



Giurgiulesti International Free Port

Report on Carbon Footprint 2023



April 2024

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I. INTRODUCTION

Since 2016, ICS Danube Logistics SRL (Danube Logistics) has been advocating sustainable business practices by producing an annual carbon footprint report for its operations at the Giurgiulesti International Free Port (GIFP). The current inventory, covering the period from 1 January to 31 December 2023, plays an important role in Danube Logistics' commitment to environmental protection. To ensure transparency and credibility, the Carbon Footprint Report adheres to the widely accepted Greenhouse Gas (GHG) Protocol, an internationally recognized carbon calculation method that is compatible with other GHG standards, such as ISO 14064, and allows for integration into national and international GHG registries.

The Carbon Footprint Report conducts a thorough analysis that includes various data on energy production and consumption from stationary and mobile emission sources. These emission sources primarily include CO₂ emissions and CO₂ equivalent emissions. Danube Logistics' use of fossil fuels for the combustion of port and transport equipment, heating and electricity consumption for port operations results in emissions of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Technical gas emissions from combustion by-products and F-gas emissions from refrigeration units were not included in the Footprint calculation.

II. BOUNDARIES OF THE CO₂ FOOTPRINTING

Greenhouse gas accounting involves the selection of the following two types of boundaries:

1. Organizational boundaries

Danube Logistics uses an audit approach to merge and report greenhouse gas emissions, which includes all emissions that the company can control and influence. This approach applies to all activities conducted by Danube Logistics at the Giurgiulesti International Free Port.

It is important to note that the calculation of the carbon footprint does not include the residential companies operating on the premises of GIFP, as their activities are not under the control of Danube Logistics and access to accurate information is not guaranteed.

2. Operational boundaries

The total territory of GIFP currently under operation and development comprises 55.2 ha.

The operational activities conducted within the following areas are included in the scope of this report (fig.1):

- General cargo terminal, dry bulk storage area, container yard.
- Oil terminal area including oil jetty, tank farm, auto loading facility and railway facility.
- Office Park.
- Business Park areas under the control of Danube Logistics, e.g. workshop warehouse.
- Infrastructure at GIFP premises including roads and parking areas.

The following areas are excluded:

- Grain terminals with access to the Danube and Prut rivers.
- Business Park areas leased by third parties include grain storage facilities, vegetable oil reservoirs, vegetable oil crushing plant and tanks for ethanol/spirits/fertilizer.

