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Logistics of Sea Containers

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English only

This document details the logistics and movement of sea containers or container “flow” as it is commonly referred to, associated cross-border activity and inspection points.

1) Movement of sea containers

Most people assume that containers are exported full from one country, unpacked in another and returned empty to the original country to repeat the cycle. This actually very rarely happens as it is primarily not a cost-effective way of conducting business.

For a shipping company the ideal flow is one where containers are exported full to another country that has a balanced requirement i.e. the number and size/type of import full containers matches the number and size/type of containers required for export. However this scenario is very rare if not quite far from the reality of the situation. See Figure 1.

The reality is that shipping companies move containers to various surplus and demand locations.

Surplus locations are where there are more import full containers than there are requirements for export containers thus generating a surplus of empty containers to be moved to where they may be required for cargoes.

Demand locations are where the number of import full containers is much less than the requirement for export containers and thus additional empty containers must be moved in to cover the cargo demand.

Note that demand and surplus varies with different size/types of container and it is possible for a location to be e.g. surplus for dry containers and deficit (demand) for reefer containers.

Most major shipping lines also run a Transshipment operation i.e. so-called “hub and spoke” concept (similar to a bicycle wheel, with a hub in the centre and spokes radiating out from the centre hub). Mainline vessels operate between (Transshipment) hubs and large ports and smaller feeder vessels operate to and from the Hub Port and smaller ports in surrounding countries.

Add to this so-called “inland “flow which may include inland terminal, barge, rail, and road and associated cross-border movements.

Surplus containers may also move directly from unpacking locations to ocean terminals, which shipping companies generally do not own or operate. In addition, containers may be involved in triangulation, so-called “street turns”, where the container, after unpacking by the consignee, is transferred directly to the next export shipper’s premises for packing without going near a repair depot. In high demand locations e.g. China, containers may be released for packing direct from ocean terminals also without going near a repair depot. See Figure 2.

Thus the reality is that container flows are often quite complex involving border crossings, many changes of transport mode and control and many actors and offering few chances for inspection and intervention. See Figure 3.

2) So, when and where does a container get inspected and for what?

There are many points of interchange where the control of a container changes hands e.g. all changes of transport mode, in and out of terminals and depots. At all these points an interchange receipt is issued, in many cases electronically, which may or may not contain information on the condition of the container but will certainly not have comments on cleanliness. Interchange inspections, if at all carried out, are necessarily cursory at best and may not involve the shipping company.

The exception is at repair depots where a container will be fully assessed by the depot on behalf of the shipping company for both damage and cleanliness in terms of suitability for cargo.

In terms of control, especially as related to cleanliness in terms of transport of plant pests, the only place and time where a shipping company has the ability to do anything to a container is during the period in a repair depot. Note however that, as mentioned above, many containers may not go through a repair depot before packing or movement empty. The consignee is contractually committed to clean the interior of the container, in accordance with the Bill of Lading terms with the Shipping Company, upon unpacking the container. The truck driver picking up the unpacked container for haulage to an export shipper can be required by the shipping line to inspect the container, but is not in a position to address deficiencies. The shipper, in particular in triangulation situations, has an interest in ensuring that the received container is clean and does not have major defects. In situations where the container is not clean or has major defects, the shipper may request a replacement from the shipping line.

Depots do not typically inspect the roofs of containers or the undersides for soil contamination, due to, respectively, the problems associated with working at heights and restricted access to underside components while on transport vehicles. However the majority of depots are effectively “sterile” with e.g. concrete or other non-earth surfaces which prevent stored containers from soil contamination. This in comparison to the places with the most potential for contamination both of the cargo and the container, namely pack points, which are not under control of shipping lines at all. It is at these pack points where the effect of the Code of Practice for Packing of Cargo Transport Units (CTU code) is expected to be most beneficial in avoiding contamination as the CTU code clearly allocates responsibility for pack points to “ensure that measures are put in place to prevent the movement of plants, plant products and visible pests, such as closing doors and tarpaulins once packing has started but not taking place and lights that minimize the attraction of insects”.

Inspection at ocean terminals, which as noted are not typically owned or operated by shipping companies, is often mentioned as the ideal place for identifying and dealing with contamination of containers. However for several reasons, not the least of which are safety and cost, this is not feasible. Modern container terminals often have automatic container gates and to attempt to carry out any form of detailed inspection on terminal would entail putting lives at risk and accepting huge additional operational costs and delays in already congested terminals. In addition it is extremely unlikely that any modern terminal has space to spare to allow the creation of a safe inspection area.

In addition, just as shipping lines are not in a position to confirm the cleanliness of the contents of containers, neither are container terminals. The packing of the goods into the container is the sole responsibility of the shipper or any packer acting on its behalf. No other party in the maritime containerised transportation chain is or can reasonably be held responsible for the content and the nature of what a shipper packs into the container.

