sound quote:

- Offer **two or more options** where alternative routings exist.
- Cover **your own costs** — B/L fees, certificates, clearance, your intervention fee. Novices forget these.
- **Always state validity** — "valid as per present freight and exchange rates; any variation, up or down, for the account of the goods." **Quotations should never be open-ended.**
- Decide the format your client wants: a single lump sum, or a fully **itemised** breakdown.

Running a shipment under CFR / CIF (you act for the seller/exporter)

When the contract is CFR or CIF, the *exporter* controls the transport. The forwarder will:

1. Check for a **documentary credit** and whether its terms can be met.
2. Obtain export-clearance documents (invoice, packing list, DG declaration where needed).
3. Fix the **date of availability** and place of collection.
4. **Book** with the carrier, allowing time from warehouse to delivery alongside, plus export clearance, before the vessel closes.
5. Coordinate delivery to the stevedores, export clearance and delivery alongside; **prepare and lodge the B/L** after confirming the goods were received in good order and tally with the documents.
6. Cover **insurance** if required.
7. Pay the freight, retrieve the B/Ls, **distribute documents** per the principal's instructions, and **issue the invoice**.

Running a shipment under EXW / FOB / FAS (you act for the buyer)

Here the forwarder is usually acting on instructions from the **buyer** (directly, or via the buyer's agent abroad), and represents the buyer's interest — *not* the seller's. The mechanics of calling cargo forward are similar, but the documents differ: the B/Ls are typically made out **"freight collect,"** and the forwarder transmits documents to the agent under an **instructions waybill**. NAFL's standing rule for clarity: state explicitly on every advice **"insurance is / is not covered by us,"** to remove any doubt.

A worked example — the Bayer / Pharmimport shipment

NAFL teaches the whole flow through one case, worth following because it shows how the pieces connect:

> ***Pharmimport, Dubai*** *imports 4 tonnes of pharmaceuticals from* ***Bayer, Leverkusen****, terms* ***FOB Hamburg****. A documentary credit requires shipment by* ***31 August****; goods ready ~14 August. You must cover insurance. The B/L is to order of Deutsche Bank, notify Pharmimport,* ***no transhipment****.*

1. **Contact your Hamburg agent** immediately with Bayer's reference, the goods, the FOB terms, the delivery date and the L/C expiry — asking for a **direct** sailing before end-August, with rates and fees.
2. The agent replies with three sailings: a conference vessel 16/8, another 23/8, a non-conference 29/8. You **eliminate the 29/8** sailing as dangerously close to the credit expiry — a 2–3 day delay would "create havoc" with the L/C.
3. You quote the client **all-in** (Hamburg B/L charges, freight + BAF + CAF, Dubai insurance/clearance/delivery, duties), always noting that rate/surcharge/duty/exchange fluctuations are for the goods.
4. You issue the **instructions waybill** to your agent and advise the client of cost and timing.
5. You **cover insurance** ("all risks, including wetting by rain/sea water, pilferage, W & SRCC" for pharmaceuticals).
6. To save time, **customs entry forms are prepared in advance**, completed on the vessel's arrival — normal good practice in the UAE.

The lesson NAFL draws: even on a one-week voyage, the **documents** (B/L moving Bayer → Deutsche Bank → Dubai bank → Pharmimport → you) can take ~20 days, so cargo may sit in store at the port awaiting paperwork. Plan for the document cycle, not just the sailing.

Selecting the vessel

The choice of vessel turns on **technical** then **commercial** factors:

- **Technical:** the type and quantity of cargo. Bulk volumes may require chartering a specialised ship (ore/bulk carrier, tanker/VLCC, reefer, ro-ro, combi). Break-bulk and heavy-lift need a vessel with suitable gear — or a well-equipped port (e.g. Dubai's port facilities) where the ship need not carry its own cranes.
- **Commercial:** sailing dates vs cargo readiness; voyage duration (a longer wait for a faster/direct vessel may beat an early sailing with a 30-day transhipment); which transhipment port; and which **line** to use.

2003 VS NOW — CONFERENCE LINES BECAME ALLIANCES

NAFL describes the market in terms of **"conference"** lines (carriers agreeing reduced, regular rates) versus **"outsiders"** / **"flags of convenience"** (Panama, Liberia, Cyprus) running cheaper independent services. That world has changed. Shipping **conferences were abolished in the EU in 2008**, and the market consolidated into a handful of global **carrier alliances** (2M, Ocean Alliance, THE Alliance) and mega-carriers. The underlying judgement NAFL teaches — weigh rate, transit time, reliability and safety, don't just take the cheapest — is unchanged. (Chapter 26 covers today's alliance structure.)

Calculating transit time — worked cases

NAFL has the forwarder build transit time from **all** legs, not just the sea voyage. Three of its worked cases (warehouse-to-warehouse):

Routing	Pre-carriage + export	Main leg	Import + delivery	Total
Coventry → Dubai (LCL/break-bulk)	3 + 2 days	18 days sea	6 + 1 days	**~30 days**
Kyoto → Dubai (FCL via Fujairah)	3 days	17 days + 1	1 day	**~22 days**
New York → Kuala Lumpur (non-container, via Port Klang)	4 days	26 days	3 + 2 days	**~35 days**

Always add a **2-day safety margin**, quote a *realistic* transit time — and **never** guarantee a firm arrival date with penalty for delay. Too many causes of delay are outside the forwarder's control, and the profit margin is too thin to carry that risk; such a commitment is a management decision only.

The export-file checklist

NAFL's summary of what a forwarder pins down to open an export file: nature/packing/weight/dimensions of goods · contract terms (FOB/CFR/CIF…) · how the B/Ls are made out and distributed · documentary credit or not · insurance (and on what conditions) · the documents needed (invoice, packing list, export/exchange licences, certificates) · who the **principal** is (vendor, buyer, or your own agent abroad) · and to whom you bill.

WORLDZONE IN PRACTICE

This chapter *is* the WorldZone operator's day: take the enquiry, establish the Incoterm and the facts, quote all-in with validity, book, coordinate documents and clearance through the destination office, and deliver — switching between acting for the **seller** (CFR/CIF) or the **buyer** (EXW/FOB) depending on the contract. WorldZone's seven-country network is exactly the "reliable agent at the other end" NAFL says every forwarder must have: the Dubai and India offices acting as each other's destination agent under one instruction is what makes a shipment seamless instead of a relay of strangers.

What to take from this chapter

1. Establish the **facts and the Incoterm** before quoting; compare **sea vs air** even for small cargo.
2. Quote **all-in, with validity** — never open-ended; cover your own costs.
3. Know whether you act for the **seller** (CFR/CIF) or **buyer** (EXW/FOB) — it changes the documents and freight terms.
4. Build **transit time from every leg** + a safety margin; never guarantee a dated arrival under penalty.
5. Plan for the **document cycle**, which can outlast the voyage itself.

Customs & Compliance

What customs authorities do, how the forwarder works with them, the Harmonised System of classification, carnets and conventions — and the UAE/GCC framework today.

Every cross-border shipment passes through customs, and the forwarder is the party that makes that passage smooth or painful. NAFL frames the customs authority's job as a constant **tension**, never a settled balance: *facilitate trade* while *protecting the nation's revenue, security and heritage*. Too little control and rightful duties and statistics are lost; too much and traders take their business to a more efficient country. The forwarder's role is to help customs do its job quickly and accurately — which is also how cargo clears fastest.

What customs actually does

Beyond collecting duty, a customs authority is the **first line of national control** at the border, and is given a wide range of tasks. NAFL's list, still current:

- Gather **accurate trade statistics**, classified by **HS number** and measured by weight and/or value.
- Ensure **controlled goods** (medicines, explosives, other dangerous goods) are imported only by correctly licensed companies.
- Prevent **smuggling** of narcotics (noting that what is controlled in one country may be legal in another).
- Check **import/export licences** are correct where required.
- Verify **quota items** (e.g. garments to the USA) meet standards of description and origin.
- Exclude **harmful or blasphemous** media; protect **antiquities**.
- Block **money laundering** and fraudulent transactions.
- Enforce **CITES** — no trade in protected species or their products.
- Stop **counterfeit/copied goods**, protecting copyright.
- Keep out **spurious, dangerous or harmful** goods.

Alongside customs, other bodies clear cargo before it enters free circulation: **health/municipal laboratories** check foodstuffs; the **agriculture and fisheries** authority checks for diseases (from nematodes in fertiliser to foot-and-mouth). The forwarder must understand these linked roles — much can go wrong in the gaps between them.

Where customs actually sits — the Dubai locations

NAFL teaches customs from the **local perspective** as well as the international one, because a forwarder clears cargo at a *physical* office, not an abstraction. In Dubai, customs operates under one centralised **Ports, Customs & Free Zone Authority**, across nine principal locations — worth knowing because each handles a different cargo flow:

THE NINE DUBAI CUSTOMS LOCATIONS

Dubai Airport · **Port Rashid** · **Jebel Ali** · **Hamriya Port** · **Dubai Creek & Dhow Wharfage** · **Al Awir** (inland customs terminal) · **Karama** (postal section head office) · **Jebel Ali Free Zone** · **Dubai Airport Free Zone** — plus subsidiary zones such as the **Ducamz** used-vehicle import zone and **Dubai Internet City**.

Each clears a distinct traffic — sea FCL/LCL at the ports, air cargo at the airport, dhow trade at the Creek, road cargo and inland transfers at Al Awir, courier/post at Karama, and duty-deferred cargo in the free zones. Knowing which office governs a given shipment is the difference between a clearance filed correctly the first time and one that bounces.

The Harmonised System (HS codes)

DEFINITION — HARMONISED SYSTEM

The **Harmonised System (HS)** is an internationally standardised method of **classifying any traded goods by a numeric code**, regardless of manufacture or origin, enabling consistent identification, duty assessment and statistics worldwide. The forwarder has a responsibility to **assist and correctly advise shippers** in classifying their goods.

The HS code drives the **duty rate, restrictions and statistics** for a shipment. A wrong classification means wrong duty (under- or over-paid), and potentially penalties or delay. This is one of the most consequential pieces of advice a forwarder gives.

2003 VS NOW

NAFL describes the HS as "introduced by the International Customs Association and shortly to be mandatory." It is now **long-established and universal** — administered by the **World Customs Organization (WCO)**, updated roughly every five years, and used by virtually every customs authority. The 2003 note that the UAE was "in the middle of a major shift" from 100% paper to electronic customs is now complete: the UAE runs **electronic single-window systems** (Dubai Trade / Mirsal 2), and the "sole agency law / pre-WTO" caveats NAFL flags have been overtaken by the UAE's **full WTO membership** and **GCC Customs Union** (a common external tariff, generally **5%**, with VAT introduced in 2018). Chapter 25 covers the digital customs interface.

Conventions and carnets the forwarder should know

NAFL introduces the international customs framework — still the backbone today:

- **Revised Kyoto Convention** — the WCO blueprint for simplified, harmonised customs procedures.
- **GATT / WTO** — the multilateral trade framework governing tariffs and trade rules.
- **FIATA Customs Clearance Manual** — the forwarder's procedural reference.

DEFINITION — TIR AND ATA CARNETS

A **carnet** is an international customs document that lets goods cross borders without paying duty at each one:

- **TIR carnet** — allows sealed road vehicles/containers to transit multiple countries under one customs document, duties guaranteed, without inspection at each border.
- **ATA carnet** — a "passport for goods" allowing **temporary** duty-free import of items that will be re-exported unchanged (exhibition goods, samples, professional equipment).

The UAE / GCC customs picture (current)

For a WorldZone operator, the practical framework today:

- The **GCC Customs Union** applies a common external tariff — generally **5%** of CIF value — across UAE, Oman, Qatar, Bahrain, KSA and Kuwait, with many essentials zero-rated and some goods (tobacco, alcohol) far higher.
- **Free zones** (Jebel Ali, Dubai Airport Free Zone and many others) allow goods to be stored and re-exported **without duty** — duty is due only on entry into the local market. This underpins the UAE's role as a **re-export hub**.
- **Customs deposits/bonds** apply to goods moving in transit or for re-export (see the sea/air duty-deposit mechanism in Chapter 20).
- Clearance is **electronic** through the emirate's trade portal; the forwarder/importer needs registered, trained staff and guaranteed credit accounts to transact.

WORLDZONE IN PRACTICE

Customs clearance is one of WorldZone's core services, and it sits at the centre of the UAE's re-export economy. Two things a new operator must internalise: (1) the **HS classification** drives duty and restrictions — get it right and advise the shipper correctly; (2) the **free-zone vs local-market** distinction decides whether duty is payable at all, and the **5% GCC tariff** plus VAT is the baseline to quote against. When cargo is for re-export, the duty-deposit/refund mechanism (Chapter 20) protects the customer's cash — but only if the cargo leaves within the customs time limit.

What to take from this chapter

1. Customs balances **facilitating trade** against **protecting revenue and security** — help it work quickly and cargo clears faster.
2. The **HS code** drives duty, restrictions and statistics; classifying correctly is core forwarder advice.
3. Know the framework: **Kyoto, WTO/GATT, FIATA manual**, and **TIR / ATA carnets**.
4. In the GCC: a common **~5% tariff**, **VAT**, **free-zone duty deferral**, and **electronic** clearance — the basis of the UAE re-export hub.

Containers & Container Types

The box that changed shipping — standard and specialised container types, their exact dimensions and capacities, the TEU, and how cargo is safely stuffed.

Most general cargo today moves in containers, and NAFL is emphatic that a forwarder **must** know container dimensions and characteristics cold — because advising clients and calculating how a shipment fits a box is daily work. Get the container choice or the cubic calculation wrong and cargo is left on the quay, or a second box is paid for needlessly.

The standard container and the TEU

The **standard container is the twenty-foot (20') box**, and capacity across the industry is measured in multiples of it.

> **DEFINITION — TEU**
>
> **TEU** = **Twenty-foot Equivalent Unit**. It is the unit used to describe container volumes and ship capacity. A 20' container = **1 TEU**; a 40' container = **2 TEU**. A large container vessel of NAFL's era carried 2,000–6,000 TEU; today's largest exceed **24,000 TEU** (Chapter 12).

Dimensions and capacities — the numbers to know

NAFL gives the working figures for standard dry-cargo (DC) containers. These are the ones a forwarder quotes against:

	20' Dry	40' Dry
Internal length	5,898 mm	12,031 mm
Internal width	2,352 mm	2,352 mm
Internal height	2,393 mm	2,393 mm
Cubic capacity	**~33.2 CBM**	**~67.7 CBM**
Max gross weight	30,480 kg	30,480 kg
Tare (empty) weight	~2,300 kg	~3,840 kg
Payload	**~28,180 kg**	**~26,640 kg**

Two practical points NAFL draws from this table: a 40' holds roughly **double the volume** of a 20' but **not** double the weight payload (its own tare is heavier), so a 40' is for **bulky** cargo, a 20' for **dense/heavy** cargo. And the cubic figures (33.2 / 67.7 CBM) are exactly the numbers used in the stuffing calculations of Chapter 3.

The high cube and the 45’

The **high-cube (HC)** is a 40’ container about a foot taller (8’6” → 9’6” external) for extra volume — and NAFL notes that **most 40’ boxes seen in the Middle East are high-cubes**. The **45’** exists but is less common, as its extra length complicates stacking with standard 20’/40’ boxes.

Specialised container types

Beyond the standard dry box, NAFL covers the family of specialised units — each solving a particular cargo problem:

- **Reefer (refrigerated)** — carries its own electrically powered freezer unit; for perishables (meat, fish, fruit, dairy) needing temperature control throughout transit.
- **Open-top** — no solid roof (a tarpaulin instead); for **out-of-gauge** loads taller than the box, or top-loading with a crane (e.g. machinery).
- **Flat rack** — no roof and no sidewalls; strengthened lashing points; end-walls that fold down. For heavy, wide or awkward cargo (vehicles, aircraft engines, generators). Often preferred over open-top at 40’ for its **much heavier payload**. End-walls up = ISO flat rack; both down = platform flat.
- **Open-side** — opens along the side for oversized or awkward loading.
- **Dry bulk** — for grain, powder and granular cargo loaded through hatches.
- **Half-height** — for exceptionally **heavy, dense** cargo (steel tubes, pipes) where weight, not volume, fills the box.
- **Tank (ISO tank)** — a **stainless-steel tank built into a 20’ frame** for carrying **liquids, chemicals and gases in bulk**; reusable, robust, and the standard for hazardous and high-value liquids (insulated/heatable versions exist). The handle-like-a-container way to move a liquid in bulk (Chapter 17).
- **Flexitank** — a large **disposable bladder** fitted inside an ordinary 20’ dry box, turning it into a **one-way** carrier for **non-hazardous** bulk liquids such as edible and base oils (Chapter 17). Cheap, single-use, and never used for dangerous goods.

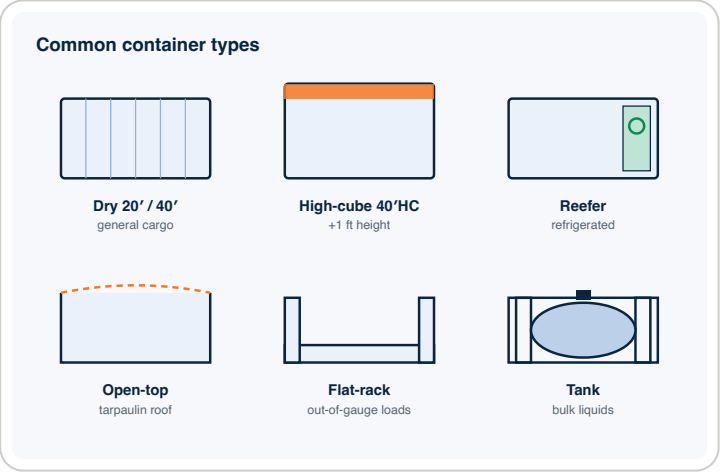

FIGURE 11.1 Each specialised box solves a particular cargo problem.