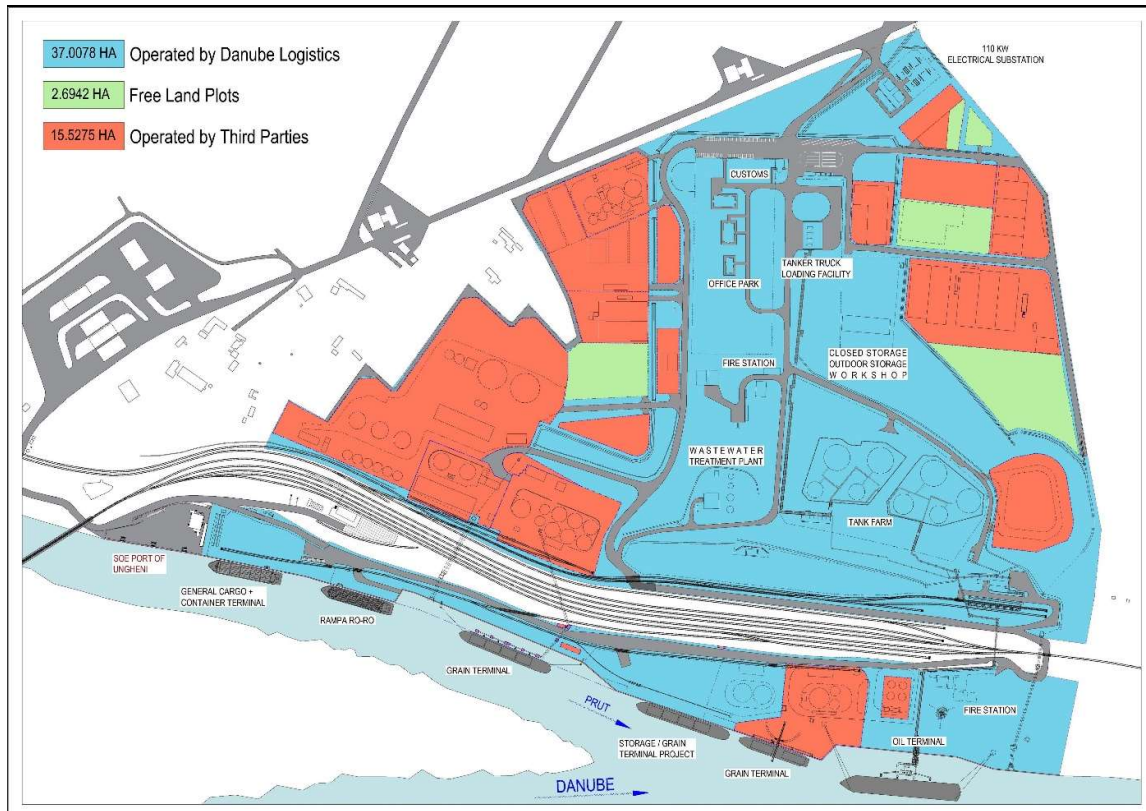


Figure 1. Port area that was considered for the calculation of CO2 emissions (shown in blue)

Following the recommendation of the Guidance Document "Carbon Footprinting for ports" issued by the World Ports Climate Initiative (WPCI) in 2010, the report focus is on emissions within scope 1 and scope 2:

a) Direct emissions (scope 1)

- Diesel and gasoline engines (kg CO₂/liter).
 - Fuel used by cargo handling equipment.
 - Fuel used on road and non-road vehicles.
 - Fuel used by harbor crafts (tugboat) within the port waters.
 - Fuel used by stationary sources.
 - Fuel used by employee vehicles on the territory of GIFP.
- Burning of natural gas (kg CO₂/m³)
 - Natural gas used for heating buildings in GIFP's office park.

b) Indirect emissions (scope 2)

- Consumption of electricity imported to GIFP (kg CO₂/kWh).
 - Electricity used by the pumps for the oil terminal auto loading facility.
 - Electricity used for the office park, the workshop, outside lighting and railway facility pump.
 - Electricity used for the terminal area including lighting.

III. CALCULATION OF GHG EMISSIONS

1. Activity-based approach

Danube Logistics has adopted an activity-based approach to calculate its greenhouse gas (GHG) emissions, which involves finding the total emissions for each type of fuel or energy used. To calculate diesel emissions, Danube Logistics records the amount of fuel consumed by each piece of equipment used at GIFF and measures the fuel supply to each piece of equipment using a meter installed on the pump of the bunkering truck. Danube Logistics uses calibrated and certified meters to measure the consumption of natural gas and electricity, enabling exact and reliable tracking of energy use at GIFF.

By relying on measured fuel and energy consumption data for more than 95% of emissions calculations, Danube Logistics ensures a high level of accuracy in its reporting. This approach enables Danube Logistics to identify areas of high emissions intensity and develop targeted measures to reduce the impact of its carbon footprint.

Through its commitment to accurate measurement and reporting of GHG emissions, Danube Logistics is taking proactive steps to promote sustainable business practices. By focusing on accurate measurement, Danube Logistics can develop effective strategies to minimize the environmental impact of its operations.

2. Selection of GHG emission factors

In order to convert energy consumption quantities into GHG emissions, Danube Logistics multiplied the former by emission factors in line with national and international emission standards for the selected resource types. The emission factors used were specific to each energy source and facilitated the conversion of energy consumption quantities into corresponding GHG emissions. Table 1 shows the emission factors used to calculate the Carbon Footprint.

Table 1. Emission factors

Item	Emission factors (EF)	Units
EF diesel	2.68	kg CO ₂ /liter
EF natural gas	1.87	kg CO ₂ /m ³
EF electricity	0.521	kg CO ₂ /kWh

IV. RESULTS

In 2023, the total estimated GHG emissions from Danube Logistics activities at the Giurgiulesti International Free Port site amount to 1,644.5 t CO₂e, an increase of 18.6% compared to 2022 (Table 2). Like previous years, most emissions in 2023 come from Scope 1 - diesel and gas combustion (Table 3). Emissions from CH₄ and N₂O are negligible with a cumulative share of 0.4% of total CO₂e emissions.

