

Summary

Currently Interforest is exploring the possibilities of containerizing sawn timber to make use of the imbalance in containers at the port of St. Petersburg.

The goal of this report is to analyze possibilities and compare advantages and disadvantages for a simple and cheap way, to stuff timber into containers and strip those containers at various sites and make models to prove the method can work. With the additional system requirements:

- Stuffing and stripping needs to be carried out with minimal damages to the timber.
- Handling has to be quick.
- Safety of employees has to be secured.
- Costs for the stuffing and stripping system have to be minimal.
- The system needs to be compatible with other systems.

Currently stuffing containers is done by stuffing centres. (Figure 0.1) The filled containers are shipped by liner companies to a port. From the port the containers are brought to a stripping centre. At the stripping centre the timber is stripped from the container. Finally a taut-liner truck picks up the timber from the stripping centre and delivers the timber to the final destination.

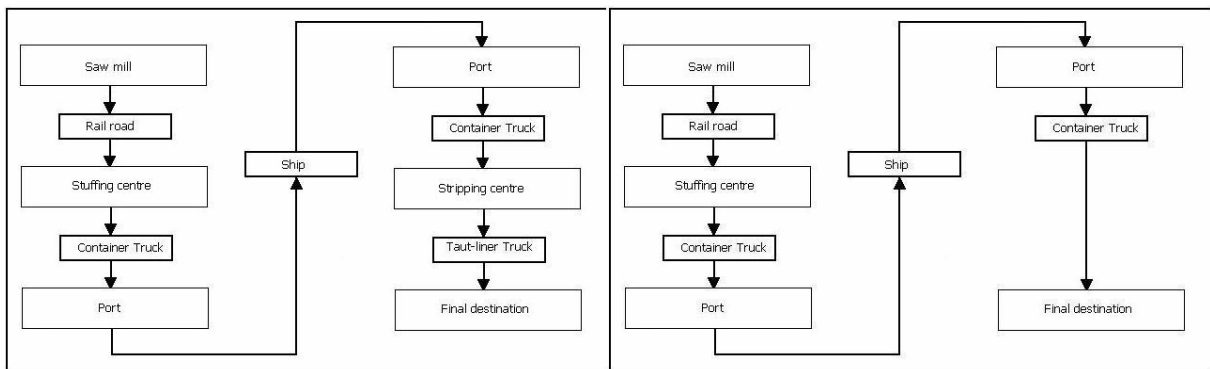


Figure 0.1: Left: Current logistic chain. Right: Proposed logistic chain.

A new logistic chain proposed by mister Jongebreur suggests leaving out the stripping centre and directly delivering the container to the final destination to be stripped at the final destination (Figure 0.1)

In the proposed logistic chain the stripping function is moved to the final destination of the timber.

The advantages to change the logistic chain are:

- Cost reduction for services delivered by the stripping centre like storage and stripping.
- Cost reduction for the usage of taut-liner services.
- No need for stripping centres near the final destination of the timber.

Disadvantages:

- Container handling has to take place at the final destination.
- Small scale stripping makes the payback period for investments longer.
- Storage of the timber has to take place at the final destination.
- The container loads have to be dedicated for one final destination.

The container handling conventionally done by reachstackers or overhead cranes is not needed when using a loading platform. Reducing handling time per container by 15 minutes and reducing personnel costs make a loading platform the best alternative. At a stuffing centre the use of a loading platform can reduce the costs by 30% per ton in comparance to the conventional way of stuffing with the DeMach system without a platform.

LoadPlate is a loading platform with an integrated stuffing mechanism which can move and compensate for the movement of the container when the weight of the load is transferred from the platform into the container.

Stuffing timber using the LoadPlate is the fastest safest and most cost effective means of stuffing. The LoadPlate is integrated in a loading platform. The LoadPlate is compatible with non-palletized bundles, palletized bundles and stripping bands.

LoadPlate makes use of a plastic loading board reducing the chance of damage to the timber when being stuffed. At a stuffing centre the use of LoadPlate can reduce the costs by 51% per ton in comparance to the conventional way of stuffing with the DeMach system without a platform.

An unloading platform has to be designed to reduce container handling costs at the stripping site. Preferably the unloading platform has to have the capability to compensate for movement of the container when the weight of the load is transferred from the container on to the platform. This can be accomplished by making a design like the LoadPlate platform. Another option is a concrete platform which can be made at lower costs. The disadvantage of the concrete platform is the disability of compensating for container movement during stripping and so risking damage to the timber.

Palletizing bundles will increase the compatibility with stripping systems and decrease the chance of damaging the timber. A sledge pallet concept is a way to make all types of stuffing and stripping compatible with each other. The disadvantages of palletizing timber are the reduction in possible stacking height of the bundles and the costs per pallet.

Actiw stripping bands and the DeMach Rollout system enable small forklift trucks to strip a container in a short time.

This report shows:

- The stuffing costs at the stuffing centre can be reduced 51% by using LoadPlate.
- Stripping costs can be reduced by using unloading platforms in combination with DeMach Rollout.
- Changing the logistic chain can be profitable in certain situations when enough containers are received (at least 2 containers a month using a concrete platform) by the final destination.