Container anatomy and safe stuffing

A forwarder should recognise the structural parts, because they explain *how* a box is lifted and loaded safely. NAFL labels them on a construction diagram; the ones that matter in practice:

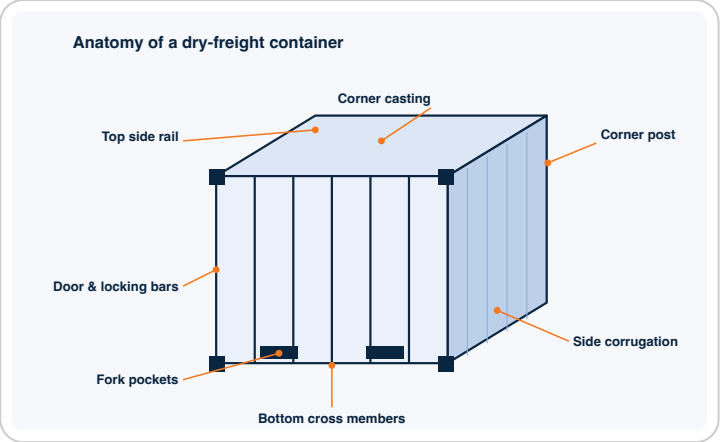

FIGURE 11.2 Anatomy of a dry box — the parts that decide how it is lifted and stowed.

- **Corner castings (corner fittings)** — the eight reinforced corners. **Gantry-crane spreader bars and ship/chassis twistlocks lock into these** to lift and secure the box. They are the only points designed to take the lifting and stacking loads.
- **Corner posts** — the vertical members at each corner that carry the **stacking weight** of the containers above (boxes are stacked many-high on deck and in the yard).
- **Cross members** — the transverse **under-floor beams** that carry the cargo's weight. Heavy point-loads must be spread across several of them.
- **Top and bottom side rails**, **end rails**, **side posts** — the frame.
- **Lashing points** — fittings on the floor and side walls to **secure (lash) the cargo** inside; NAFL notes good containers provide ample lashing points on floor and sidewalls.
- **Fork pockets** — slots underneath so a **heavy-duty fork-lift** can lift the box (item 12 on NAFL's diagram).
- **Door gasket, locking bars, locking-bar handles/keepers** — the weather-tight, lockable door gear.

> **THE LIFTING + LOAD-SPREADING RULE**
>
> Containers are lifted by **gantry-crane spreaders engaging the top corner castings**, or by **fork-lift via the fork pockets**. When **stuffing**, never place a particularly heavy weight directly on the floor without **spreaders / bearers** to distribute it across **several under-floor cross members** — a concentrated point load can punch through or distort the floor. Every box is periodically inspected and plated under the **Container Safety Convention (CSC)**.

NAFL's central stuffing rule:

THE STUFFING MAXIM

Safe container transport depends chiefly on a correct and immovable stow and an even weight distribution. Either the cargo is stowed so tightly that no lateral or longitudinal movement is possible, **or** it must be effectively restrained. Heavy weights go at the **bottom**; load must be spread across several **cross members** using bearers or dunnage so it is never concentrated on one point of the floor.

All units are periodically inspected under the **Container Safety Convention (CSC)**.

(The full set of stuffing, restraint and load-distribution techniques — shoring, lashing, wedging, locking — is covered with packing in Chapter 22.)

2003 VS NOW

The container dimensions NAFL gives are **still exactly correct** — this is one area where 2003 needs no updating. What has changed is around the box: ships grew from ~6,000 TEU to 24,000+ TEU; the **high cube is now the default** 40' worldwide; and new types are common — notably **reefers with controlled/modified atmosphere** for longer-life perishables, and standardised **45' pallet-wide** units in some trades. The box itself is the great constant of modern shipping.

WORLDZONE IN PRACTICE

Containers underpin WorldZone's two biggest ocean services — **FCL** (a full box for one customer) and **LCL** (shared, see Chapter 13). The everyday judgement: match the box to the cargo. Dense, heavy goods → **20'**; bulky, light goods → **40'/HC**; out-of-gauge or heavy project pieces → **flat rack or open-top**; temperature-sensitive → **reefer**. Quote against the real capacities (33.2 / 67.7 CBM) and the payload limits — promising a customer a fit that exceeds the box's weight or cube is a classic, avoidable error.

What to take from this chapter

1. The **20' box = 1 TEU**; capacity and ships are measured in TEU.
2. Know the numbers: **20' ≈ 33.2 CBM**, **40' ≈ 67.7 CBM**, max gross ~30.5 t; 40' is for **bulk**, 20' for **weight**.
3. Match cargo to the right type — **reefer, open-top, flat rack, dry-bulk, half-height**.
4. Safe stowage = **immovable stow + even weight distribution**; heavy low, load spread over cross members.

Vessel Types & Ocean Operations

The ships that carry the world's cargo — basic ship anatomy and the main vessel types, from container ships and ro-ros to bulk carriers, reefers and gas tankers.

A forwarder does not sail ships, but must understand them — because the **vessel type** determines what cargo can be carried, how it is loaded, which ports it can call at, and therefore the routing and cost. NAFL introduces the ship itself before the types, and so do we.

Basic ship anatomy

The working vocabulary every forwarder should recognise:

- **Bow / bows** — the front; **stern** — the rear. **Forward (forrard)** = toward the front; **aft** = toward the rear.
- **Bridge** — the command position from which the vessel is directed.
- **Hold** — the cargo space below deck; divided by **hatches** (the deck openings) and sometimes **'tween decks** (intermediate deck levels).
- **Derricks** — the ship's own lightweight cranes for lifting cargo in and out of holds.
- **Draught** — how deep the vessel sits in the water (it determines which ports/canals it can use); **freeboard** — the hull height above the waterline.
- **Double bottom** — the space between inner and outer hull, used for fuel or water ballast.

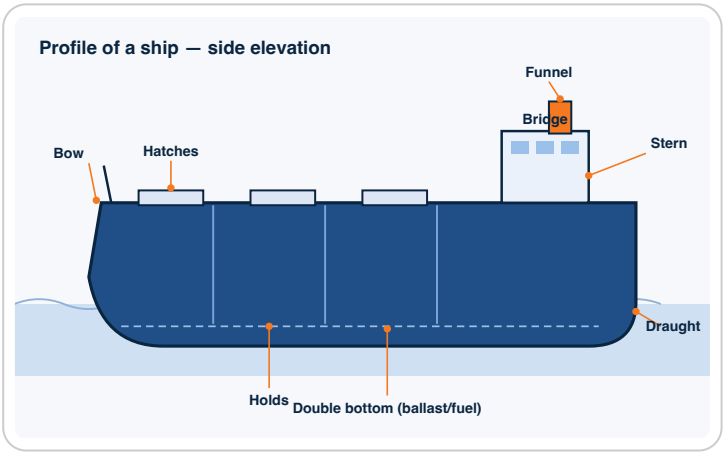

FIGURE 12.1 Profile of a ship — the anatomy vocabulary that recurs on bookings.

Container ships

The workhorse of general cargo. Containers are stacked in **slots** both below deck and on top, each slot known to the ship's mate, who is responsible for the cargo. Containers that must come off first — and **dangerous goods**, which may need rapid off-loading if they threaten the vessel — are stowed **on deck**.

A key operational fact: a large container ship **cannot load or unload itself** — it depends on the **gantry cranes** of a container terminal. This is why the biggest vessels only call at major equipped ports, and smaller **feeder** vessels distribute boxes to lesser ports.

Ro-Ro (roll-on / roll-off)

Vessels with **bow, stern or side ramps** onto which anything on wheels can be **driven** — cars, trucks, trailers, buses, heavy plant — alongside containers. The advantage is **horizontal** handling: no lifting gear needed, so heavy wheeled units load fast and the vessel turns around quickly. Ports like Sharjah handle ro-ros routinely.

Combi / multi-purpose vessels

Ships that carry a **combination** — containers, ro-ro cargo, break-bulk, reefer — usually **smaller**, with their **own loading gear** so they can serve ports lacking gantry cranes. In the Gulf they are widely used as **feeder vessels**, distributing cargo to smaller ports after it is offloaded from large container ships.

Reefer (refrigerated) vessels

Purpose-built for refrigerated cargo — either carrying **reefer containers** powered throughout the voyage, or with **holds built as freezer compartments**. They are complex (every hold/container needs continuous power and temperature monitoring) and often carry **their own cranes**, so they can load/unload without depending on port gantries.

Bulk carriers and specialised tankers

For large homogeneous cargoes that need no packing — loaded loose, by the shipload:

- **Bulk carriers** — ore, coal, grain, fertiliser, sugar, salt, cement.
- **Tankers / VLCC** — crude oil and liquids (also cooking oil, chemicals, petrol).
- **OBO** ("oil, bulk, ore") — a multi-purpose bulk ship able to carry oil **one way** and dry bulk (grain, fertiliser, ores) the **other**, after high-pressure hold cleaning — reducing the costly empty "ballast" legs that plagued single-purpose bulk ships.
- **LNG / LPG carriers** — liquefied natural gas / petroleum gas, in multiple high-pressure refrigerated tanks; among the most hazardous and specialised vessels afloat.

Large, homogeneous quantities typically justify **chartering** a whole vessel rather than booking liner space (Chapter 14).

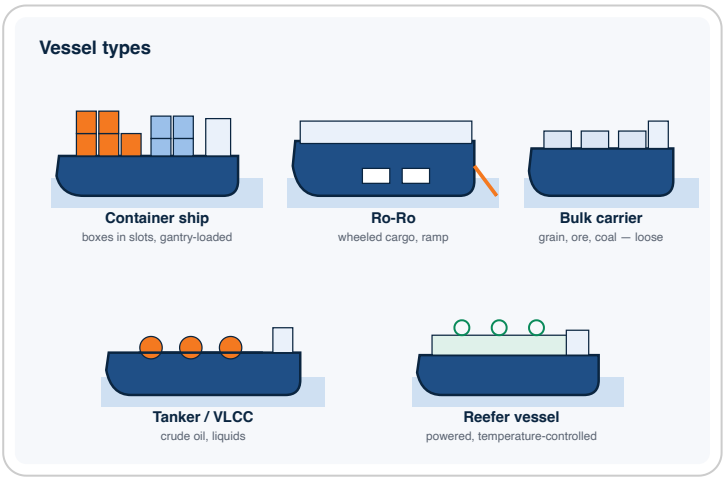

FIGURE 12.2 Match the cargo to the ship — the five workhorse vessel types.

2003 VS NOW

The vessel **types** are unchanged, but the **scale** has transformed. NAFL's "large container vessel" of 2,000–6,000 TEU has been dwarfed by **ultra-large container vessels of 24,000+ TEU**. Two post-2003 forces every operator must now know: **IMO 2020**, capping marine-fuel sulphur at 0.5% and changing how ships are fuelled and surcharged; and the drive to **decarbonise** (LNG-fuelled, methanol and ammonia-ready ships now entering service). The chokepoint risk from Chapter 1 — Suez/Red Sea rerouting — bears directly on which vessels sail which routes. These are covered in Chapter 26.

WORLDZONE IN PRACTICE

Vessel knowledge turns into routing judgement. Whether cargo goes on a **mainline** container ship (major ports only) or needs a **feeder** to reach a smaller port; whether a project piece needs a **ro-ro or combi** with its own gear; whether perishables need a **reefer** service — these choices, made at quoting, decide transit time and cost. WorldZone's hub-and-feeder reality (mainline to Jebel Ali/major GCC ports, feeders onward) is exactly the structure NAFL describes — knowing it lets an operator quote a realistic routing, not a wishful one.

What to take from this chapter

1. Learn the **anatomy vocabulary** — bow/stern/hold/hatch/draught/derrick — it recurs in documents and bookings.
2. Match cargo to vessel: **container ship** (needs gantry ports), **ro-ro** (wheeled), **combi/feeder** (self-geared, small ports), **reefer** (temperature), **bulk/tanker/OBO/gas** (loose homogeneous cargo).
3. Big container ships **can't self-load** — hence the **mainline + feeder** structure that shapes routing.
4. Scale and fuel rules (IMO 2020, decarbonisation) are the big post-2003 shifts — see Chapter 26.

FCL, LCL, Consolidation & Groupage

How cargo is sold by the box or by the cubic metre — full containers, shared containers, and the consolidation business where forwarders make their best margin.

Not every shipment fills a container. The way a forwarder handles the gap between "a full box" and "a few cartons" is one of the most commercially important skills in the trade — and, as NAFL puts it plainly, **"it is certainly with consolidation that forwarders can best earn their living."**

FCL vs LCL

DEFINITION — FCL AND LCL

- **FCL — Full Container Load:** one shipper's cargo fills (or is booked as) an entire container. Priced **per container**. The box is stuffed at origin and ideally not opened until the consignee's premises.
- **LCL — Less than Container Load:** a shipment too small to justify a whole container. The forwarder combines it with other shippers' cargo in a shared box. Priced **per CBM or per 1,000 kg, whichever is greater** (the W/M rule, Chapter 3).

The choice is mostly about volume and economics: enough cargo to fill or nearly fill a box → FCL; a part-load → LCL. FCL also means **fewer handlings** (less risk of damage and pilferage), which can justify booking a full box even when not completely full.

Consolidation and groupage — the forwarder's craft

DEFINITION — CONSOLIDATION (GROUPAGE)

Consolidation (also called **groupage**) is the practice of a forwarder combining several smaller LCL consignments — from different shippers — into one **full container**, which is shipped as a single FCL unit and **broken down (de-consolidated)** at destination for delivery to the individual consignees.

Why it is the forwarder's best business

NAFL spells out the economics: the forwarder **negotiates a flat rate for the box** from the carrier, then **divides that cost among the LCL customers** who entrusted their cargo. Because the box rate is keen, the forwarder can quote each customer a rate **below** the normal break-bulk freight for their commodity — *and still keep a margin*. The customer wins (cheaper than shipping their part-load alone), and so does the forwarder. It is a genuine win-win, which is why it sits at the centre of the business.

For a consolidated service the forwarder typically charges a **lump sum, per tonne or per CBM, end to end** — including ocean freight, inland haulage, and often cartage and routine export/import formalities. As always, the customer chooses an all-in figure or an itemised one.

How the cargo flows

1. The forwarder collects multiple LCL consignments at origin into a **Container Freight Station (CFS)**.
2. They are **stuffed together** into one container — compatible cargo only, weight evenly distributed (Chapter 11).
3. The box ships as a single **FCL** unit, with the forwarder issuing each customer their own **house bill of lading** while holding one **master bill** from the carrier (see below).
4. At destination the forwarder's agent **de-consolidates** the box and delivers to each consignee.

Master B/L vs House B/L

In consolidation the documents nest: the **carrier** issues one **Master B/L (MB/L)** to the forwarder for the whole container; the **forwarder** issues a **House B/L (HB/L)** to each underlying shipper for their portion. This is exactly the NVOCC role from Chapter 2 — the forwarder acts as carrier to its customers while buying slots from the actual line.

The ideal: two-way consolidation

NAFL's note on running a good consolidation service: the best position is **consolidating both ways** — receiving inbound consolidated boxes from your agent abroad *and* sending outbound consolidated boxes back. In practice traffic is often heavier one way, but a forwarder who can balance both directions (sometimes by **pooling** with other forwarders, respecting each other's clients) offers true warehouse-to-warehouse service and earns on both legs.

2003 VS NOW

The economics NAFL describes are unchanged — consolidation is still where forwarders make margin. What's modernised: the **Master/House B/L** structure is now near-universal and increasingly **electronic**; **co-loading** between forwarders (one forwarder buying space in another's consolidation) is a mature, everyday market; and digital platforms now match LCL cargo to consolidation boxes far faster than the manual matching of 2003.

WORLDZONE IN PRACTICE

Consolidation & Groupage is one of WorldZone's core services — and per NAFL, potentially the most profitable. The India ↔ GCC corridor is exactly the kind of lane where two-way consolidation works: inbound boxes from India broken down in Dubai, outbound boxes built for the return. The operator's skill is the **mix** — combining dense and light cargo to use both the weight and the cube of the box (the same 1:1 logic as Chapter 3), so the flat box rate is spread across the most paying cargo. Done well, the customer pays less than an LCL rate elsewhere and WorldZone still earns.

What to take from this chapter

1. **FCL** = a full box, priced per container; **LCL** = a part-load, priced per **CBM or 1,000 kg (W/M)**.
2. **Consolidation/groupage** combines LCL loads into one FCL box — the forwarder's **best-margin** business.
3. Documents nest: carrier's **Master B/L** to the forwarder, forwarder's **House B/L** to each shipper (the NVOCC role).
4. The prize is **two-way consolidation** — earning on both the inbound and outbound legs.

Break Bulk & Project Cargo

Cargo too big, heavy or awkward for a container — break-bulk, heavy-lift and project shipments, and when to charter a vessel rather than book liner space.

Containerisation handles most cargo, but not all. Some loads are too large, too heavy or too awkward to go in a box — a transformer, a crane, a bridge section, a factory's worth of plant. This is the world of **break-bulk and project cargo**, where the forwarder's planning skill matters most, because there is no standard box to fall back on.

Break-bulk cargo

> DEFINITION — BREAK-BULK
>
> **Break-bulk** cargo is general cargo that is loaded **individually** — in cases, crates, bales, drums, bags or as unit loads — rather than in a container or in bulk. It is lifted piece by piece into the ship's holds, typically by the vessel's own derricks or by port cranes.

Break-bulk was the norm before containerisation and remains essential for cargo that does not suit a box. It demands more handling (and so carries more risk of damage and pilferage), which is part of why containers displaced it for general goods — but for the right cargo it is still the correct, and sometimes only, method.

Project and heavy-lift cargo

Project cargo is the movement of large, high-value, often indivisible pieces — frequently the equipment for a single industrial project (a power plant, refinery, factory). **Heavy-lift** refers to individual pieces beyond normal crane capacity. NAFL's point: not every vessel can take such cargo, and the planning must happen at the **quoting stage**:

- The cargo's **shape, dimensions and weight** dictate which vessels can physically carry and lift it.
- The **lifting capacity** of both the ship's gear **and** the destination port's equipment must be checked — a piece that can be loaded may not be liftable at the other end.
- It may be worth **waiting** for a suitable vessel rather than taking an earlier, unsuitable one.