Table 2. Total estimated GHG emissions

CO2e in tonnes	Factor	2016	2017	2018	2019	2020 *	2021	2022	2023
CO2	1	858.1	851.3	942.1	906.7	864.3	1,160.4	1,381.0	1,638.1
CH4	25	1.7	1.5	1.9	2.0	1.9	2.6	3.2	3.7
N2O	298	1.2	1.0	1.3	1.4	1.3	1.8	2.3	2.6
Total CO2e		861.0	853.9	945.3	910.1	867.6	1,164.8	1,386.8	1,644.5

* To ensure consistency, adjustments were made to the data for 2020.

Table 3. Share of CO2 Emissions by Scope

Scope	CO2 emissions in tonnes	2023
Scope 1: Fuel and gas consumption	1120.7	68,4%
Scope 2: Electricity consumption	517.4	31,6%
Total CO2	1638.1	100%

a) Fuel consumption (scope 1)

Total fuel consumption was 358,977 liters, resulting in CO2 emissions of 1,085.6 tonnes. This represents an increase of 17% compared to the previous year and is mainly due to the significant increase in transshipment volumes, especially at the cargo terminal, caused by the rerouting of regional cargo supply chains since the beginning of the war in Ukraine. In consequence fuel consumption of cargo handling equipment has increased by 11%. Overall, fuel consumption accounts for 66.3% of the total CO2 emissions in 2023 (see Figure 2).

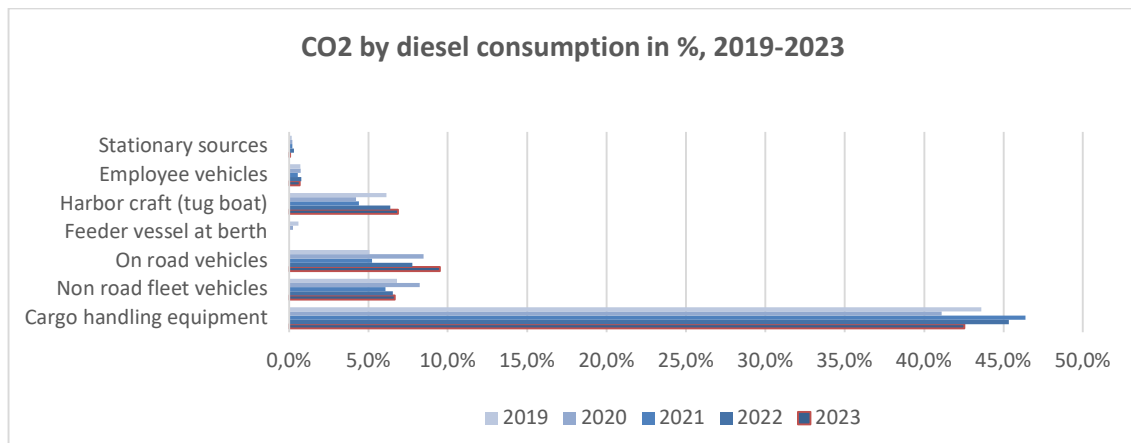


Figure 2. Share of diesel consumption of total CO2 emissions of Danube Logistics in 2019 - 2023

The fuel consumption of the vessels, including the tugboat operated by Danube Logistics to ensure the safe navigation of the vessels, amounted to 41,982 tonnes of fuel, representing 6.9% of the total fuel

consumption. It should be noted that the fuel consumption of vessels can vary from year to year, depending on various factors such as the number and size of vessels serviced in the port and the distance travelled.

As in previous years, the vast majority (95%) of Scope 1 CO₂ emissions were due to fuel consumption. The remaining 5% of Scope 1 emissions were due to consumption of natural gas for heating purposes in the port.

b) Natural gas consumption (scope 1)

In 2023, the consumption of natural gas for heating the buildings in the GIFP Business Park was 18.661 m³. This corresponds to a decrease of 18.8% compared to the gas consumption in 2022, which can be attributed to the milder winter temperatures during this period and to the replacement of the old gas heating systems with new ones.

c) Electricity imported (scope 2)

In 2023, the electricity consumption reached 993,102 kWh, resulting in 517.4 tonnes of CO₂ emissions. The increase of 25.7% in electricity consumption compared to the previous year is mainly due to the growth in truck loading activities at the oil terminal, partially because of the blockage of the Giurgiulesti-Cahul railway section by a landslide in August 2022.