3) To summarise

Container flows are complex and may involve multiple border crossings, handover of control and transport modes. There are many actors involved and the shipping company has little direct control or access to containers with the exception of repair depots, which are not always part of every trip.

The most likely point at which contamination could occur is the pack point over which shipping companies have no control. The Shipper exerts such control, either directly or via contractual agreement with the packer. The revised CTU Code has provided guidance for the prevention of contamination to Shippers and those who pack containers but Shipping Companies have no means of determining how effective this has been.

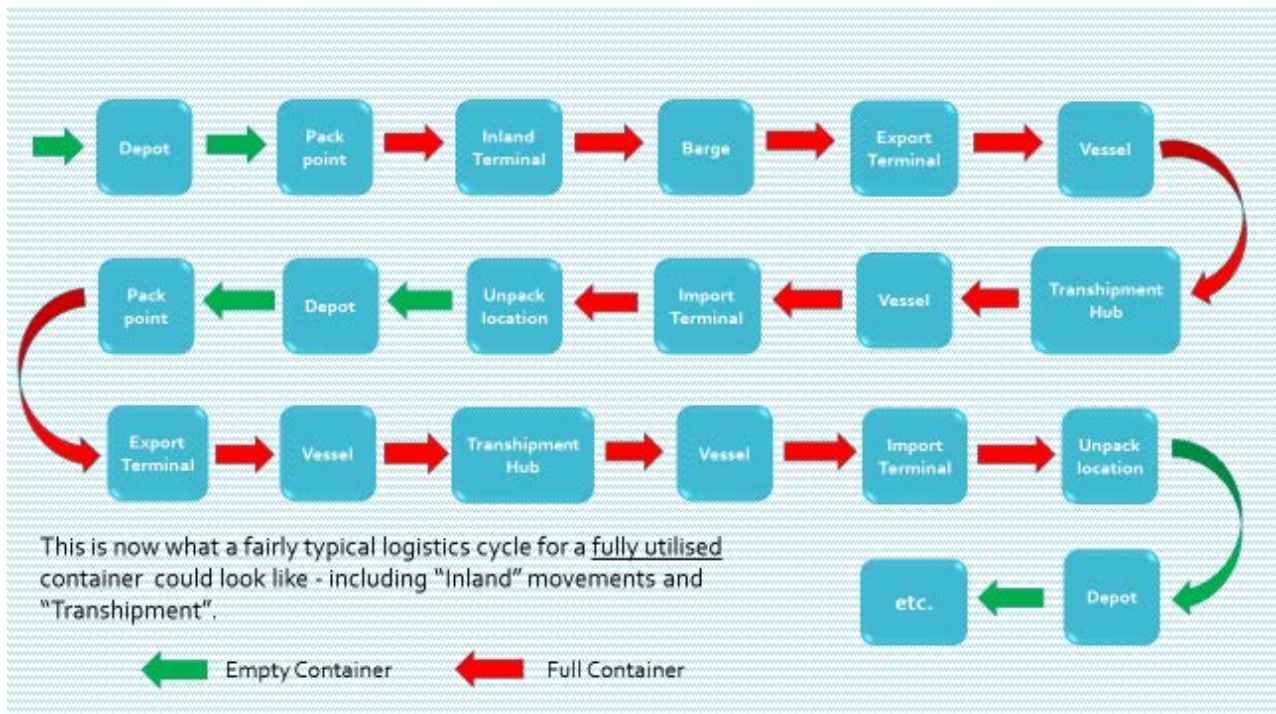


Figure 1. Optimal logistics cycle for a fully utilised container.