A modern factor NAFL highlights: ships increasingly **lack their own heavy lifting gear** and rely on well-equipped ports (it names Dubai's port facilities) — so the **port's** crane capacity becomes a routing constraint in its own right.

The project cargo a Gulf forwarder actually sees

In WorldZone's markets (Chapter 29), project cargo clusters into a few recognisable types — worth knowing because each has its own handling signature:

- **Transformers and power-generation units** — very heavy, high-value, shock-sensitive; moved on multi-axle trailers and often needing engineered lift plans.
- **Oilfield and offshore equipment** — drilling and wellhead components, modules and skids for rigs and offshore facilities; frequently combined with **dangerous goods** (Chapter 21) and tight timing.
- **Renewable-energy cargo** — **wind-turbine blades** (extremely long out-of-gauge units that dominate the whole route planning) and **solar panels** (high-volume and fragile).
- **Steel fabrication and structural components** — beams, columns, fabricated sections for construction and infrastructure (Chapter 29).

Specialised equipment for awkward cargo

The container family still helps here — **flat racks** and **open-top** containers (Chapter 11) carry out-of-gauge and heavy pieces that won't fit a standard box. Beyond containers, carriers offer **flat platforms / "mafis"** (skeleton trailers) for very heavy units within the port area, and **ro-ro** vessels (Chapter 15) for anything that can be rolled or driven aboard.

On the **land** legs, project cargo needs its own fleet of specialised road equipment — and the right trailer is as much a part of the plan as the right vessel:

- **Flatbed trailers** for standard heavy/long loads.
- **Lowbed / low-loader trailers** — a dropped deck to carry tall machinery (excavators, transformers) within road height limits.
- **Hydraulic and multi-axle trailers** — many axles that spread very heavy loads and steer, for the largest indivisible pieces; axles can be added to match the weight.
- **Rigging and heavy-lift coordination** — planning and supervising the actual lifts (cranes, gear, lift points) at each transfer, so a piece is liftable, not just loadable.

Chartering vs liner shipping

When a cargo is large and homogeneous enough, it stops making sense to book space on a scheduled (liner) service and becomes worth **chartering** a whole vessel.

> DEFINITION — CHARTERING
>
> **Chartering** is hiring a whole vessel (or its capacity) for a voyage or period, rather than buying space on a scheduled liner sailing. Large bulk quantities — ore, coal, grain, oil — and major project movements are typically **chartered**. Smaller, mixed general cargo goes as **liner** cargo (FCL/LCL on scheduled services).

NAFL lists the vessel types a large bulk cargo might require chartering — **ore/bulk carriers, tankers (VLCC), reefer ships, ro-ro and combi vessels** (covered in Chapter 12). The forwarder handling break-bulk must contact carriers' agents to find which suitable vessels are available, and when. **Chartering is a craft of its own — the charter types, the broker and fixture, and the commercial terms (freight, hire, laytime, demurrage) are covered in full in Chapter 18.**

2003 VS NOW

Break-bulk and project cargo remain specialist work, but the toolkit has grown: purpose-built **heavy-lift / project carriers** with very high-capacity onboard cranes are now a mature market segment, and **modular/self-propelled transporters** move enormous pieces on land. The principle NAFL teaches is unchanged — **plan the whole route, end to end, including the lifting capacity at every point** — but the equipment available to execute it is far more capable than in 2003.

WORLDZONE IN PRACTICE

Break Bulk & Project Shipments is one of WorldZone's core services — and the one that most rewards careful planning. Unlike a routine FCL, a project move has no standard answer: every piece needs its dimensions, weight and lifting points checked against the vessel, the ports at **both** ends, and the inland route. The operator's habit here is to plan **backwards from the destination's lifting and access constraints** — because the easiest piece to load can be the impossible piece to deliver. This is where a forwarder genuinely earns the title "architect of transport."

What to take from this chapter

1. **Break-bulk** = cargo loaded piece-by-piece, not boxed or bulk — more handling, more care.
2. **Project / heavy-lift** cargo must be planned at quoting, checking **lifting capacity at every point** — ship *and* both ports.
3. Use **flat racks, open-top, mafis, ro-ro** for out-of-gauge and heavy pieces.
4. Large homogeneous cargo → **charter** a vessel; mixed general cargo → **liner** (FCL/LCL).

PART IV — OCEAN FREIGHT · CHAPTER 15

Roll-on / Roll-off (RoRo)

Shipping built for things with wheels — cars, trucks, buses and heavy machinery driven straight onto the vessel over ramps, with no container and no crane.

Chapter 12 introduced the **ro-ro vessel** as a ship type. This chapter treats RoRo as what it is for WorldZone — **a named service**, and the right answer whenever the cargo has wheels. The idea is simple: instead of lifting cargo into a box, you **drive it straight onto the ship** over built-in ramps, and drive it off at the other end.

> DEFINITION — RORO (ROLL-ON / ROLL-OFF)
>
> **RoRo** is the carriage of **wheeled and self-propelled cargo** on purpose-built vessels with internal decks and **ramps**, so units can be **driven aboard under their own power** (or towed on roll-trailers) rather than containerised and craned. The opposite — lifting boxes by crane — is **Lo-Lo** (lift-on/lift-off, Chapter 20).

What moves by RoRo

- **Passenger vehicles** — cars, SUVs, motorcycles, vans.
- **Commercial vehicles** — trucks, trailers, buses, even tankers.
- **Construction & agricultural equipment** — excavators, wheel loaders, cranes, tractors.
- **Heavy machinery and oversized units** too large or awkward for a container.

Why choose RoRo

- **No container, no crane.** Wheeled units load and discharge by **driving** — eliminating container stuffing and the lift onto/off a stack. That means **less handling, lower damage risk and lower cost** for the right cargo.
- **Speed of turnaround.** A RoRo vessel loads and discharges fast — units roll on and off continuously rather than being craned one box at a time.
- **Fits the awkward.** Anything self-propelled or trailer-mounted that won't sit happily in a box is a natural RoRo candidate (the alternative being **flat-rack/break-bulk**, Chapter 14, when it can't move on wheels at all).

How a WorldZone RoRo move runs

The discipline is the same end-to-end chain as any shipment (Chapter 31), with vehicle-specific steps:

1. **Booking** on a suitable RoRo sailing (ex Dubai/GCC to India and worldwide).
2. **Origin handling** — delivering or driving the unit to the RoRo terminal; recording its condition (a vehicle condition report protects against later damage disputes).
3. **Loading** — units driven aboard and lashed to the deck.
4. **Documentation** — vehicles need their ownership/export papers in order (chassis/VIN details, export certificate, invoice); used-vehicle exports in particular are tightly controlled.
5. **Destination clearance and delivery** — customs (vehicles often carry specific duty and homologation rules), then driven or trucked to the consignee.

WORLDZONE IN PRACTICE

RoRo is a genuine WorldZone service line, ex-Dubai/GCC to India and beyond, and the value is the same as everywhere else in this book: **one accountable company** runs the booking, the origin port handling, the sailing, and the clearance and delivery at destination — not a relay of strangers. When an enquiry is "I need to move a vehicle / a piece of plant on wheels," the operator's first thought should be **RoRo**, then the condition report and the vehicle paperwork, which is where these moves most often go wrong.

What to take from this chapter

1. **RoRo** = wheeled/self-propelled cargo **driven** on and off over ramps — no container, no crane (the opposite of Lo-Lo).
2. It carries **vehicles, trucks, buses and mobile machinery**, ex Dubai/GCC to India and worldwide.
3. The wins are **less handling, less damage and lower cost** for the right cargo, plus fast turnaround.
4. The risk points are the **condition report** and the **vehicle/export documentation** — get both right.

Dry Bulk Cargo

Loose, unpackaged commodities — grain, cement, fertiliser, ores — carried by the shipload in a bulk carrier, where vessel selection, stevedoring and cargo protection are the whole job.

Some cargo never sees a container or a package. It is poured, scooped or conveyed **loose** into the hold of a ship and carried by the **shipload**. That is dry bulk — and it is a WorldZone service in its own right, drawing on the **bulk carrier** from Chapter 12.

> **DEFINITION — DRY BULK CARGO**
>
> **Dry bulk** is a large volume of a **single, unpackaged dry commodity** carried loose in the hold of a **bulk carrier**. There is no unit, no box and no pallet — the cargo *is* the load, measured by weight, and the shipment is usually a whole or part **vessel**, not a liner slot.

What moves as dry bulk

- **Agricultural / food commodities** — grains, cereals, rice, sugar and similar.
- **Construction materials — cement, clinker, gypsum and aggregates**.
- **Minerals and ores** in bulk form.
- **Fertilisers** — urea, DAP and the like.

These are dense, low-value-per-tonne cargoes, so they are **weight-charged** (Chapter 3) and economics turn on moving the largest volume at the lowest cost per tonne — which is exactly why they move by the shipload and often by **charter** (Chapter 18).

What the job actually is

For dry bulk, the forwarder's value is in the operation around the cargo, not paperwork alone:

- **Vessel selection** — securing suitable bulk-carrier space (or chartering a vessel) for the commodity and volume.
- **Stevedoring** — arranging the loading and discharge gangs and gear (grabs, conveyors, hoppers) at each port.
- **Load / discharge logistics** — sequencing the operation so the vessel loads and turns around efficiently (laytime matters — see demurrage, Chapter 18).
- **Cargo protection** — guarding against **moisture, contamination and loss** in handling and storage; a wetted or contaminated bulk cargo can be ruined or rejected.
- **Documentation & customs** at both the loading and discharge ports.

A NOTE ON SAFETY

Some dry bulks are deceptively dangerous. Fine ores and certain concentrates can **liquefy** if loaded wet (shifting and capsizing the vessel), and some cargoes self-heat or emit gas. Modern carriage is governed by the **IMSBC Code** (International Maritime Solid Bulk Cargoes), which classifies bulk cargoes and sets carriage and moisture limits — the bulk-cargo equivalent of the IMDG discipline in Chapter 21.

WORLDZONE IN PRACTICE

Dry bulk sits at the heart of WorldZone's **construction and agricultural** traffic (Chapter 29) — cement and aggregates inbound to Gulf building sites, fertiliser and grain on the regional trades. The operator's job is the operation: the **right vessel**, clean and dry **holds**, competent **stevedores**, and a sharp eye on **moisture and contamination**. It frequently runs hand-in-hand with **chartering** (Chapter 18), because a shipload of one commodity is the textbook reason to take a whole vessel rather than book liner space.

What to take from this chapter

1. **Dry bulk** = one unpackaged dry commodity, loose in a **bulk carrier**, by the shipload — weight-charged.
2. It covers **grain, cement/clinker/gypsum/aggregates, ores and fertilisers**.
3. The job is **vessel selection, stevedoring, load/discharge logistics and protection from moisture/contamination** — plus customs both ends.
4. It pairs naturally with **chartering** (Chapter 18) and is governed for safety by the **IMSBC Code**.

PART IV — OCEAN FREIGHT · CHAPTER 17

Liquid Bulk Cargo

Moving liquids in volume — by ISO tank, flexitank or dedicated tanker — where the equipment choice, cleanliness and IMDG/ADR compliance are everything.

Liquids travel in their own way. A drum-by-drum shipment is just general cargo, but once the volume is large enough the liquid moves in **bulk** — and the central decision becomes *which vessel for the liquid*: an **ISO tank**, a **flexitank**, or a dedicated **tanker**. Choosing right is the whole skill.

DEFINITION — LIQUID BULK CARGO

Liquid bulk is the carriage of liquids in volume, by one of three methods: **ISO tank containers**, **flexitanks**, or dedicated **tankers** (Chapter 12). The forwarder matches the **method to the product** — its volume, value, hazard class and cleanliness needs — then manages cleanliness, compatibility and compliance.

The three ways to move a liquid in bulk

ISO TANK · FLEXITANK · TANKER

- **ISO tank container** — a stainless-steel tank built into a 20′ container frame (≈ 14,000–26,000 litres). Reusable, robust, **the standard for hazardous and high-value liquids**; handles like a container (Chapter 11) and stacks/ships on normal container vessels. Heatable/insulated versions exist for products that must stay warm or liquid.
- **Flexitank** — a large disposable **bladder** (≈ 16,000–24,000 litres) fitted inside a standard 20′ container, turning an ordinary box into a one-way liquid carrier. **Cheap and one-way**, ideal for **non-hazardous** food-grade and industrial liquids in bulk (e.g. edible oils, base oils, juices). Not for dangerous goods.
- **Tanker** — a dedicated **vessel** for very large parcels of liquid (crude, chemicals, oils) — the liquid-bulk equivalent of the dry-bulk shipload (Chapters 12, 18).

What moves as liquid bulk

- **Chemicals** — industrial and specialty, **including hazardous grades** (which force an ISO tank and IMDG/ADR compliance).
- **Edible oils** and food-grade liquids (often flexitank).
- **Base and lubricant oils** and industrial fluids.

What the job actually is

- **Equipment selection** — the core call: ISO tank vs flexitank vs tanker, matched to the product's volume, value and hazard.
- **Compliance** — for hazardous grades, the correct **IMDG / ADR** documentation and the **correct tank** selection and approvals (Chapter 21). A hazardous liquid in the wrong equipment is a non-starter.
- **Tank cleanliness & compatibility** — verifying the tank's previous cargo and cleaning so the new product is **not contaminated** (a "cleaning certificate" / prior-cargo check). Cross-contamination can ruin a food-grade or specialty-chemical load.
- **Loading, sailing and destination clearance** coordinated end to end.

WORLDZONE IN PRACTICE

Liquid bulk is a named WorldZone service and a real specialism, because the **equipment decision** is where money and risk live. The operator's instinct on a liquid enquiry: first **is it dangerous goods?** (if yes → ISO tank + IMDG/ADR, never a flexitank); then **food-grade or industrial, and what volume?** (flexitank for a one-way non-haz parcel, ISO tank for reuse/hazard/heat, tanker for a very large parcel); then **what was in the tank last, and is it clean and compatible?** Get those three right and the rest is the standard chain (Chapter 31).

What to take from this chapter

1. **Liquid bulk** moves by **ISO tank, flexitank or tanker** — matching the **method to the product** is the whole skill.
2. **ISO tank** = reusable, robust, the choice for **hazardous/high-value** (and heatable); **flexitank** = cheap, one-way, **non-hazardous** food/industrial liquids; **tanker** = very large parcels.
3. Hazardous grades demand **IMDG/ADR** compliance and the **correct approved tank** (Chapter 21).
4. **Tank cleanliness and product compatibility** (prior-cargo check) prevent ruinous **cross-contamination**.

Vessel Chartering

Hiring a whole ship instead of buying liner slots — voyage, time and bareboat charters, the charter party and broker, and the commercial terms (freight, hire, laytime, demurrage) that decide who pays what.

Everything earlier in this book assumed you **book space** on someone else's scheduled service — a liner sailing, a flight. Chartering is the other half of shipping: instead of buying a slot, you **hire the ship itself**. For large, homogeneous, oversized or specialised cargo it is often the only sensible way to move — and it is a craft of its own, with its own contract, its own market and its own vocabulary. This chapter is the deep one: learn it well.

> **DEFINITION — CHARTERING**
>
> **Chartering** is the hiring of a vessel (or part of one) from its owner for a specific voyage or period, under a contract called a **charter party**, rather than booking slots on a liner service. The party hiring is the **charterer**; the contract is usually arranged through a **shipbroker**.

Liner vs charter — when to charter

	Liner (book slots)	Charter (hire the ship)
Cargo	Containers, general cargo, part-loads	Bulk, project/heavy-lift, full shiploads
Schedule	Fixed, published sailings	You set the voyage and timing
Pricing	Per container / W/M + surcharges	Negotiated freight or daily hire
Control	Carrier controls the vessel	Charterer directs the employment

Charter when: the cargo is a **shipload of one commodity** (dry or liquid bulk, Chapters 16–17); it is **oversized / heavy-lift / project** cargo needing a specific vessel (Chapter 14); **no suitable liner service** exists on the lane or timing; or the volume is large and regular enough that controlling the ship beats buying slots.

The three kinds of charter

VOYAGE · TIME · BAREBOAT

- **Voyage charter** — the ship is hired for **one specific voyage**, port A to port B. The **owner operates the vessel** (crew, fuel, maintenance, port costs) and the charterer pays **freight** (a price per tonne of cargo, or a **lumpsum** for the voyage). The owner carries the operational risk; the charterer carries the cargo and the **laytime/demurrage** risk (below).
- **Time charter** — the ship is hired for a **period of time** (months or years). The **charterer directs the commercial employment** (where it trades, what it carries) and pays **hire** (a rate **per day**) plus the **voyage costs** (bunkers, port charges, canal dues); the **owner still provides and pays the crew and maintenance**. Risk of the market sits with the charterer; technical risk stays with the owner.
- **Bareboat (demise) charter** — the charterer takes the **bare ship** with no crew, and effectively **operates it as if owner** for the period — providing crew, insurance and management, paying hire to the owner. The longest, most committed form, closest to ownership.

A fourth arrangement, the **Contract of Affreightment (COA)**, commits an owner to carry a **series of cargoes** over a period (e.g. so many tonnes a month) without tying the charterer to a named ship — useful for a steady industrial flow.

How a fixture is made

Chartering runs through **brokers** in a fast, market-driven negotiation:

1. **Order / enquiry.** The charterer (or their broker) circulates the requirement — cargo, quantity, load and discharge ports, **laycan** (the arrival window), and terms.
2. **Negotiation of main terms.** Owner and charterer, via brokers, negotiate the headline points: **freight or hire rate, laycan, laytime, demurrage rate, load/discharge terms,** charter-party form.
3. **The fixture (recap).** When the main terms are agreed the deal is **"fixed"** — a **recap** summarises everything agreed. *This is binding* — a fixture is a contract, even before the formal document is signed.
4. **The charter party.** The full **charter party** contract is drawn up from a standard pro-forma form, amended by the negotiated clauses.

