



**Good Practices** 

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Collecting water after cleaning containers

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#### 1.1 Description

Container shipping is often regarded as the backbone of international trade. There is a large variety in the types of containers that exist, from standard dry shipping containers to reefer (refrigerated) containers. Within sea shipping, around 60% of cargo and goods is being shipped in large containers (Franklin, S., 2022). Within inland waterway transport in the EU, container transport only represented around 10% in 2022 (Eurostat, 2023). Cleaning and disinfection need to occur, as containers come in contact with harmful pathogens like mould, bacteria and viruses together with pollen, liquids and other dangerous materials (VS&B Containers Group, 2021). Container cleaning is mainly being executed by the shipping line, which charges the consignee a container cleaning fee after the container has been imported and returned to the container depot (Cargoflip, n.d.). The cleaning process mainly happens in the container depot (an area where shipping containers are stored for transshipment) of a shipping company. These depots are often located within a port area.

#### 1.2 The aim of collecting water

Treatment of wastewater that is being used for cleaning containers means that this water can be re-used again for cleaning containers or even for different purposes. The requirements of cleanliness of the re-used water are largely dependent on the purpose of the wastewater. This can include cleaning containers, but also agriculture, landscaping/irrigation, dust control (relevant in ports), groundwater, cooling water or toilet flushing. Benefits of water recycling include (United States Environmental Protection Agency, 2017):

- Decrease diversion of water from sensitive ecosystems, as plants, wildlife and fish depend on sufficient water flows to their habitats. Lack of adequate flow can cause deterioration of water quality and ecosystem health.
- In some cases, the impetus for water recycling comes not from a water supply need, but from the need to eliminate or reduce wastewater discharge into the ocean, estuary or streams. For example, high volumes of treated wastewater discharged from the San Jose/Santa Clara Water Pollution Control Plant into the south San Francisco Bay threatened the area's natural salt water marsh. In response, a \$140 million recycling project was completed in 1997.
- When pollutant discharges to oceans, rivers, and other water bodies are curtailed, the pollutant loadings to these bodies are decreased. Moreover, substances that can be pollutants when discharged to a body of water can be beneficially re-used for irrigation, such as water with high levels of nutrients (nitrogen).
- As the demand for water grows, more water is extracted, treated, and transported sometimes over great distances which can require a lot of energy. If the local source

of water is ground water, the level of ground water becomes lower as more water is removed and this increases energy required to pump water to the surface. Recycling water on site or nearby reduces the energy needed to move water longer distances or pump water from deep within an aquifer.

### 1.3 Organisation that collects water

• Contargo (an inland terminal and barge operator which transports containers between from Northwestern European seaports and its hinterland).

#### 1.4 Stakeholders

- The port authority: although the port authority typically does not operate terminals, the good practice can be communicated and promoted to container terminal operators. The port authority can facilitate by providing surrounding infrastructure to collect water and bring it to water treatment facilities as efficiently as possible. The port authority could also use recycled water for irrigation purposes for example.
- **Container terminal operators:** They are responsible for the execution of this good practice. If they can re-use the container cleaning water, it would also be beneficial for them.
- Water treatment facility: Based on the CDNI, there should already be water treatment facilities present within (most) inland ports. However, due to the large amount of water that is necessary for large scale container cleaning, it could be possible that the water treatment facilities need to be expanded.
- Other companies within the port area: They could also use the recycled water for other purposes.

## 1.5 Voluntary or mandatory

A regulation on water reuse has been in use from 26 June 2023, in which the Commission will help EU countries to fully apply the new rules. However, this Regulation does not set out minimum amounts of water that needs to be re-used in different sectors, but is mainly aimed at agriculture, while setting out (EC, n.d., 2022):

- Harmonised minimum water quality requirements for the safe reuse of treated urban wastewaters in agricultural irrigation.
- Harmonised minimum monitoring requirements.
- Risk management provisions to assess and address potential additional health risks and possible environmental risks.
- Permitting requirements.
- Provisions on transparency, whereby key information on every water reuse project is made available to the public.

However, as this mainly sets out monitoring, quality and permitting requirements, there is no direct obligation for container terminals to implement this good practice, thus making it voluntary.

## 1.6 Realised/potential impact

The amount of water that can be saved by re-using depends highly on the method of cleaning and the size/type of container. High pressure washers are a common way of cleaning containers. As data is scarce regarding the amount of water it takes to clean a container, AVA of Norway, (2023) indicates that a high-pressure washer uses around 6 to 12 litres per minute. This water can also be collected and deposited at a wastewater treatment plant which are often present in ports (also due to CDNI<sup>1</sup> Regulation) and re-used within the port area or elsewhere.

## 1.7 Possible obstacles

- To be able to clean large quantities of water that are released when cleaning containers, sufficient wastewater treatment facilities should be present. When this is not sufficient, it could lead to high financial investment costs.
- Infrastructure should be present to catch the water that is released when cleaning containers and it should be transported to the wastewater treatment facility.
- The most effective method would be increased efficiency when cleaning the containers. The less water is being used, the less water has to be caught and transported to the wate water treatment facility. This should be taught to employees.

## 1.8 Key learnings

- Cleaning of containers uses a lot of water, which can easily be re-used when it is cleaned in a wastewater treatment facility, which are generally present within inland port areas.
- In order to realise this, high investment costs could be necessary.
- A good starting point would be to teach employees that clean the containers to be as efficient as possible with water. This reduces the amount of water that needs to be transported to waste water treatment plants.

#### 1.9 Sources

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<sup>&</sup>lt;sup>1</sup> CDNI is the Convention on the collection, deposit and reception of waste produced during navigation on the Rhine and inland waterways.

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