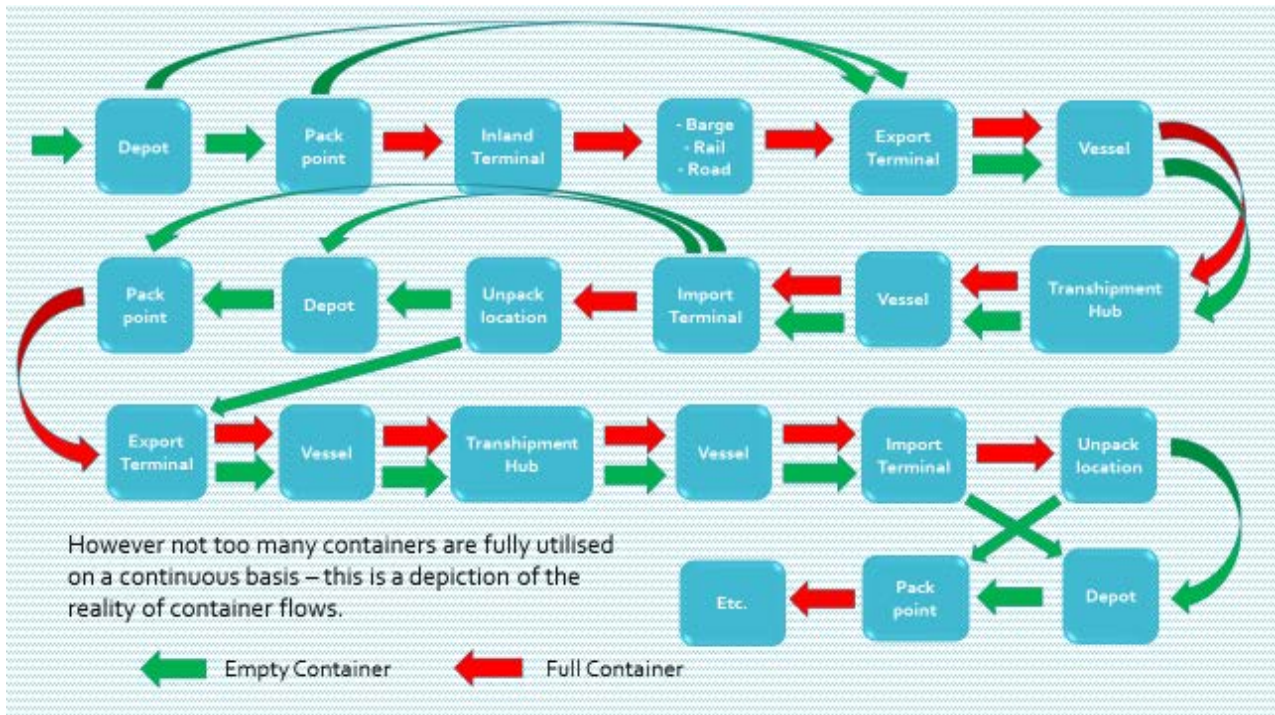


Figure 2. Realistic logistics cycle for containers in flow.

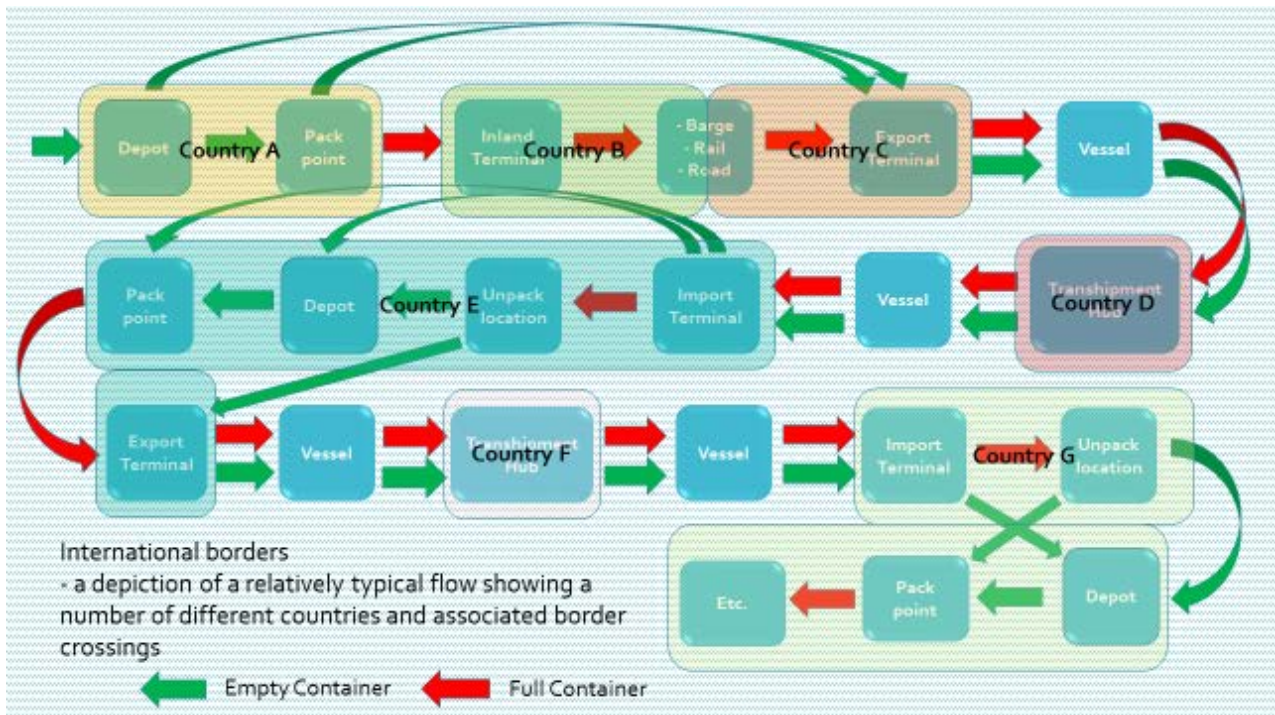


Figure 3. Typical logistics cycle showing border crossings.