STANDARD CHARTER-PARTY FORMS

Chartering uses recognised **pro-forma contracts** so parties aren't drafting from scratch: **GENCON** (the classic general-purpose **voyage** charter for dry cargo), **NYPE** (New York Produce Exchange — the standard **time** charter), **BALTIME** (another time-charter form), and many trade-specific forms. The standard form is the base; the negotiated **rider clauses** tailor it to the deal.

The commercial terms that decide who pays — voyage charter

This is the heart of voyage chartering, and where money is won and lost:

> **LAYTIME · DEMURRAGE · DESPATCH · NOR · LAYCAN**
>
> - **Freight** — the charterer's payment for the carriage: **per tonne** of cargo loaded (or discharged), or a **lumpsum** for the whole voyage regardless of quantity.
> - **Laycan (laydays / cancelling)** — the **window** within which the vessel must arrive and be ready to load. Arrive before laydays open and the charterer needn't take her yet; arrive after the **cancelling date** and the charterer may **cancel** the charter.
> - **NOR (Notice of Readiness)** — the master's notice that the vessel has arrived and is **ready to load/discharge**. A valid NOR **starts the laytime clock**.
> - **Laytime** — the **time allowed**, free of charge, for the charterer to load and discharge the cargo (e.g. "72 running hours"). How it counts is set by terms like **SHINC** (Sundays/holidays included) or **SHEX** (excluded), and **WIBON** (whether in berth or not).
> - **Demurrage** — if the charterer takes **longer than the laytime** to load/discharge, they **pay the owner demurrage** — a daily penalty for detaining the ship. *Demurrage runs continuously once laytime is used up* ("once on demurrage, always on demurrage").
> - **Despatch** — the reverse reward: if the charterer finishes **faster** than the laytime, the owner pays **despatch money** back (often **half the demurrage rate**).

A second, vital question on a voyage charter is **who pays to load and discharge** the cargo. The terms:

- **Liner / gross terms** — the **owner** bears loading and discharge costs.
- **FIO (Free In and Out)** — the **charterer** bears both loading and discharge; **FIOS** adds *stowed*, **FIOST** adds *stowed and trimmed*. Bulk and project fixtures are usually FIO-type, so the charterer controls (and pays for) the stevedoring.

The commercial terms — time charter

On a time charter the rhythm is different:

- **Hire** — paid **per day** (traditionally in advance, e.g. every 15 days), for the whole period whether the ship is working or idle — *as long as she can perform*.
- **Off-hire** — if the vessel **can't perform** through the owner's fault (breakdown, drydocking, crew issue), she goes **off-hire** and the charterer **stops paying** for that time. The off-hire clause is one of the most negotiated in the contract.
- **Delivery / redelivery** — where and when the charterer takes and returns the ship; bunkers on board at delivery and redelivery are bought and sold between the parties.
- **Trading limits & cargo exclusions** — where she may trade and what she may (not) carry.

The market

Charter rates are not published tariffs — they are **set by supply and demand**, ship type by ship type, and they move fast.

THE BALTIC EXCHANGE AND THE INDICES

The **Baltic Exchange** (London) is the historic hub of the chartering market, and publishes the benchmark **indices** that the trade watches daily: the **Baltic Dry Index (BDI)** for dry-bulk rates (with sub-indices **Capesize / Panamax / Supramax / Handysize** by ship size), and tanker indices for wet cargo. Rates can be taken on the **spot market** (one voyage, today's price) or for a **period** (locking a rate for months). A charterer who understands the index knows whether today's offer is rich or cheap — which is exactly the judgement a chartering operator is paid for.

The risks a charterer carries

- **Market risk** — fixing at the wrong moment; rates can double or halve in weeks.
- **Demurrage exposure** — slow ports/stevedores eat laytime fast; demurrage can dwarf the freight saving on a tight fixture.
- **Laycan / performance** — missing the laycan, or off-hire disputes on a time charter.
- **The charter party itself** — these are detailed contracts; an unread clause (e.g. how laytime counts, who pays a shifting cost) is a real liability.

WORLDZONE IN PRACTICE

Chartering is where WorldZone steps up from booking space to **commanding a ship** — for **dry bulk** (Chapter 16), **liquid bulk by tanker** (Chapter 17), and **project / heavy-lift** cargo (Chapter 14), especially in the **oil & gas and construction** verticals (Chapter 29). On these jobs WorldZone acts for the **charterer** (the cargo interest): defining the requirement, working brokers to **fix** the right vessel at the right rate and laycan, negotiating **laytime and demurrage** that the ports can actually meet, and reading the **charter party** so a clause doesn't cost the customer later. The single most expensive mistake is agreeing **laytime** the operation can't keep — and then paying **demurrage** every day until it's done. Master laytime and demurrage and you have mastered the commercial core of chartering.

What to take from this chapter

1. **Chartering** = hiring the ship (via a **broker**, under a **charter party**) instead of booking liner slots — for bulk, project and shipload cargo.
2. **Voyage charter** (owner operates, charterer pays **freight**), **time charter** (charterer directs, pays daily **hire** + bunkers), **bareboat** (charterer runs the bare ship); plus the **COA** for a series of cargoes.
3. A deal is **fixed** at the recap (binding), then written up on a standard form (**GENCON**, **NYPE**).
4. The commercial core is **laytime, demurrage and despatch** (voyage) and **hire and off-hire** (time) — and **who pays to load/discharge** (liner terms vs **FIO**).
5. Rates are **market-set** — watch the **Baltic indices (BDI)**; the charterer's great risk is **demurrage** from laytime they can't keep.

Air Freight Forwarding

How cargo moves by air — aircraft and ULDs, the Air Waybill, the rate structure (N-rate, quantity and commodity rates), the players from airline to IATA agent, and AOG, the most urgent cargo of all.

Air freight is the fast, premium mode — chosen for what is urgent, valuable, perishable or bulky-but-light. NAFL traces its origin neatly: air cargo grew as an **offshoot of passenger travel**, filling the hold space left over once passengers and baggage were loaded. Understanding that origin explains much about how air freight is priced and sold.

Why there is space for cargo at all

Because an aircraft fuselage is **oval, not square**, and because passengers and baggage take priority, only the leftover capacity is available for cargo. NAFL works it through a Boeing 737-400: with a full passenger load, only about **3–6 tonnes** (≈15% of the aircraft's weight/volume capacity) is left for freight — unless the aircraft flies as a pure freighter. Airlines therefore chase the right **mix** of passengers, mail and cargo to maximise margin.

How cargo is carried

- **Belly freight** — cargo in the lower hold of a **passenger** aircraft, under the seating deck.
- **Freighter** — an all-cargo aircraft; cargo on the **main deck** (in ULDs) plus lower holds. Can be nose-loading (e.g. 747F) or side-door.
- **Combi** — a single main deck split between passenger seats (front) and ULD cargo (rear); common on Europe–Dubai routes in NAFL's era.

Unit Load Devices (ULDs) and pallets

> **DEFINITION — ULD (UNIT LOAD DEVICE)**
>
> A **Unit Load Device (ULD)** is a standard **pallet or container** built to fit the contoured holds of wide-bodied aircraft. ULDs let cargo be **pre-built and checked well before departure**, speed loading, protect cargo from weather and pilferage, and (in temperature-controlled versions) hold an internal climate. Their uniform specifications are what make aircraft loading fast and precise.

Cargo is built onto ULD **pallets** (secured under nets) or into ULD **containers** shaped to the aircraft's cross-section. Acceptance always checks four things NAFL lists: **does the aircraft fit the cargo (space)? will it pass through the door? can the floor take the weight? is the nature of the goods acceptable (dangerous goods)?**

The Air Waybill (AWB)

The governing document of air freight (introduced in Chapter 8). NAFL lists its **functions**:

1. a **contract** between shipper and issuing airline;
2. a **description** of the goods (weight, volume, nature);
3. the agreed **routing**, origin airport to destination;
4. **identification** of shipper and consignee;
5. the **freight charge calculation**;
6. a record of **other charges** and declared value;
7. a **receipt** for the goods.

It is issued in **three originals** — for the carrier (green), the consignee (red) and the shipper (blue) — and must be signed/stamped by both carrier and shipper. Crucially, the AWB is **not a document of title** and is **non-negotiable** (unlike the ocean B/L). Air carriage law: the **Warsaw Convention (1929)**, amended by the **Hague Protocol (1955)** — today superseded by the **Montreal Convention (1999)**.

Where one airline carries another's cargo (no service to the origin), an **interline agreement** applies, and carriers are named **First Carrier, Second Carrier** etc. along the route.

Air freight rates

Air pricing has traditionally been built on **route + weight/volume**, with rates filed with IATA and governments. NAFL's rate structure:

Rate	Meaning
N-rate (Normal)	the basic rate per kg (1 kg / 6,000 cm^3) regardless of commodity
Q45 (Quantity)	at 45 kg, a **~25% discount** on the N-rate, to encourage larger shipments
M-rate (Minimum)	an absolute minimum charge (≈ 5 × N-rate) for very small consignments
Higher weight breaks	Q100, Q300, Q500… progressively lower rates for heavier consignments
Commodity rates	special rates for specific commodities, weight breaks and origins (e.g. textiles min 200 kg)

The market is segmented by shipment size — minimum / normal / Q45 / Q100 / Q300 / consolidations. And recall the **1:6 ratio** (Chapter 3): the agent's craft is to **consolidate** the right mix of dense and bulky cargo to get close to 1 CBM = 167 kg and maximise margin on the generous air weight/volume allowance.

The players in air cargo

- **Airline categories** NAFL distinguishes: the **value-adder** (expands services — customs, packing, IT, pickup/delivery), the **commodity seller** (sells spare capacity through intermediaries), the **"innocents"** (passenger airlines discovering cargo), the **national carriers** (state-owned, trade-facilitating), and the **integrators/express operators** (forwarder + carrier with their own aircraft — DHL, FedEx, UPS).
- **GSA (General Sales Agent)** — represents an airline's cargo (and/or passenger) sales in an area, sparing the airline its own full infrastructure; may add value through trucking or distribution networks.
- **IATA Cargo Agent** — a forwarder registered and accredited by **IATA**, meeting criteria on trained (DG-licensed) staff, premises, clean record, unique trading name, trade licence, finances and insurance. Accredited agents settle with airlines through **CASS** (the **Cargo Accounts Settlement System**), a central clearing house that nets all the agent's airline billings into one periodic payment — which is what lets an accredited forwarder (like WorldZone) book airline space **directly and at agent rates**, including on short notice for **AOG** (above).

AOG — when the cargo simply cannot wait

The most time-critical cargo in the whole industry is the aircraft spare part, because a grounded aircraft is one of the most expensive idle assets in business.

> DEFINITION — AOG (AIRCRAFT ON GROUND)
>
> **AOG** stands for **Aircraft On Ground** — an aircraft unable to fly until a specific part is fitted. The term has become the label for the **highest-priority air-freight service tier**: the emergency movement of aircraft spares (and the tools/components to fit them) to get a grounded aircraft back in the air. Every hour an airliner sits grounded can cost its operator tens of thousands of dollars in lost revenue, missed slots, crew and re-accommodated passengers — so on an AOG shipment **speed beats cost, always.**

How an AOG move differs from ordinary air freight:

- **24/7/365 response.** AOG desks never close; a request at 3 a.m. is actioned immediately — the opposite of a normal booking that waits for office hours.
- **Whatever it takes to move it fastest.** Next available flight regardless of price; an **On-Board Courier (OBC / hand-carry)** who flies with the part as cabin baggage when no suitable cargo flight exists; or, for a critical engine/landing-gear part, a **dedicated charter**. Cost is secondary to the next departure.
- **Pre-cleared and expedited.** Documentation, customs and airline acceptance are pushed through ahead of the cargo; an AOG label gets priority handling at every touchpoint.
- **Often dangerous goods.** Many aircraft parts are hidden DG — chemical oxygen generators, evacuation-slide cartridges, fire bottles, lithium batteries, fuel-wetted units — so AOG and **dangerous-goods discipline (Chapter 21)** go together: certified staff, correct declaration, no shortcuts even under time pressure.
- **Priced at a premium.** AOG rates sit well above standard air rates, and the customer accepts it, because the freight cost is trivial against the cost of the grounded aircraft.

A related tier you will hear alongside it is **“critical” / “time-critical” / next-flight-out (NFO)** cargo — the same emergency-logistics discipline applied to any shipment (not just aviation) where a production line or a contract is about to stop for want of a part.

WORLDZONE IN PRACTICE

AOG is the urgent extreme of **spare parts** — one of WorldZone’s five core cargo types (Chapter 30). Most spare-parts traffic moves on normal air or **sea-air** (Chapter 20) to balance speed and cost; AOG is what happens when the clock is absolute and only the **next flight out** will do. The operator’s job on an AOG enquiry is to think in minutes, not days: find the fastest routing (cargo flight, OBC, or charter), pre-clear the paperwork, screen for hidden **dangerous goods**, and quote the premium plainly — the customer is buying *speed*, and knows it.

2003 VS NOW

The biggest change is the rate world. NAFL’s **IATA-filed, government-approved tariffs** have largely given way to **market-driven, dynamic pricing** — capacity and demand set the price, booked increasingly through **digital platforms and APIs** (and e-AWB, the electronic air waybill, now standard). The **integrators** NAFL lists as a rising segment are now dominant global forces. And **air DG** has tightened: the **IATA Dangerous Goods Regulations** are updated annually with mandatory recurrent training (Chapter 21). The Montreal Convention has replaced Warsaw for liability. The *structure* NAFL teaches — N-rate logic, weight breaks, the 1:6 consolidation play — still explains how the market thinks.

WORLDZONE IN PRACTICE

Air Freight Forwarding is one of WorldZone’s core services, and the decision of *when* to use it is the skill — for small, bulky, high-value or urgent cargo where the 1:6 ratio makes air competitive with sea (Chapter 9). An operator quoting air must run the **chargeable weight** (Chapter 3), check the four acceptance tests, prepare a clean **AWB**, and — for consolidations — build the dense/bulky **mix** that earns margin on the weight/volume allowance. Sea-air combinations (next chapter) are a WorldZone-relevant middle path: much of air’s speed at much less than air’s cost.

What to take from this chapter

1. Air cargo rides mostly in **belly space**; freighters and combis add main-deck capacity via **ULDs**.
2. The **AWB** is contract + receipt + description, **non-negotiable** and **not** a document of title; law = Warsaw/Hague → Montreal.
3. Rates build from the **N-rate** with **quantity (Q45+)** and **commodity** discounts; the **1:6 ratio** drives consolidation margin.
4. Know the players: **airline types, GSA, IATA cargo agent, integrators**.
5. **AOG (Aircraft On Ground)** is the highest-priority tier — emergency aircraft spares where **speed beats cost**: next flight out, on-board courier or charter, pre-cleared, often **dangerous goods**.

Multimodal & Sea-Air Operations

Moving cargo under one contract across several modes — rail/road, sea/road, LASH/SEABEE — the forwarder as multimodal operator, and the step-by-step sea-air transhipment.

Almost any international shipment uses more than one mode — sea then road, or rail then sea. What makes transport *multimodal* in the modern sense is doing it **without breaking bulk**, under **one transport document**, with the goods staying in the same container or trailer from origin to destination. NAFL calls this the result of the "container revolution," and it is where forwarders create some of their most valuable services.

> **DEFINITION — MULTIMODAL TRANSPORT**
>
> **Multimodal** (also intermodal / combined) transport is the carriage of a loaded freight unit — container, trailer or vehicle — **under a single transport document** using **more than one mode** of transport (e.g. sea + rail, sea + road, sea + air), without the cargo itself being unpacked and repacked between modes.

The multimodal combinations

NAFL works through the main mode combinations:

- **Rail / Road** — the oldest combination. Vehicles, trailers or containers ride on flat rail wagons for the long middle leg; trucks handle only the first and last legs. Faster (trains run day and night), cheaper, less wear on vehicles. **TOFC** = *Trailer On Flat Car*; **COFC** = *Container On Flat Car*; in the US, higher bridges allow **double-stack** trains (two containers high).
- **Sea / Road (Ro-Ro)** — "horizontal" handling: wheeled cargo driven on and off via ramps (Chapter 12). No lifting gear needed, so heavy machinery on trailers loads fast.
- **Lo-Lo (Lift on / Lift off)** — the "vertical" handling of containers by crane — the standard container operation.
- **Waterways / Sea / Waterways (LASH & SEABEE)** — barge-carrying ships:
  - **LASH** (*Lighter Aboard Ship*) — barges ~20 m long, ~350–380 t payload, lifted aboard by the ship's own gantry and stacked like containers; floated to/from shore or up-river.
  - **SEABEE** — larger barges, ~30 m, ~800 t, loaded via a stern elevator or float-in. Valuable where ports are congested (barges act as floating warehouses) and for inland-waterway networks (e.g. Rotterdam/Rhine, Mississippi).

The forwarder as Multimodal Transport Operator

Multimodal transport is a major opportunity for forwarders because it lets them offer **door-to-door service and a single through rate**. NAFL distinguishes two roles:

- **MTO (Multimodal Transport Operator)** — the forwarder takes on **carrier responsibility** for the whole journey, issuing their own through document. *Example:* a forwarder runs a Frankfurt→Dubai consolidation, trucks the boxes to Hamburg on their own vehicles, then takes a sea B/L — acting as MTO.
- **Multimodal user** — the forwarder buys a carrier's through B/L and lets the carrier's network handle the onward legs — the forwarder is the *user* of the multimodal service, not the operator.

> DEFINITION — THE FIATA COMBINED TRANSPORT B/L
>
> The **FIATA combined transport bill of lading (FBL)** is an agent's through B/L that places the **forwarder in the position of a carrier** for a multimodal movement. It is widely accepted under letters of credit where a "carrier-type" document is required — the document that lets a forwarder act as MTO. (Recall from Chapter 4 that **FCA** is the Incoterm designed for multimodal hand-over.)