d) CO₂ emission indicator

In order to gain a better understanding of the impact of operational activities on CO₂ emissions and to establish a benchmark for further GHG emissions, the following CO₂ emissions indicator has been calculated (Table 4):

Table 4. CO₂ Emissions indicator

CO ₂ e indicator	2016	2017	2018	2019	2020 *	2021	2022	2023
t CO₂e	858.1	853.9	945.3	911.9	867.6	1,164.8	1,386.8	1,644.5
t DL transshipments	437.142	473.404	567.106	556.082	609.350	962.620	1,220.281	1,491.524
kg CO₂e/ t transhipped	1.97	1.80	1.67	1.70	1.42	1.21	1.14	1.10

* The year 2020 has been adjusted in order to ensure consistency.

The transshipments carried out by Danube Logistics do not consider the transshipments of grain carried out by other terminal operators, the transshipments of vegetable oil or liquid fertilizer. As the increase in the volume of cargo handled in recent years has exceeded the increase of the associated emissions, the emissions indicator has shown a steady decrease from 1.97 kg CO₂e per tonne of cargo handled in 2016 to 1.10 kg CO₂e per tonne in 2023. To further reduce emissions, in November 2023 Danube Logistics put into operation an electrically powered mobile conveyor belt for grain loading.

This trend shows that Danube Logistics has effectively managed to reduce its emissions intensity per unit of cargo handled over the period, demonstrating its commitment to sustainability and environmental protection.

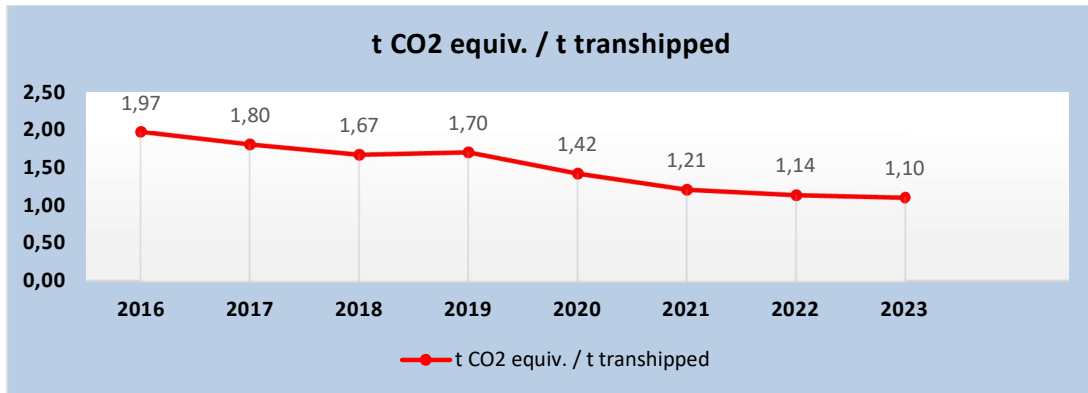


Figure 3. The trend of t CO₂e emissions per tonne of transhipped cargo

V. CONCLUSIONS

Since 2016, Danube Logistics has proved its commitment to environmental protection by producing an annual carbon footprint report for its GIFP operations. Adherence to internationally recognized standards, such as the Greenhouse Gas (GHG) Protocol, ensures transparency and credibility in reporting.

The report shows a significant increase of 18.6% in GHG emissions from Danube Logistics activities at Giurgiulesti International Free Port in 2023 compared to the previous year. This increase is mainly due to a 22.2% increase in transshipment activities at the cargo terminal. However, it's worth noting that despite this increase in total emissions, the calculated CO₂e emissions per tonne of cargo handled have continued to decrease, as shown in Figure 3.

Danube Logistics is committed to managing its environmental impact by tracking and monitoring its GHG emissions and implementing measures to reduce its carbon footprint. The report shows that the company has made progress in reducing emissions per tonne of cargo handled, primarily through the increased use of more fuel-efficient cargo handling equipment and newer lighting technology. In late 2023, GIFP took another important step towards greener and more efficient operations at our general cargo terminal with the purchase of a mobile grain ship loader. The electrically powered ship loader allows two trucks to be unloaded simultaneously, achieving a real loading rate of up to 300 tonnes per hour.

To further reduce its carbon footprint, Danube Logistics is implementing several measures which include the procurement of further electric powered equipment and is investigating the possibility of installing renewable energy sources.

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