A practical obstacle NAFL flags: **customs clearance at the port of unloading**. If a container can't move inland under bond, it must be emptied at the arrival port — which erodes the door-to-door advantage for inland consignees. (Modern bonded-transit and free-zone systems, Chapter 10, have eased this considerably.)

Sea-Air operations — the middle path

A combination that captures **much of air's speed at much less than air's cost** by shipping the long leg by sea, then flying the final leg.

> DEFINITION — SEA-AIR
>
> **Sea-Air** moves cargo by **sea** for the long-haul leg to a transhipment hub, then by **air** for the final leg — far faster than all-sea, far cheaper than all-air. NAFL's example: Far East → Europe via **Dubai** as the hub in ~13–18 days, versus ~27–32 days all-sea — using Dubai/Sharjah's proximity of seaport and airport.

It demands **precise coordination** and skilled staff — mistakes are costly (miss the booked flight after a late ship and cargo is stranded, with customs/duty complications).

The sea-air transhipment, step by step

NAFL lays out the operation as a sequence. This is the operational checklist for a hub like Dubai:

1. **Pre-alert** from the origin agent — shipment *intended* on a particular vessel.
2. **Final alert** — once the vessel has sailed, confirming it's aboard with the sailing date.
3. **Documents** arrive (Master/Ocean B/L, CTD, invoice, packing list).
4. Prepare documents to obtain the **Delivery Order (D/O)** from the line before the vessel arrives.
5. Prepare a **Transhipment Bill of Entry (B/E)**; get the ship's manifest to Customs.
6. Assemble the full customs set (copies of B/L, invoice, packing list + D/O + B/E).
7. Customs **stamps/approves** the B/E for transhipment.
8. On arrival, arrange trucks; the line releases the containers against the B/E.
9. Customs applies **their own seal** (cargo is transhipping, not entering the UAE).
10. Containers trucked to the **airport** — under **customs bond** the whole way.
11. At the airport, Customs breaks the seal; the forwarder **de-stuffs** the container.
12. **Tally and inspect** every piece, recording condition (the forwarder may be liable for transhipment damage — make reservations for any pre-existing damage).
13. **Label** to the airline's requirements (destination, piece count, bar codes).
14. Process the **Air Waybill** through customs (often prepared by the airport handling agent, e.g. DNATA in Dubai).
15. **Execute** the AWB (copies to airline, with shipment, and on file).
16. After departure, submit an **exit/entry (E/E) certificate** with AWB and airline manifest.
17. Customs returns the approved **E/E**, confirming the cargo entered *and* left.
18. Submit the E/E to **seaport customs to refund the duty deposit**.
19. Send a **pre-alert to the destination agent**.
20. Arrange **onward delivery** to the final consignee.

THE UAE DUTY DEPOSIT — A NUMBER TO REMEMBER

For transhipment cargo the UAE Customs takes a **duty deposit of 5% of CIF value**, refunded only once the cargo **leaves the country within 45 days**. Miss the deadline and the deposit is **lost** — and on a multi-shipment vessel this can be a very large sum (NAFL cites figures up to ~US$125,000). Speed and accuracy in the steps above protect real money.

2003 VS NOW

LASH/SEABEE barge-ships have largely faded, but the multimodal **principle** is now the backbone of global logistics, governed by mature rules (the **FIATA FBL**, UN/MMT conventions) and increasingly by **electronic** through-documents. **Sea-air remains a live, competitive product** — and Dubai is still one of the world's premier sea-air hubs, exactly as NAFL describes. Bonded inland transit and free zones have largely solved the clearance obstacle NAFL flagged.

WORLDZONE IN PRACTICE

Multimodal is implicit in most of WorldZone's core services — almost every shipment combines sea or air with **inland haulage** (Chapter 24). The MTO-vs-user distinction decides liability and documentation on a given move. And **sea-air through Dubai** is a genuinely WorldZone-shaped product: the network's UAE hub plus India and GCC offices is exactly the structure that makes a Far-East→GCC or Europe sea-air routing work — and the 5%/45-day duty-deposit rule is real cash an operator must manage, not a footnote.

What to take from this chapter

1. **Multimodal** = one freight unit, one document, several modes, no breaking bulk (TOFC/COFC, ro-ro, Lo-Lo).
2. The forwarder can act as **MTO** (carrier responsibility, FIATA FBL) or as a **user** of a carrier's through service.
3. **Sea-air** buys most of air's speed at far less cost — Dubai is a prime hub — but needs precise coordination.
4. Master the **transhipment sequence** and the **5% / 45-day duty deposit** — missing the deadline forfeits real money.

Dangerous & Hazardous Cargo

The nine UN classes of dangerous goods, the codes that govern each transport mode (IMDG, IATA DGR, ADR), and the forwarder's duties — aware, not expert.

Some cargo can hurt people, ships and other goods — explosives, gases, flammable liquids, corrosives, toxics. Moving it safely is tightly regulated, and the rules are unforgiving. NAFL sets the forwarder's position precisely: a forwarder is **not expected to be a dangerous-goods expert, but is expected to be fully *aware*** of the steps and procedures for safe packing, handling and acceptance — enough to guide shippers and to know when something is wrong.

Who is responsible — and who is not

> **THE CARDINAL RULE OF DANGEROUS GOODS**
>
> Under **all** UN dangerous-goods codes, it is the **shipper** who is legally responsible for correctly **classifying, packing, marking, labelling and declaring** the goods. **Freight forwarders are not authorised to sign the dangerous-goods declaration.** But because the forwarder handles the shipment, all the requisite information must be supplied to them — and they must know the rules well enough to check it and refuse what doesn't conform.

The regulatory framework

The system cascades from one UN body down to mode-specific rulebooks:

- At the top, the **UN Committee of Experts on the Transport of Dangerous Goods** issues recommendations, consolidated in the **"UN Orange Book"** (updated regularly).
- From these, each mode's authority publishes its own regulations:
  - **IMDG Code** — *International Maritime Dangerous Goods* code, for **sea** (framed by the IMO under the **SOLAS** convention, 1974).
  - **IATA DGR** — *Dangerous Goods Regulations*, for **air** (based on the ICAO Technical Instructions).
  - **ADR / RID / ADN** — European **road / rail / inland-waterway** codes respectively.

The nine UN classes — know these cold

NAFL is emphatic that everyone in shipping must know the **nine classes**, even without the subdivisions:

Class	Hazard
1	Explosives
2	Gases — compressed, liquefied, toxic or dissolved
3	Flammable liquids
4	Flammable solids (4.1) · spontaneously combustible (4.2) · dangerous when wet (4.3)

Class	Hazard
5	Oxidising substances (5.1) · organic peroxides (5.2)
6	Toxic substances (6.1) · infectious substances (6.2)
7	Radioactive materials
8	Corrosives
9	Miscellaneous dangerous substances (anything else requiring the rules)

(Classes 1, 2, 4, 5 and 6 have subdivisions, treated slightly differently by mode.)

FIGURE 21.1 The nine UN hazard-class diamonds — recognise them on sight.

Packing, marking and the rest

NAFL works through the controls; in summary, the forwarder must be aware of:

- **Packaging** — well-made, in good condition, chemically compatible with the contents, able to withstand handling and carriage; tested and approved to a **UN specification marking** and **Packing Group I, II or III** (by degree of hazard); liquids need **ullage** (head-space for expansion).
- **Marking & labelling & placarding** — packages durably marked with the **correct technical / proper shipping name** (never just a trade name), the **UN number**, and the **diamond hazard label(s)**; marks must survive at least **three months' immersion in seawater**. Transport units (containers, vehicles) carry external **placards** per IMDG/IATA.
- **Segregation** — incompatible hazards must be kept apart (NAFL's image: never stow flammable thinners next to fireworks); each code specifies separation distances.
- **Securing** — extra care so nothing breaks free and spreads hazardous material.
- **Subsidiary hazards** — many goods carry more than one hazard; the **primary** hazard takes the main label, secondary hazards are also shown.
- **Documentation** — the shipper's signed **DG declaration** and **proper shipping name** must be available *before* acceptance, so packaging can be checked.
- **Training** — staff handling DG (especially by air) must hold **current certification**; in the UAE, Civil Aviation requires formal registration before a company can handle dangerous air cargo.

2003 VS NOW

The framework NAFL teaches is intact and only tightened. The **IMDG Code is now mandatory** under SOLAS (amended on a 2-year cycle) and the **IATA DGR is updated annually** with **mandatory recurrent training**. The big addition since 2003 is the **lithium battery** problem — phones, laptops, EVs — now among the most regulated and incident-prone air/sea cargoes, with their own evolving rules. The **GHS** (Globally Harmonized System) has also aligned hazard symbols across transport and workplace. The nine classes themselves are unchanged.

WORLDZONE IN PRACTICE

A WorldZone operator's DG discipline is exactly NAFL's: **aware, not expert.** Recognise the nine classes on sight, insist on the shipper's signed declaration and proper shipping name **before** accepting, check the packaging/marking conforms, never sign the declaration yourself, and route DG only through staff and partners with current certification. Many everyday products are hidden DG — aerosols, paints, batteries, the very automotive chemicals in the group's own trade (Class 3 flammables) — so the habit of *asking* "is this dangerous goods?" on every enquiry is the safeguard.

What to take from this chapter

1. The forwarder is **aware, not expert** — and **never signs** the DG declaration; the **shipper** is responsible.
2. Framework: **UN Orange Book** → **IMDG** (sea), **IATA DGR** (air), **ADR/RID/ADN** (road/rail/waterway).
3. Memorise the **nine UN classes**.
4. Insist on the **proper shipping name, UN number, correct packing/marking and signed declaration** before acceptance; use **certified** staff and partners.

Packing, Marking & Labelling

How goods are protected and identified in transit — the three P's of packaging, the main packaging types, container stowage and restraint, and the standard shipping marks.

Cargo that is badly packed or badly marked arrives damaged, delayed or in the wrong place. NAFL treats this as core forwarder knowledge: even though the shipper usually packs, the forwarder **advises** on packaging and is **increasingly involved in packing goods into containers** — and is often liable for damage caused by a bad stow. Two definitions to start, because the words are used precisely:

> **DEFINITION — PACKAGING VS PACKING**
>
> - **Packaging (noun):** the materials and systems used to **wrap, protect and present** goods during and after transit.
> - **Packing (verb):** the systems and procedures used to **load and secure** cargoes in transit (e.g. stuffing a container).

The three P's of packaging

> **THE THREE FUNCTIONS OF PACKAGING**
>
> Packaging exists to **Protect, Preserve and Present**. It must protect against loss, damage and pilferage; preserve the contents against moisture, temperature, light, gases, infestation and contamination; and present the goods (size, shape, branding) to the market. It must also meet **international standards and the laws of the destination/transit countries**.

Guidelines for choosing packaging

NAFL gives a long practical checklist; the essentials a forwarder advises on:

- Goods should be **well stowed and secured within the package**, voids cushioned and braced (battens, dunnage); a full, tight package is a stronger package.
- **Unitise** small packages (palletise) to cut theft and handling stress — a forklift loads 12 two-tonne pallets faster than a gang moves cartons.
- Mark packages with the **number of layers** they can be stacked under ("overstow").
- Check **destination/transit regulations** on packing materials (e.g. untreated wood barred from Australia, bark-bearing wood from the USA).
- **Don't re-use** old cartons/cases — they collapse and invite confusion and pilferage.
- **Match package size to the product** to save freight; don't pack different freight-rated goods together (the carrier may rate the whole package at the highest rate).
- Provide **waterproof** wrapping/lining for cargo exposed to weather or outdoor customs areas.
- Avoid **over-packaging** — it wastes carrying capacity, especially in air freight.

The main packaging types

NAFL catalogues the standard types — a forwarder should know which suits what:

- **Bagged cargo** — robust commodities (grain, sugar, fertiliser, coffee); bags hold but don't protect.
- **Fibreboard boxes/cartons** — cheap, widely used; fine for container cargo if not fragile.
- **Wooden cases** — strong walls, support superimposed loads; for heat/damp-sensitive or conventionally handled goods (plywood increasingly used).
- **Wooden crates** — skeletal; for resilient contents or large machinery.
- **Bales** — hessian-wrapped, compressible goods; vulnerable to hooks/pilferage.
- **Drums, barrels, casks** — liquids and powders (chemicals, oil, paints).
- **Shrink-wrapping** — bags interlocked on a pallet, polythene heat-sealed into one unit load.
- **Lift vans** — purpose-built unit loads for household goods.
- **Corrosion preservation** — machinery vacuum-sealed/greased with desiccant against humidity.
- **Special cargo** — bulk (no packing, needs the right vessel/gear), high-value (gold, jewellery — mostly by air, direct delivery), perishables/reefer, live animals (cages, feed, quarantine), and dangerous goods (Chapter 21).

Stowing and securing cargo in containers

The maxim from Chapter 11, expanded: **a correct, immovable stow and even weight distribution.** Either stow tight, or restrain. NAFL's **methods of securing**:

- **Shoring** — bars/struts/spars in the voids, pressing cargo against the walls or other cargo.
- **Lashing** — ropes, wire, chains, strapping or netting tensioned to anchor points.
- **Wedging** — wooden pieces, pads, inflatable dunnage bags filling voids.
- **Locking** — building cargo into an interlocking "brick wall."

Practical rules: use the **built-in securing points** (respect their limits); timber dunnage must be **dry** and quarantine-compliant; **never nail into a reefer floor**; heavy items and liquids go **bottom**, light and dry on **top**; leave any unavoidable gap **down the centre line**, not at the sides; and stop the "face" of the stow from collapsing against the doors (so it doesn't fall out when opened at destination or for customs).

Load factors

Spread weight across the container floor: over the **full width**, and lengthwise over the **cross members** (roughly one tonne per two floor members at 1-ft centres). Distribute as evenly as possible — a tightly stowed box in Singapore must still be unloadable in Dubai.

Shipping marks and labelling

THE STANDARD SHIPPING MARK — FOUR ELEMENTS

A standard shipping mark, shown on packages **and** documents, has four elements in order:

1. **Initials / abbreviated name** of the consignee (e.g. `N.T.C.`)
2. **Reference number** (e.g. `01608`)
3. **Destination** (e.g. `RIYADH` — with transhipment shown as `RIYADH VIA DUBAI`)
4. **Package number** (e.g. `1/8` = package 1 of 8)

Marks identify cargo for everyone handling it and let cargo be checked against documents. They should be **stencilled in bold** on the sides and top, kept **simple** (no clutter that causes error), and standardised: NAFL's "simpler shipping marks" rules cap a mark at **10 lines × 17 characters**, using only typeable characters, no geometric shapes, Roman alphabet at minimum. Separate from the shipping mark are **information marks** (gross weight, country of origin) and **cargo handling marks** — the internationally agreed **ISO handling symbols** (fragile, this-way-up, keep-dry) and the **DG hazard labels** from Chapter 21, printed in the destination language.

2003 VS NOW

The packaging types, the three P's and the stowage rules are timeless and need no update. Two modernisations: **wood packaging** now must usually be heat-treated and stamped to **ISPM 15** (the formal version of NAFL's "treated wood" note) to cross most borders; and shipping marks are increasingly supplemented or replaced by **bar codes / QR codes and RFID** for automated tracking (Chapter 25) — though the four-element human-readable mark remains the fallback everywhere.

WORLDZONE IN PRACTICE

Packing advice is part of the documentation/forwarding service WorldZone sells, and the **container stow is often the forwarder's own liability** — a point that matters directly on consolidated boxes (Chapter 13), where mixed shippers' cargo must be compatible, evenly weighted, and stowed so it survives the trip and clears customs without collapsing out of the doors. The everyday habits: insist on **ISPM-15 wood**, the **four-element mark** on every package, **heavy-low / light-high**, and **compatible cargo only** in a shared box.

What to take from this chapter

1. **Packaging** = protect/preserve/present; **packing** = load/secure. Know the difference.
2. Match the **packaging type** to the cargo; don't re-use cases; waterproof what's exposed.
3. Container stows must be **immovable + evenly distributed**; secure by **shoring / lashing / wedging / locking**; heavy low.
4. The **Standard Shipping Mark** = initials · reference · destination · package number; keep marks simple; use ISO handling symbols + DG labels.

Warehousing

Where cargo waits and flows — the types of warehouse (including bonded), the public-vs-private decision, and the core warehousing functions of storage and movement.

Warehousing is more than storage — for a modern forwarder it is about **flow**: receiving, holding briefly, and dispatching cargo efficiently as part of the supply chain. NAFL frames the warehouse's two basic functions as **storage** and **movement**, and a good operation emphasises movement — fast, accurate throughput — over static holding.

Types of warehouse

NAFL lists six types; a forwarder should know which suits which cargo:

1. **General merchandise warehouse** — the most common; stores almost any product for manufacturers, distributors and customers.
2. **Refrigerated / cold storage ("cool stores")** — temperature-controlled, for perishables (fruit, vegetables, frozen food) and some pharmaceuticals/furs. NAFL notes Dubai uses cool stores even for electronics and chocolate because of the extreme heat.
3. **Bonded warehouse** — *see below; the one with special customs significance.*
4. **Household goods warehouse** — personal effects, often longer-term; with open-floor, private-room/vault, or container storage options.
5. **Special commodity warehouse** — single agricultural products (grain, wool, cotton), with product-specific services (cleaning grain, compressing cotton) and interchangeable bulk storage by grade.
6. **Bulk storage warehouse** — tank storage of liquids, open/sheltered storage of dry bulk (coal, sand, chemicals); may fill drums or mix compounds.

The bonded warehouse — why it matters

> **DEFINITION — BONDED WAREHOUSE**
>
> A **bonded warehouse** places its premises under the custody of **Customs**. Imported goods (e.g. tobacco, alcohol, or any dutiable cargo) can be stored there while the **government retains control**, and **import duty/tax is not payable until the goods are released** into the local market. The advantage is **cash flow** — the importer defers duty until the goods are actually sold.

This is the same principle that powers the UAE's **free zones** (Chapter 10): goods sit duty-suspended and can even be **re-exported without ever paying local duty**. For a re-export hub, the bonded/free-zone warehouse is foundational infrastructure, not a niche.

Public vs private warehousing

A recurring distribution decision NAFL works through:

	Public warehouse	Private warehouse (owned/leased)
Initial investment	None	Large (facility, equipment, staff)
Operating cost	Higher (includes provider's profit + selling/advertising)	~10–20% lower **if volume is sufficient and consistent**
Control	Less direct	Direct over personnel and procedures
Flexibility / risk	Flexible, low risk, scalable	Less flexible; risk of obsolescence if demand/technology shifts
Best for	Variable/seasonal volume, new markets	High, steady volume in established markets

In practice most large operators use a **combination** — private warehouses for steady core volume, public warehouses for peak or low-volume markets.

The functions of warehousing

NAFL breaks **movement** into four handling activities, then expands to the full operational set:

- **Receiving** — unload, update inventory records, inspect for damage, verify count against orders.
- **Transfer / put-away** — move goods into storage, or to value-added areas (consolidation), or to the loading dock.
- **Customer order selection (picking)** — regroup goods into the assortments customers ordered.
- **Shipping** — load assembled orders, adjust inventory, check outbound orders.

Around these sit **inventory control, purchasing, order entry, redistribution, replenishment, checking, packing & marking, and staging/consolidation** — plus the clerical work that ties them together. Two storage modes: **temporary** (just enough for turnover — emphasises flow) and **permanent** (excess held for seasonal/erratic demand).

Layout, design and handling systems

A good layout **increases output, improves flow, cuts cost, improves service and working conditions**. Principles: calculate space needs carefully; use **high/vertical** storage; size **aisles** correctly (too narrow restricts flow, too wide wastes space); use space-utilisation standards. Handling runs from **standard** (the forklift — the basic tool of almost every warehouse — plus hand trucks, cranes) to **automated** (computer-controlled, up to **AS/RS** — Automated Storage and Retrieval Systems), which only became feasible with the IT systems of Chapter 25.

2003 VS NOW

NAFL's types and functions still hold, but the field has moved from *storage* to **fulfilment**. Modern warehouses run **WMS** (Warehouse Management Systems) with **barcode/RFID** tracking, **AS/RS and robotics**, and increasingly serve **e-commerce** pick-and-pack at a scale unimagined in 2003. The bonded/free-zone concept NAFL describes has become a core pillar of the UAE economy. The vocabulary of **3PL/4PL logistics** (Chapter 27) grew out of exactly this warehousing-plus-movement function.

WORLDZONE IN PRACTICE

Warehousing connects WorldZone's freight services to **Supply Chain Management** (Chapter 27) — and the **bonded/free-zone** warehouse is central to the UAE re-export model the whole network runs on. WorldZone offers **bonded *and* commercial** warehouse facilities across the UAE and GCC, with **temperature-controlled storage** for cold-chain cargo (pharma, perishable FMCG — Chapter 29) and **real-time inventory reporting** so a customer can see stock levels and movements live. For a customer, the value is duty deferral plus a staging point between the sea/air leg and final inland delivery (Chapter 24). The operator's judgement mirrors NAFL's public-vs-private table: use flexible third-party/free-zone space for variable cargo, and understand that for a re-export customer the **bonded** status — not the shelving — is the point.

What to take from this chapter

1. Warehousing is **storage + movement** — modern operations prize **flow**.
2. Know the six types — and especially the **bonded warehouse**, which **defers duty** and underpins re-export/free zones.
3. **Public vs private** is a volume/control/risk trade-off — most operators **combine** both.
4. Core functions: **receive → put-away → pick → ship**, supported by inventory control and (increasingly) **WMS + automation**.

Inland & Overland Haulage

The first and last legs of almost every shipment — moving cargo by road and rail between port/airport and the customer's door, and the GCC overland network.

Almost no shipment begins or ends at a port. Between the quay or the airport and the customer's premises lies the **inland leg** — by road or rail — and it is where door-to-door service is won or lost. NAFL treats inland transport throughout the procedures and multimodal sections rather than as a standalone chapter; this chapter gathers it together, because for WorldZone it is one of the core services and a daily reality.

Pre-carriage and on-carriage

> **DEFINITION — PRE-CARRIAGE AND ON-CARRIAGE**
>
> - **Pre-carriage** — the inland leg from the **shipper's premises to the port/airport** of departure (collection, export haulage).
> - **On-carriage** — the inland leg from the **arrival port/airport to the consignee's premises** (delivery, import haulage).
>
> Together with the main international leg, these complete the **door-to-door (warehouse-to-warehouse)** movement that customers increasingly expect.

These legs feed directly into the transit-time calculations of Chapter 9 — recall NAFL builds total transit from collection + export + main leg + import + delivery, never the sea/air leg alone.

Road haulage

Road is the most flexible inland mode — it reaches any door, with no fixed terminals. NAFL's road notes (and the broader trade):

- **Drayage / trucking** moves containers between port and inland point on a chassis; the box is not opened (an FCL stays sealed door-to-door).
- For LCL, cargo is trucked to/from the **Container Freight Station** for consolidation/de-consolidation (Chapter 13).
- Road dominates **intra-GCC** trade — there is no integrated regional rail network for general cargo, so cross-border trucking is the backbone (e.g. UAE ↔ Oman/Saudi/Qatar).
- A road price quoted "door-to-door" must state clearly that it covers **transport only** — customs duties, taxes, clearance and storage are for the goods, and rate/exchange fluctuations too (NAFL's standing rule against ambiguity).

Rail and rail/road multimodal

Where rail networks exist, the **rail/road** combination (Chapter 20) carries the long inland leg cheaply and quickly, with trucks handling only first and last miles — **TOFC** (trailer on flat car) and **COFC** (container on flat car), and **double-stack** trains where bridge heights allow. Rail is energy-efficient and runs day and night, but is fixed to its network, so it almost always pairs with road for the final delivery.

Cross-border and bonded movement

Inland legs that cross national borders raise customs questions NAFL flags directly:

- Cargo may move **under customs bond** between ports/free zones and inland points without paying duty at the border — but only where the customs regime allows it (Chapter 10). Where it doesn't, a container must be **emptied and cleared at the arrival port**, eroding the door-to-door advantage for inland consignees.
- The **TIR carnet** (Chapter 10) is the classic instrument enabling sealed road transit across multiple countries under a single customs document.

2003 VS NOW

The road backbone of GCC trade is unchanged, but two developments matter: the long-planned **GCC Railway** network (and the UAE's own **Etihad Rail**, now operational for freight) is beginning to add a genuine regional rail option for the first time, shifting some long-haul cargo off the road; and **GPS/telematics fleet tracking** (Chapter 25) has turned the inland leg from a blind spot into a visible, monitored part of the journey — exactly the kind of real-time control NAFL anticipated in its IT chapter.

WORLDZONE IN PRACTICE

Inland / Overland Haulage is one of WorldZone's core services, and the related WayTrans land-transport operation sits in the same group — overland GCC logistics is a real business line, not an afterthought. For an operator, the inland leg is where a "door-to-door" promise is actually delivered: arranging pre-carriage collection, the bonded or cleared movement, and final on-carriage delivery. The discipline from Chapter 9 applies — quote the inland leg explicitly, state what's included, and build it into the transit time, because the customer experiences the **last mile**, not the ocean voyage.

What to take from this chapter

1. **Pre-carriage** (door→port) and **on-carriage** (port→door) complete the **door-to-door** movement and feed the transit-time calculation.
2. **Road** is the flexible backbone — especially **intra-GCC**, where it dominates cross-border trade.
3. **Rail/road** (TOFC/COFC, double-stack) carries the cheap long inland leg where networks exist — now emerging in the GCC via Etihad Rail.
4. Cross-border legs may move **under bond** (or TIR carnet); always quote the inland leg explicitly and include it in transit time.

PART VII — THE MODERN INDUSTRY · CHAPTER 25

Digitalisation & Technology

How freight forwarding went digital — from NAFL's EDI to today's e-documents, APIs, TMS, customs single-windows and real-time visibility.

This chapter modernises the part of NAFL that has dated the most. Its 2003 "Introduction to Information Technology" was forward-looking for its time — it correctly identified that **"the data that describes, locates and values a cargo is now equally as important as the cargo itself."** That insight is truer than ever; the tools have simply leapt ahead. We keep NAFL's principle and replace its 2003 toolkit with today's.

NAFL's enduring principle

The 2003 notes framed logistics as the integration of two parallel flows — the **physical flow of goods** and the **information flow** that controls it — and argued that good information enables good decisions while bad information does the opposite. That remains the foundation. Everything below is about making the information flow faster, more accurate and more connected.

What has replaced NAFL's 2003 toolkit

2003 VS NOW — THE TECHNOLOGY JUMP

NAFL (2003)	Today
EDI over value-added networks (TRADANET, EDIFACT, SWIFT)	EDI persists, but **web APIs** now connect systems in real time
Paper **B/L** moving by courier (~20 days)	**Electronic B/L (e-B/L)** — title transfers in minutes
Paper **AWB**	**e-AWB**, now the IATA default
Bar codes, light pens	Bar codes + **QR codes, RFID, IoT sensors**
Customs shifting from paper to computer links	**Customs single-window** portals (UAE: Dubai Trade / Mirsal 2)
Batch vs real-time processing	**Cloud, real-time** by default; mobile everywhere
"Track and trace" as an emerging idea	**End-to-end visibility platforms** with live GPS

The modern digital document chain

- **e-B/L (electronic bill of lading)** — the biggest single change. The paper B/L's slow physical journey between shipper, banks and consignee (which NAFL noted could leave cargo stranded at the port awaiting documents) is replaced by digital title transfer through platforms governed by legal frameworks like the **MLETR** and the UK's Electronic Trade Documents Act. Initiatives such as **Bolero, essDOCS/WaveBL** and carrier platforms make it routine.
- **e-AWB** — the electronic air waybill is now IATA's default, removing paper from air freight.
- **Digital customs** — declarations filed through **single-window** systems; in the UAE, **Dubai Trade / Mirsal 2** integrate customs, ports and free zones in one electronic interface (Chapter 10).

The systems a modern forwarder runs

KEY SYSTEMS

- **TMS (Transport Management System)** — plans, books, rates, documents and tracks shipments; the forwarder's operational backbone.
- **WMS (Warehouse Management System)** — runs the warehouse: receiving, putaway, picking, dispatch (Chapter 23).
- **API integration** — direct system-to-system links to carriers, customs, ports and customers for instant rates, bookings and status — the real-time successor to batch EDI.
- **Visibility / track-and-trace platforms** — aggregate GPS, carrier and IoT data to show where every shipment is, in real time, to the customer.
- **IoT sensors** — track location, temperature, shock and humidity inside reefer and high-value containers.

Why it matters to the forwarder

Digitalisation is now a **precondition of doing business**, exactly as NAFL observed EDI was becoming. Customers expect instant quotes, online booking and live tracking; carriers and customs increasingly accept only electronic submissions; and the margin pressure in forwarding makes manual, paper-based processing uncompetitive. The forwarder who automates the routine wins time for the judgement work — routing, problem-solving, advice — that actually adds value.

WORLDZONE IN PRACTICE

WorldZone already lives part of this future: its **internal AI system** (built by VoltusWave) and its WhatsApp automation show the direction of travel. The practical priorities for a network like WorldZone: **API/portal connections** to its carriers for live rates and bookings; **e-B/L and e-AWB** adoption to kill the document-delay problem NAFL described; **single-window customs** filing across all seven countries; and a **customer-facing visibility** layer so a shipper can self-serve status. Each removes a manual step and a source of error — and frees operators for the advisory role that retains customers. *(Note for Nisarg: this is exactly where an Arise-AI-style agent layer could plug in — flagged for the cross-project review.)*

What to take from this chapter

1. NAFL's principle holds: the **information flow** is as important as the cargo; good data = good decisions.
2. The toolkit jumped — **EDI → APIs, paper B/L → e-B/L, bar codes → RFID/IoT, computer customs → single-window**.
3. A modern forwarder runs a **TMS + WMS**, integrates by **API**, and offers **real-time visibility**.
4. Digital capability is now a **precondition of competing**, not an extra.

PART VII — THE MODERN INDUSTRY · CHAPTER 26

Market Forces & Disruptions

The forces that move rates and reshape routes since 2003 — carrier alliances, IMO 2020, the COVID container crunch, and the Red Sea/Suez crisis.

NAFL taught the freight market of 2003 — "conference" lines, "flags of convenience," a world of "more carrying capacity than cargo." That market has been transformed. A credible forwarder today must understand the forces that now move rates and rewrite routings overnight, because they directly affect every quote (Chapter 5) and every transit time (Chapter 9). This chapter is entirely new — it is the context the 2003 book could not contain.

From conferences to alliances

2003 VS NOW — HOW THE CARRIERS ORGANISED

NAFL describes **shipping conferences** (carriers agreeing common, reduced rates) and independent **outsiders** under flags of convenience. The EU **abolished liner conferences in 2008**. The market then **consolidated** dramatically — through mega-mergers and the collapse of carriers like Hanjin (2016) — into a handful of giants and three global **alliances**:

- **2M** (Maersk + MSC — now winding down; MSC going it alone as the largest carrier)
- **Ocean Alliance** (CMA CGM, COSCO, Evergreen)
- **THE Alliance** (Hapag-Lloyd, ONE, Yang Ming, HMM)

These alliances share vessels and networks, which concentrates capacity and gives carriers far more influence over rates than the fragmented market NAFL knew.

IMO 2020 — the fuel rule that reshaped surcharges

DEFINITION — IMO 2020

IMO 2020 is the International Maritime Organization regulation, effective **1 January 2020**, capping the **sulphur content of marine fuel at 0.5%** (down from 3.5%). Ships must burn more expensive **low-sulphur fuel**, fit exhaust **scrubbers**, or switch to alternative fuels (LNG). The cost flows straight into freight via **Low Sulphur Surcharges (LSS/LSF)** — which is why NAFL's simple BAF (Chapter 5) has been supplemented or replaced by low-sulphur fuel charges.

This is the single most important regulatory change to ocean economics since the NAFL era, and it sits on top of a broader **decarbonisation** push (methanol- and ammonia-ready ships, an EU emissions-trading cost on shipping from 2024) that will keep pushing fuel-linked surcharges upward.

The COVID container crunch (2020–2022)

The pandemic produced the most violent freight-market dislocation in modern history — essential for a forwarder to understand because its lessons still shape behaviour:

- A demand whiplash plus port congestion stranded **containers in the wrong places**, creating a global **equipment shortage**.
- Spot rates on major lanes spiked **5–10×**; a route that cost ~US$1,500 hit **US$15,000+**.
- **Blank sailings** (carriers cancelling scheduled departures to manage capacity) and **port congestion surcharges** became routine.
- It permanently raised awareness that the "overcapacity" world NAFL described can flip to acute scarcity — and that **quote validity** (Chapter 5) can be days, not weeks.

The Red Sea / Suez crisis (2023–onward)

The chokepoint risk from Chapter 1, made real:

- From late 2023, **attacks on shipping in the Red Sea** forced most carriers to abandon the **Suez Canal** and reroute around the **Cape of Good Hope**.
- This added **10–14 days** and thousands of dollars per container to Asia–Europe and Asia–Mediterranean transits, and reintroduced **war-risk surcharges** (Chapter 5).
- Combined with a **2023–24 drought** cutting Panama Canal transits, it showed how fragile the world's chokepoints are — and why a forwarder treats them as **risk points**, not constants.

What this means for the forwarder

The throughline from NAFL holds: the forwarder must **"keep abreast of what is happening in their world."** In 2003 that meant knowing about port strikes and congestion; today it means tracking alliance capacity, fuel-rule surcharges, and live geopolitical disruption. The practical consequences:

- **Quote all-in and short-dated** — surcharges (LSS, war risk, congestion, peak season) move fast.
- **Build realistic transit times** that account for rerouting, not the textbook direct sailing.
- **Advise customers proactively** when disruption is coming — the advisory role NAFL prized is more valuable than ever in a volatile market.

WORLDZONE IN PRACTICE

For WorldZone's India ↔ GCC ↔ Europe lanes, these forces are not abstract: **Red Sea rerouting** directly lengthens GCC–Europe transits and re-prices them; **IMO 2020 / LSS** is a line item on quotes; and **alliance capacity** decisions determine space and rate on the major corridors. The operator's edge is exactly NAFL's advice modernised — stay informed, quote short-dated and all-in, and warn customers early. This is also where a market-watch agent (a Tech-Radar / freight-market monitor) would earn its keep — *flagged for the cross-project review.*

What to take from this chapter

1. Conferences are gone; the market is **consolidated into a few mega-carriers and three alliances** controlling capacity and rates.
2. **IMO 2020** (0.5% sulphur) drives **low-sulphur surcharges**; decarbonisation will keep fuel costs rising.
3. The **COVID crunch** showed rates can spike 5–10× and validity can be days; **blank sailings** and congestion are now normal tools.
4. The **Red Sea/Suez** crisis proves chokepoints are **risk points** — build rerouting into transit and price.

Supply Chain Management & Sustainability

How forwarding became supply-chain management — 3PL/4PL, integrated logistics, and the sustainability pressures now reshaping the industry.

NAFL already saw it coming: its IT chapter described logistics as integrating "previously interdependent functions into a single coordinated and controlled process," and called forwarders "an integral part of their customers' supply chain." This chapter follows that thread to where the industry now stands — the forwarder as a **supply-chain partner**, and the sustainability agenda that is reshaping the trade.

From freight forwarding to supply chain management

> DEFINITION — SUPPLY CHAIN MANAGEMENT (SCM)
>
> **Supply Chain Management** is the coordination of the entire flow of goods, information and finance — from raw material through manufacture, storage and distribution to the end customer. Freight forwarding is one component; SCM is the integrated whole, optimising the **total** cost and service of the chain rather than any single leg.

The forwarder's role has widened accordingly — from booking transport to managing inventory, customs, warehousing, distribution and information across the chain. This is why **Supply Chain Management is one of WorldZone's core services**: customers increasingly want a single partner accountable for the whole movement, not a series of disconnected vendors.

The logistics service tiers — 3PL and 4PL

> DEFINITION — 1PL TO 4PL
>
> - **1PL** — the shipper moves its own goods.
> - **2PL** — an asset carrier (shipping line, airline, trucker) provides one leg.
> - **3PL (Third-Party Logistics)** — an integrated provider (the modern forwarder) manages transport, warehousing, customs and distribution **on the client's behalf**.
> - **4PL (Fourth-Party Logistics)** — a non-asset orchestrator that **manages the whole supply chain and other 3PLs** for the client, acting as a single point of control.

NAFL's "third party logistics provider" — listed in Chapter 2 as one of the forwarder's names — has matured into this full **3PL/4PL** spectrum.

Modern supply-chain concepts the forwarder meets

- **Just-in-Time (JIT)** — minimal inventory, parts arriving exactly when needed; makes reliable, on-time transport mission-critical (NAFL references JIT and MRP in its IT chapter).
- **Visibility & control towers** — real-time oversight of the whole chain (Chapter 25), so disruption is managed proactively.
- **Total cost of ownership** — optimising the *whole* chain, accepting a higher cost on one leg if it lowers the total (e.g. air freight to avoid holding costly inventory — exactly NAFL's sea-vs-air logic scaled up).
- **Resilience** — after COVID and the Red Sea crisis (Chapter 26), buffer stock, dual sourcing and route flexibility are back in favour over pure lowest-cost leanness.

Sustainability — the new pressure

Entirely beyond NAFL's era, sustainability is now a real commercial force, not a slogan:

- **Decarbonisation** of shipping — IMO targets, alternative fuels (LNG, methanol, ammonia), and the **EU Emissions Trading System** now pricing shipping carbon (Chapter 26).
- **Carbon reporting** — customers increasingly require **emissions data** per shipment; forwarders must measure and report it.
- **Modal choice as a green lever** — sea emits far less per tonne-km than air; **mode selection** is now an environmental decision as well as a cost one.
- **Packaging and waste** — recyclable/right-sized packaging (echoing NAFL's note that Germany already required biodegradable, take-back packaging in 2003).

2003 VS NOW

NAFL planted the seed — integrated logistics, JIT, the forwarder in the supply chain — but had **no concept of sustainability** as a driver, and "3PL" was just one of several names for a forwarder. Today **3PL/4PL** is a defined industry tier worth hundreds of billions, **supply-chain resilience** is a board-level concern, and **carbon** is a line item customers ask about. The forwarder who can speak the language of supply chain and sustainability — not just freight — is the one who keeps the larger accounts.

WORLDZONE IN PRACTICE

WorldZone's core services together **are** a supply-chain offering — ocean, air, customs, documentation, haulage, consolidation, project cargo and SCM, across seven countries, are exactly the components a 3PL bundles. Positioning the network as a **single supply-chain partner** (not separate services) is the commercial upgrade NAFL's logic points to. On sustainability, the near-term practical step is being able to **report shipment emissions** and advise customers on greener modal choices — increasingly a requirement to win larger, corporate accounts. *(Flagged for the cross-project review: emissions reporting is a natural automation/agent opportunity.)*

What to take from this chapter

1. Forwarding has widened into **supply chain management** — optimising the whole chain, not one leg.
2. Know the tiers: **3PL** (integrated provider) and **4PL** (chain orchestrator) — the maturing of NAFL's "3PL."
3. Modern concepts: **JIT, visibility/control towers, total cost, resilience.**
4. **Sustainability** is now a commercial force — decarbonisation, carbon reporting, and modal choice as a green lever.

How WorldZone Works

The company behind this handbook — WorldZone's network, its core and specialised services, the asset-light model, and where it sits in the chain you've just learned about.

Everything in the preceding chapters is industry knowledge — true for any forwarder anywhere. This chapter is about **us**: how World Zone Logistics & Shipping Services actually operates, and how the theory you've learned maps onto the business you're now part of.

Who WorldZone is

> **WORLDZONE AT A GLANCE**
>
> **World Zone Logistics & Shipping Services** is a freight-forwarding and logistics company with roughly **two decades** in international logistics, headquartered in **Dubai, UAE**, operating its **own offices across seven countries — UAE, Oman, Qatar, Bahrain, Saudi Arabia, Kuwait and India** — handling cargo to and from India and the Middle East, and onward worldwide through an interconnected agency network.
>
> **Tagline:** *"One World, One Zone."* — "The world has 24 time zones, and we operate in one." **Vision:** a *personalised* logistics experience — delivering cargo competitively, on time and reliably, regardless of shipment size. **Values:** Honesty & Transparency · Value for Money · Mutual Respect.

The name is the strategy. As Chapter 1 explained, the world runs across 24 time zones; WorldZone's promise is that a customer deals with **one coordinated service**, not a relay of disconnected agents across those zones. The values are not decoration: *Value for Money* is the NAFL principle that a forwarder advises the best-value option, not the cheapest (Chapter 2); *Honesty & Transparency* is why every quote is itemised with its validity (Chapter 5).

The network — thirteen offices

WorldZone runs **its own offices** — not just agents — across its seven countries, with the **UAE as the hub**. The branch map every team member should know:

> **THE OFFICE NETWORK**
>
> **UAE (5):** Dubai (HQ) · Abu Dhabi · Jebel Ali · Sharjah · Ras Al Khaimah · **Oman:** Muscat · **Qatar:** Doha · **Bahrain:** Manama · **Saudi Arabia (2):** Jeddah · Riyadh · **Kuwait:** Kuwait City · **India (2):** Cochin · Bangalore.
>
> The UAE alone employs around **94 staff** across its five branches.

This matters because of the single most important lesson in the NAFL procedures chapters (Chapter 9): a forwarder is only as good as its **agent at the other end**. WorldZone's owned-office network *is* that reliable other end — the UAE and India offices act as each other's origin and destination office under one instruction, which is what lets a shipment behave as one seamless movement rather than a hand-off between strangers.

How the company runs, day to day

Knowing the operational rhythm is part of working the chain effectively:

- **Hours:** offices run **08:00–17:00, Monday–Friday**; weekends are off (staff may come in voluntarily for pending work). A shipment's cut-offs and a colleague's working window in another office both depend on this — and on the time-zone arithmetic of Chapter 1.
- **Communication: email** is the formal channel of record for shipment documentation; **WhatsApp** carries quick coordination (one main UAE group plus a group per branch); **phone** is for urgent matters and client calls.
- **Escalation on an operational problem:** contact the **salesperson handling that shipment** first, then coordinate with the **Operations Team**, and escalate unresolved issues to the **Operations Manager**. Owners sit at the top of the chain for anything urgent. The principle is the same one NAFL teaches about claims and liability (Chapter 2): know who carries the issue at each step, and act early.

The full service range

WorldZone's **core services** each map to a chapter in this book:

Core service	Where it's covered
Ocean Freight — FCL & LCL	Chapters 11–13
Air Freight Forwarding	Chapter 19
Customs Clearance & Transport	Chapter 10
Documentation Services	Chapter 8
Inland / Overland Haulage	Chapter 24
Consolidation & Groupage	Chapter 13
Break Bulk & Project Shipments	Chapter 14
Supply Chain Management	Chapter 27

On top of these sit WorldZone's **specialised services** — the service lines that handle cargo a standard FCL can't:

Specialised service	Where it's covered
AOG — emergency aircraft spares	Chapter 19
Roll-on / Roll-off (RoRo)	Chapter 15
Dry Bulk Cargo	Chapter 16
Liquid Bulk Cargo (ISO tank / flexitank)	Chapter 17
Vessel Chartering	Chapter 18

Read together, these are not separate products — they are the components of a **single supply-chain offering** (Chapter 27). A customer can hand WorldZone a shipment at the factory door and receive it cleared and delivered at the other end, with one company accountable throughout — and the **industries** behind this traffic are mapped in Chapter 29.

Where WorldZone sits in the chain

Using the players from Chapter 2: WorldZone is the **freight forwarder** — the "architect of transport" — coordinating shippers, carriers, customs and hauliers on the customer's behalf. Depending on the shipment it acts **as agent** (arranging carriage in the customer's name) or **as principal/NVOCC** (issuing its own house bill of lading on a consolidation). It is **not** the asset carrier — it does not own the ships or aircraft — but it controls the movement end to end, which is precisely the value a forwarder sells.

> **ASSET-LIGHT BY DESIGN**
>
> WorldZone deliberately runs **asset-light**: it operates **no fixed fleet of its own**, and instead delivers through established **partnerships** with leading carriers, specialist transporters and warehousing operators. What it *manages* (rather than owns) is a full equipment pool — **containers** (standard, high-cube, reefer, open-top, flat-rack, tank), **flatbed, lowbed and multi-axle trailers**, **rigging and heavy-lift** coordination, and **bonded and commercial warehousing**. The advantage of asset-light is flexibility: WorldZone always matches the *right* equipment and carrier to the cargo, rather than forcing cargo onto assets it happens to own. (This is the NAFL principle from Chapter 2 — the forwarder sells *service and judgement*, not steel.)

The wider group

WorldZone sits within a small family of related businesses the team should recognise:

- **WayTrans** — land transport and GCC overland logistics, complementing WorldZone's inland-haulage service (Chapter 24).
- **VoltusWave** — the enterprise AI company that built WorldZone's internal systems, pointing to the digital direction of travel (Chapter 25).

> **A FEW FACTS WORTH KNOWING**
>
> **Head office:** Office 305 & 306, Al Khaleej Centre, Al Mankhool Road, **Bur Dubai**. · **Main line:** +971 4 358 0800 · **Email:** info.ae@worldzoneglobal.com. · WorldZone is a **Great Place To Work®-certified** employer — a signal that the network the customer relies on is run by people who stay and know their lanes. On the **air** side it holds **IATA accreditation** (and CASS settlement access, Chapter 19), which is what lets it book airline space directly and at agent rates.

FOR THE NEW TEAM MEMBER

Whatever desk you join — ocean, air, customs, documentation — your daily work is one part of the eight-step shipment in Chapter 9, delivered through one of the services above. The thing that makes WorldZone *WorldZone* is the **owned seven-country network**: you are the reliable agent that NAFL says every forwarder needs, for your colleagues in the other offices. Understanding the *whole* chain — even the legs another office handles — is what lets the company keep its "One World, One Zone" promise.

What to take from this chapter

1. WorldZone is a **forwarder with its own offices in seven countries**, hubbed in the UAE, handling India ↔ Middle East ↔ world.
2. Its **core + specialised services** (incl. RoRo, dry/liquid bulk, chartering, AOG) map onto this book and form **one supply-chain offering**; it runs **asset-light** through partners.
3. It is the **architect of transport** — coordinating, acting as agent or NVOCC, never the asset carrier.
4. The **owned network** is the differentiator: every office is the trusted "other end" for the others.

The Industries We Serve

The customer industries behind WorldZone's traffic — construction, oil & gas, manufacturing, retail/FMCG, project & break-bulk, and fellow forwarders — and the cargo each one moves.

The cargo-mix chapter (Chapter 30) looked at *what* moves; this chapter looks at *who* it moves for. WorldZone organises its market around a set of customer **industries**, each with its own cargo, urgency and documentation pattern. Knowing which industry an enquiry belongs to tells an operator, almost immediately, what the shipment will need.

Construction & Infrastructure

The Gulf is a permanent construction site, and the cargo reflects it:

- **Heavy equipment** delivered to site — excavators, loaders, cranes, generators (often by **RoRo**, Chapter 15, or **flat-rack/break-bulk**, Chapter 14).
- **Steel and structural materials** by ocean freight — rebar, beams, plate, fabricated sections (dense, weight-charged cargo, Chapter 3).
- **Project planning and execution** for whole-site deliveries — sequencing many shipments to a build programme (Chapter 14).

Oil & Gas

A demanding, safety-critical vertical where WorldZone has specific capability:

- **Oilfield equipment and machinery** — drilling parts, valves, wellhead and pipeline components, often oversized.
- **Hazardous goods (DG) handling by sea and air** — chemicals, gases and flammables under IMDG/IATA discipline (Chapter 21).
- **Offshore equipment logistics** — supplying rigs and offshore facilities, where timing and the right vessel/equipment are everything.

This vertical is where **project cargo, dangerous goods and chartering** (Chapters 14, 21, 18) most often come together on one job.

Industrial & Manufacturing

The classic forwarding relationship — keeping a factory supplied and its output moving:

- **Raw-material import** from Asia, Europe and the Americas (feeding the manufacturing line).
- **Finished-goods export**, FCL and LCL (Chapter 13).
- **Vendor consolidation and purchase-order (PO) management** — collecting cargo from several suppliers against a buyer's POs and consolidating it into efficient shipments. This is *buyer's consolidation*: a managed service beyond simple groupage, where WorldZone coordinates many vendors to one buyer's instructions.

Retail & FMCG

High-volume, time-sensitive consumer goods (Chapter 30's FMCG mix):

- **Regular LCL consolidation** from Asia, India and Europe — frequent, scheduled groupage boxes (Chapter 13).
- **Temperature-sensitive and cold-chain logistics** — see the cold-chain box below.
- Fast-moving consumer-goods **distribution** across the GCC.

Project & Break-Bulk Cargo

The heavy, the huge and the awkward (Chapter 14), increasingly including the **energy transition**:

- **Power generation and transformer transport** — large, heavy, high-value units needing engineered handling.
- **Renewable energy — wind-turbine blades** (extremely long out-of-gauge units) and **solar panels** (high-volume, fragile).
- **Steel fabrication and structural components** for major projects.

Freight & 3PL Partners

WorldZone also serves **other forwarders and logistics providers**, not just shippers:

- **Co-loading and LCL groupage partnerships** — buying space in, or selling space from, another forwarder's consolidation (Chapter 13), pooling cargo while respecting each other's clients.

> **COLD CHAIN — KEEPING TEMPERATURE UNBROKEN**
>
> A **cold chain** is an unbroken temperature-controlled path from origin to destination, for cargo that spoils or loses value if it warms (or freezes) — **pharmaceuticals**, perishable **FMCG**, food. It joins up the tools from earlier chapters: **reefer containers** (Chapter 11), **reefer vessels** (Chapter 12), **temperature-controlled warehousing** (Chapter 23) and, for the most urgent or high-value pharma, **air / AOG-style priority** (Chapter 19). The discipline is continuity — every leg, including the wait on the quay and in the warehouse, must hold the set temperature, with monitoring throughout. A single warm gap can condemn an entire pharmaceutical consignment.

> **FOR THE NEW TEAM MEMBER**
>
> When an enquiry lands, place it in its industry first — it front-loads the right questions. *Oil & gas?* expect DG, project pieces, maybe chartering. *Construction?* heavy equipment, steel, RoRo, project sequencing. *Retail/FMCG?* LCL consolidation and possibly cold chain. *Manufacturing?* vendor consolidation and PO management. *Another forwarder?* co-loading. The industry tells you the cargo, the cargo tells you the mode and the documents — and that is the whole shape of the job before you've even quoted.

What to take from this chapter

1. WorldZone organises its market around six industries: **construction, oil & gas, manufacturing, retail/FMCG, project & break-bulk, and freight/3PL partners.**
2. Each industry has a signature cargo and need — **DG/project (oil & gas), heavy equipment/steel (construction), vendor consolidation (manufacturing), cold chain (FMCG/pharma).**
3. **Cold chain** is an unbroken temperature path tying together reefer boxes, reefer vessels, temp-controlled warehousing and priority air.
4. Identify the **industry first** on any enquiry — it predicts the cargo, the mode and the documents.

Trade Lanes We Run

The corridors WorldZone works, the ports and hubs on them, and the practical knowledge a team member needs for each — the geography of Chapter 1 made specific.

Chapter 1 taught world geography in general; this chapter makes it specific to WorldZone. A team member who knows the company's actual lanes — the ports, the hubs, the transit times, the quirks — quotes faster and advises better. This is the geography that matters for *our* cargo.

The two primary corridors: China → GCC and Europe → GCC

WorldZone's busiest deep-sea inbound traffic runs on two corridors, both feeding the Gulf markets through the UAE hub:

- **China → GCC** — the volume lane. Manufactured goods of every kind out of the great Chinese export ports (**Shanghai, Ningbo, Shenzhen, Qingdao**) to **Jebel Ali** and onward across the GCC. Routed across the **South China Sea → Strait of Malacca → Indian Ocean → Strait of Hormuz** (Chapter 1).
- **Europe → GCC** — the second pillar. Machinery, vehicles, pharmaceuticals and finished goods from **North-European ports (Rotterdam, Hamburg, Antwerp)** and the **Mediterranean (Genoa, La Spezia)** down through the **Suez Canal / Red Sea** to the Gulf — the corridor most exposed to the **Red Sea crisis** (Chapter 26).

These are the lanes a new operator will quote most. On both, WorldZone owns the **destination** office (the GCC) and works origin through trusted agents — exactly the "reliable agent at the other end" NAFL insists on (Chapter 9).

The owned-network corridor: India ↔ GCC

Alongside the two inbound pillars, the **India ↔ GCC** corridor is special because WorldZone owns offices at **both** ends (Cochin and Bangalore in India; the five UAE branches plus the wider GCC). That makes it the lane where the prize from Chapter 13 — **two-way consolidation**, earning on the inbound *and* the outbound box — is most achievable, with no agent in between.

- **India → GCC** — components, foodstuffs, textiles, project cargo into the Gulf.
- **GCC → India** — re-exports, machinery and goods transhipped through the UAE hub.

What we carry — the cargo mix

Across these lanes, the commodities WorldZone moves most are worth knowing, because each carries its own handling and documentation demands:

WORLDZONE'S PRIMARY CARGO MIX

- **FMCG** (fast-moving consumer goods) — high-volume, time-sensitive; watch for hidden **dangerous goods** (aerosols, batteries, flammables) in the mix (Chapter 21).
- **Furniture** — bulky and **light for its volume**, so it cubes out a box before it weighs out — a classic **volume-charged (1:1 sea / W/M)** cargo (Chapter 3) and a strong consolidation candidate.
- **Pharmaceuticals** — high-value, often **temperature-sensitive** (reefer, Chapter 12) and tightly documented; insurance on **all-risks** terms (Chapter 7).
- **Raw Materials** — dense, often **weight-charged**; may move as bulk or break-bulk (Chapter 14).
- **Spare parts** — high-value, often urgent → the cargo where **sea-air or air** (Chapters 19–20) earns its premium, up to the **AOG** extreme of next-flight-out aircraft spares (Chapter 19).

The mix is the operator's daily judgement: furniture and FMCG fill the *cube*, raw materials and spare parts add the *weight* — combining them well is exactly the consolidation craft of Chapter 13.

The hubs and ports on our lanes

KEY NODES WORLDZONE WORKS

- **UAE (the hub): Jebel Ali** (Jafza) — one of the world's largest container ports and the GCC's premier transhipment and free-zone hub; **Port Rashid**, **Hamriyah**; **Dubai, Sharjah and Fujairah airports** for air and sea-air.
- **India:** WorldZone's own offices at **Cochin** (Cochin/Vallarpadam port, Kerala) and **Bangalore** (inland gateway), plus the major national container ports (**Nhava Sheva/JNPT, Mundra, Chennai**).
- **China (origin via agents): Shanghai, Ningbo, Shenzhen, Qingdao** — the load ports of the volume lane.
- **Europe (origin via agents): Rotterdam, Hamburg, Antwerp** (North) and **Genoa, La Spezia** (Mediterranean).
- **GCC:** the principal ports of **Oman (Sohar/Salalah), Qatar (Hamad), Bahrain (Khalifa Bin Salman), Saudi Arabia (Jeddah, Dammam), Kuwait (Shuwaikh/Shuaiba).**

The UAE's role as a **re-export hub** (Chapters 10, 23) is central: cargo enters Jebel Ali's free zone duty-suspended and is redistributed across the GCC and beyond — which is exactly why WorldZone hubs there.

Why these lanes have the character they do

Tying back to Chapter 1's chokepoints and Chapter 26's disruptions:

- **China → GCC** cargo runs across the **Strait of Malacca** and in through the **Strait of Hormuz** — busy but, for now, less disrupted than the Suez route.
- **Europe → GCC** cargo depends on the **Red Sea / Suez**, so the **Red Sea crisis** directly lengthens and re-prices this corridor — Cape-of-Good-Hope rerouting adds 10–14 days (Chapter 26). This is the lane where "this week's quoting reality" bites hardest.
- **Intra-GCC** movement is dominated by **road** (Chapter 24) — there is no integrated regional rail for general cargo yet (though Etihad Rail is emerging).
- **Sea-air through Dubai/Sharjah** (Chapter 20) is a natural WorldZone product for Far-East → GCC/Europe cargo wanting speed below air cost — well suited to **spare parts**.

What a team member should know per lane

For each corridor you work, build a mental file (the same discipline as NAFL's export file, Chapter 9):

- Typical **transit times** (realistic, including current rerouting).
- Main **carriers and services**, and **direct vs transhipment** options.
- **Customs** specifics at each end (duty, free-zone vs local-market, documentation).
- Seasonal or disruption factors affecting **rate and space**.

FOR THE NEW TEAM MEMBER

Learn the **China → GCC** lane first — it's the volume corridor you'll quote most — then **Europe → GCC**, then the owned-network **India ↔ GCC**. Know **Jebel Ali** intimately (it's the hub everything routes through), the Chinese load ports, the North-European and Mediterranean origins, and the GCC ports per country. Then layer on the disruption awareness from Chapter 26, because on these specific lanes the **Red Sea** situation and **GCC road** logistics are not theory — they're this week's quoting reality. And carry the cargo mix in your head: **FMCG, furniture, pharma, raw materials, spare parts** each behave differently in a box.

What to take from this chapter

1. The two primary corridors are **China → GCC** and **Europe → GCC**, hubbed at **Jebel Ali / the UAE**; **India ↔ GCC** is the owned-network lane.
2. The cargo mix is **FMCG, furniture, pharmaceuticals, raw materials and spare parts** — each with its own handling, charging basis and documentation.
3. These lanes are shaped by **Malacca/Hormuz, the Red Sea/Suez**, and **intra-GCC road** — current, not abstract; Europe → GCC is the most disruption-exposed.
4. Build a **per-lane mental file**: transit times, carriers, customs, disruption factors.

The Life of a Shipment

One shipment followed end to end — enquiry to delivery — tying together every concept in this book as it actually happens at WorldZone.

This chapter puts the whole book to work. We follow a single, representative shipment from first enquiry to final delivery, pointing back to the chapter behind each step — the way NAFL teaches its Bayer/Pharmimport case (Chapter 9), but framed as a WorldZone movement on one of its **primary trade lanes** (Chapter 30). Read this once you've read the rest; it's where the pieces click together.

> ***The scenario.*** *An exporter in **Ningbo, China** ships a mixed consignment of **FMCG goods and automotive spare parts** to a buyer in **Dubai**, terms **CIF Jebel Ali**, payment under an **irrevocable letter of credit**. The cargo is a **full 40′ container (FCL)**, ~24 tonnes. WorldZone's **China agent** is the origin office; the **UAE office** is destination — this is the **China → GCC** lane, one of WorldZone's two busiest (Chapter 30).*

Step 1 — Enquiry and the facts (Ch. 9)

The UAE office receives the enquiry and establishes the facts before quoting: nature of goods (FMCG + spare parts — check for any **dangerous goods**, e.g. aerosols or batteries in the FMCG mix, Ch. 21), volume **and** weight, value (for insurance), urgency, and the **Incoterm** (CIF — so WorldZone arranges carriage **and** insurance to the destination port, Ch. 4).

Step 2 — Mode and the chargeable unit (Ch. 3, 11, 13)

A full container load of mixed FMCG and spare parts → **FCL**, priced **per 40′ box** regardless of how full (Ch. 13). The team confirms the cargo cubes out within a 40′ (≈67.7 CBM, Ch. 11) and that the heavy spare parts are loaded **low and evenly** so the box is neither overweight on an axle nor top-heavy (Ch. 22). Had this been a part-load it would have gone **LCL** on the W/M rule and been **consolidated** — but here one buyer fills the box.

Step 3 — The quote (Ch. 5)

WorldZone quotes **all-in**: base ocean rate per 40′, plus surcharges (**BAF/LSS**, **THC** at both ends, **DOC**), insurance (CIF requires it), and inland delivery — with a **stated validity date** and the Incoterm scope spelled out. On the China → GCC lane rates move fast with capacity and fuel, so validity is short and stated in writing. Itemised or lump-sum to the customer's preference.

Step 4 — The letter of credit check (Ch. 6)

Because payment is under an **irrevocable L/C**, the team checks the credit's terms can be met — latest shipment date, documents required, transhipment allowed or not — *before* booking. Every document to follow must match the credit exactly, or the seller's payment is at risk.

Step 5 — Booking and origin handling (Ch. 9, 11, 18)

The **China origin agent** books space with the line, arranges collection from the factory (**pre-carriage**, Ch. 24), and supervises **stuffing** of the 40′ — heavy spare parts low and evenly spread, FMCG above, everything restrained (Ch. 11, 18). It clears the goods for **export** from China.

Step 6 — Documents (Ch. 8)

The origin office prepares and checks the **import document set** every GCC inbound needs — **Commercial Invoice**, **Packing List** and **Certificate of Origin** — plus the **Bill of Lading** and the **insurance certificate** (CIF). All must agree with each other and with the L/C. The set is transmitted ahead to the UAE office so clearance can be pre-prepared.

Step 7 — The main leg, tracked (Ch. 12, 22)

The box sails on a mainline service Ningbo → Jebel Ali (a core deep-sea leg, ~16–22 days depending on routing and market). WorldZone **tracks the shipment directly on the carrier's / shipping line's own website** — the company keeps no separate tracking portal, so the line's milestones (departure, transhipment, ETA) are the single source of truth. Transit is built from **every leg** plus a safety margin (Ch. 9), accounting for current **market conditions** — fuel surcharges, Red Sea rerouting (Ch. 26) — not a textbook direct time. If something goes wrong en route, the desk handling the shipment owns it first, then escalates to the Operations Team (Ch. 28).

Step 8 — Insurance in force (Ch. 7)

Cover is arranged to **CIF + 10%**, on appropriate terms (**Institute Cargo Clauses**, plus war/SRCC if the route needs it), **warehouse-to-warehouse**, so there is no gap in coverage to the buyer's premises.

Step 9 — Arrival and customs (Ch. 10)

At Jebel Ali the **UAE office** takes over: obtains the **Delivery Order** from the line against the B/L, files the **electronic customs declaration** (Dubai Trade / Mirsal 2), classifies the FMCG and spare parts by their separate **HS codes**, and pays the **GCC ~5% duty + VAT** (or uses **free-zone/bonded** status if the cargo is for re-export). The sealed **FCL** is released for delivery — no de-stuffing at the port, since one buyer owns the whole box.

Step 10 — Delivery and invoicing (Ch. 9, 20)

The goods are trucked to the buyer's premises (**on-carriage**, Ch. 24) — completing the **door-to-door** movement. WorldZone issues its invoice. The L/C documents flow through the banks (Ch. 6) so the Mumbai seller is paid against a compliant presentation.

The whole book in one shipment

THE CHAIN OF CONCEPTS

Enquiry → **Incoterm** (4) → **chargeable unit / FCL vs LCL** (3, 13) → **all-in quote** (5) → **L/C check** (6) → **booking + stuffing** (11, 22) → **documents** (8) → **vessel/main leg + tracking** (12, 26) → **insurance** (7) → **customs** (10) → **delivery** (24). Every chapter, in one movement.

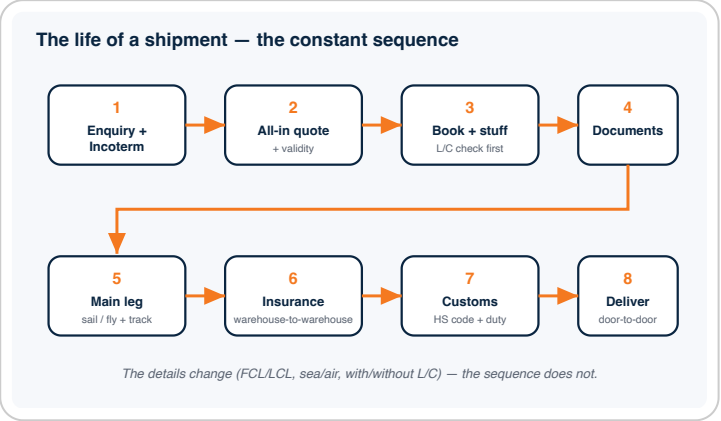

FIGURE 31.1 The constant sequence — locate yourself on it when a live shipment stalls.

FOR THE NEW TEAM MEMBER

This is the shape of nearly every job that crosses your desk — the details change (FCL vs LCL, air vs sea, which Incoterm, with or without an L/C) but the **sequence** is constant. When you're unsure what comes next on a live shipment, find where you are on this chain and the next step follows. On an inbound GCC lane like this one, WorldZone is itself the **trusted destination office** (Steps 7–10) that NAFL says every shipment needs — working to one instruction with the origin agent abroad. On an **India ↔ GCC** move, *both* ends are WorldZone's own offices.

What to take from this chapter

1. Every shipment follows the same **sequence** — Incoterm → unit → quote → book → document → ship → clear → deliver.
2. The **Incoterm and the L/C** set the scope and the document discipline for everything that follows.
3. On inbound GCC lanes WorldZone is the **reliable destination office** working to one instruction with the origin agent; India ↔ GCC is owned end-to-end.
4. When in doubt on a live job, **locate yourself on the chain** — the next step follows.

PART IX — REFERENCE · CHAPTER 32

Glossary & Quick Reference

The terms, codes and numbers from across this handbook in one place — for fast lookup on the job.

A working reference to the terms, abbreviations and key numbers used throughout this book. Use it to settle a definition quickly; the chapter reference points you to the full explanation.

Quick numbers to memorise

THE NUMBERS A FORWARDER CARRIES IN THEIR HEAD

- **Weight/volume ratios:** sea **1:1** (1 t = 1 CBM) · land **1:3** · air **1:6** (1 CBM = **167 kg**) — *Ch. 3*
- **Container capacity:** 20' ≈ **33.2 CBM** · 40' ≈ **67.7 CBM** · max gross ≈ **30.5 t** — *Ch. 11*
- **TEU:** 20' = 1 TEU · 40' = 2 TEU — *Ch. 11*
- **Insurance value: CIF + 10%** (up to 20%) — *Ch. 7*
- **UAE transhipment duty deposit: 5% of CIF**, refunded if re-exported within **45 days** — *Ch. 20*
- **GCC common external tariff:** generally **~5%** + VAT — *Ch. 10*
- **Tonnes:** short = 2,000 lb · long = 2,240 lb · metric = 1,000 kg — *Ch. 3*

Glossary of terms

AOG (Aircraft On Ground) — the top-priority air-freight tier: emergency movement of aircraft spares to return a grounded aircraft to service; speed beats cost (next flight out / on-board courier / charter), often dangerous goods. *Ch. 19*

AWB (Air Waybill) — air-freight contract/receipt; non-negotiable, *not* a document of title. *Ch. 8, 15*

BAF / CAF — Bunker / Currency Adjustment Factor: fuel and exchange surcharges. *Ch. 5*

Bill of Lading (B/L) — ocean document that is receipt + contract of carriage + document of title; "clean" vs claused; "to order" = negotiable. *Ch. 8*

Bonded warehouse — premises under customs custody where duty is deferred until goods enter the local market. *Ch. 10, 19*

Break-bulk — cargo loaded piece-by-piece, not containerised or bulk. *Ch. 14*

Carnet (TIR / ATA) — customs document for duty-free transit (TIR) or temporary import (ATA). *Ch. 10*

CBM (cubic metre) — L × W × H in metres; the unit of cargo volume. *Ch. 3*

Chargeable weight — the greater of actual gross weight and volumetric weight. *Ch. 3*

CFS (Container Freight Station) — where LCL cargo is consolidated/de-consolidated. *Ch. 13*

Consolidation / Groupage — combining LCL loads into one FCL box; the forwarder's best-margin business. *Ch. 13*

Document of title — a document whose lawful holder controls the goods (the ocean B/L; *not* the AWB). *Ch. 8*

e-B/L / e-AWB — electronic bill of lading / air waybill. *Ch. 25*

EDI / EDIFACT — electronic data interchange; the UN cross-industry standard. *Ch. 25*

FCL / LCL — Full / Less-than Container Load. *Ch. 13*

Forwarder (freight forwarder) — the "architect of transport"; coordinates carriers on the customer's behalf, as agent or principal. *Ch. 2*

Free zone — duty-suspended area enabling storage/re-export without local duty (e.g. Jafza). *Ch. 10, 19*

General Average — cargo owners' proportional contribution to a sacrifice made to save ship and cargo. *Ch. 7*

GRI / PSS — General Rate Increase / Peak Season Surcharge. *Ch. 5*

HS code (Harmonised System) — international goods classification driving duty and statistics. *Ch. 10*

Incoterms® 2020 — ICC trade terms splitting cost and risk: EXW, FCA, FAS, FOB, CFR, CIF, CPT, CIP, DAP, DPU, DDP. *Ch. 4*

Institute Cargo Clauses (A/B/C) — marine insurance cover: A = all-risks, B = named perils, C = major casualties. *Ch. 7*

Letter of Credit (L/C) — bank undertaking to pay against strictly compliant documents. *Ch. 6*

Master B/L vs House B/L — carrier's B/L to the forwarder vs forwarder's B/L to each shipper (NVOCC). *Ch. 13*

MTO — Multimodal Transport Operator: forwarder taking carrier responsibility across modes (FIATA FBL). *Ch. 20*

NVOCC / VOCC — Non-Vessel-Operating / Vessel-Operating Common Carrier. *Ch. 2*

Pre-carriage / On-carriage — inland leg before the port / after the port. *Ch. 24*

Reefer — refrigerated container or vessel. *Ch. 11, 12*

Ro-Ro — roll-on/roll-off vessel for wheeled cargo. *Ch. 12*

Sea-Air — sea long-haul + air final leg; faster than sea, cheaper than air; Dubai is a hub. *Ch. 20*

Subrogation — insurer taking over the insured's right of recovery after paying a claim. *Ch. 7*

TEU — Twenty-foot Equivalent Unit. *Ch. 11*

THC — Terminal Handling Charge (origin/destination). *Ch. 5*

3PL / 4PL — integrated logistics provider / supply-chain orchestrator. *Ch. 27*

ULD — Unit Load Device: standard air pallet/container. *Ch. 19*

UN Dangerous Goods classes 1–9 — explosives, gases, flammable liquids, flammable solids, oxidisers, toxic/infectious, radioactive, corrosive, miscellaneous. *Ch. 21*

Volumetric weight — volume converted to weight by the modal factor (air 1 CBM = 167 kg). *Ch. 3*

W/M (Weight or Measure) — LCL/sea charging on weight or volume, whichever is greater. *Ch. 3, 13*

The shipment sequence (quick reference)

> *Enquiry →* ***Incoterm → chargeable unit →*** *FCL/LCL &* ***consolidation → all-in quote (with validity) → L/C check → book + stuff → documents*** *(consistent!) →* ***vessel / main leg → insurance (CIF+10%, w-to-w) → customs (HS, duty/free-zone) → delivery + invoice.*** *Ch. 31*

FOR THE NEW TEAM MEMBER

Keep this chapter bookmarked. In your first weeks you'll reach for the **quick numbers** and the **shipment sequence** constantly — they're the scaffolding everything else hangs on. The rest of the glossary is here for the moment a document or a colleague uses a term you haven't met yet. Everything in WorldZone's core services (Chapter 28) is built from these building blocks.

This completes the WorldZone Book. Everything in the original NAFL handbook is contained here — brought up to date — together with the modern industry, technology and WorldZone-specific knowledge the old book never covered. One World, One Zone.