Giurgiulesti International Free Port

Report on Carbon Footprint 2021

March 2022

DANUBE LOGISTICS

Contents

I. INTRODUCTION

Since 2016, Danube Logistics SRL (Danube Logistics) has developed annual Carbon Footprint Reports for its operational activities on the premises of Giurgiulesti International Free Port (GIFP). Danube Logistics manages and operates GIFP, while other companies with resident status carry out certain activities in the port. To calculate the carbon footprint, Danube Logistics takes both a control-based and activity-based approach. The current inventory relates to the period from 1 January to 31 December 2021.

The Carbon Footprint Report has been prepared in accordance with the Greenhouse Gas (GHG) Protocol, which is the most widely used international carbon calculation methodology and is compatible with other GHG standards, such as ISO 14064, which can be integrated into national and international GHG registries.

The analyzed data mainly concerns energy production and consumption in both stationary and non-stationary emission sources. The emission sources included in the carbon footprint refer to generated CO2 emissions respectively to the emissions equivalent to CO2. Carbon Dioxide (CO2), Methane (CH4) and Nitrous Oxide (N2O) are emitted from the combustion of fossil fuels by port and transport equipment used by Danube Logistics and by heating as well as from electricity consumed by port operations. Emissions of technical gases as a by-product of combustion and so-called F-gases from cooling installations are 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 the audit approach to consolidate and report greenhouse gas emissions. This means, that all emissions that the company can control and influence, are taken into account. It concerns all activities carried out by the legal entity of Danube Logistics on the territory of Giurgiulesti International Free Port.

As a result, the calculation of the carbon footprint does not include residential companies that carry out their activities on GIFP premises, and their activities are not influenced by Danube Logistics. Furthermore access to the necessary and correct information is not guaranteed.

2. Operational boundaries

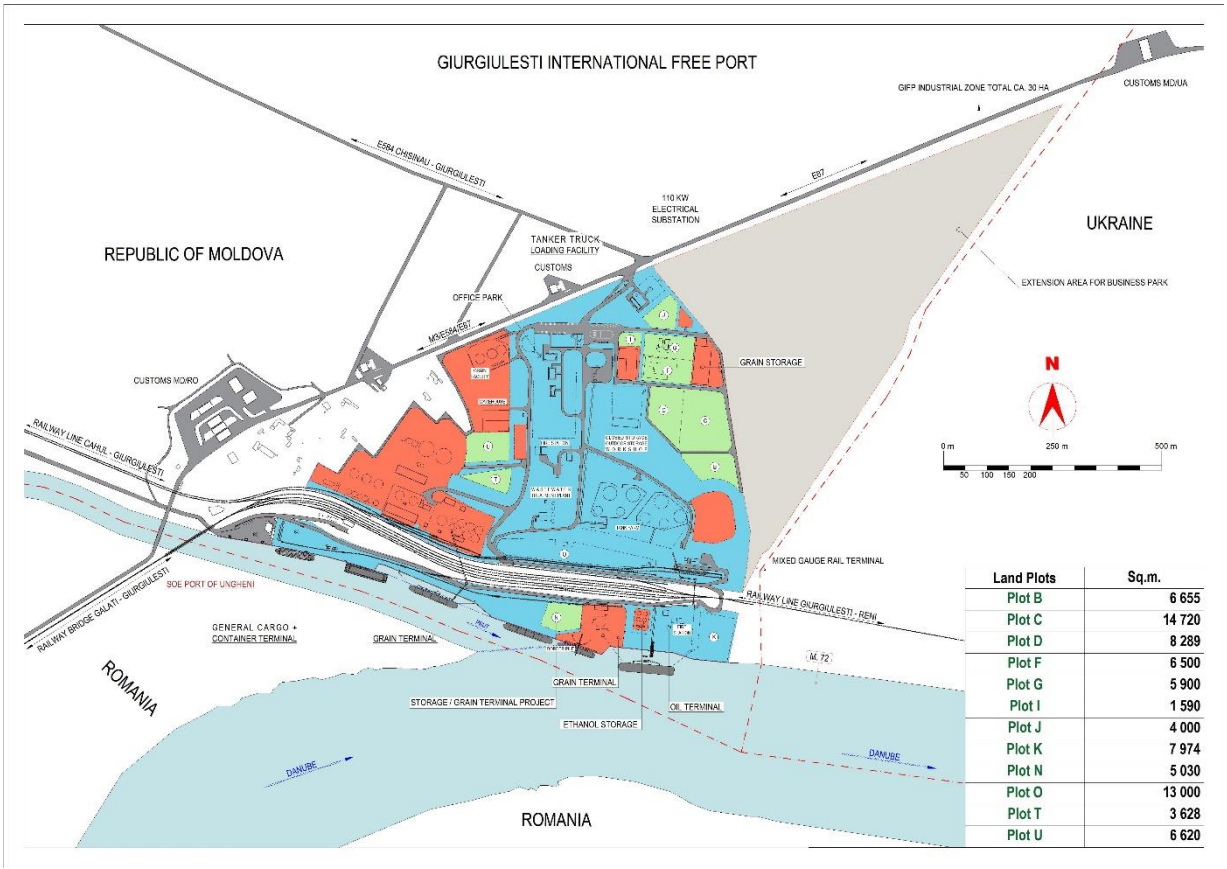
The total territory of GIFP currently under development comprises 55 ha.

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

- General cargo and container terminal, dry bulk storage area;
- Oil terminal area including oil jetty, tank farm, auto loading facility and railway facility;
- Office park;
- Business park areas under 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 Danube and Prut rivers;
- Business park areas leased by third parties including grain storage facilities and vegetable oil reservoirs;



Land Plots	Sq.m.
Plot B	6 655
Plot C	14 720
Plot D	8 289
Plot F	6 500
Plot G	5 900
Plot I	1 590
Plot J	4 000
Plot K	7 974
Plot N	5 030
Plot O	13 000
Plot T	3 628
Plot U	6 620

Figure 1. Port area that was taken into account 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 by 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 of 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 applied an activity-based approach for the calculation of GHG emissions. Total GHG emissions are calculated on the basis of each fuel/energy type used:

- The amount of diesel is calculated by adding up the recorded amounts of fuel consumed by each appliance used on the territory of GIFP. The supply of fuel for each piece of equipment is measured using a meter installed on the pump of the bunkering truck.
- The amount of natural gas and electricity consumption is measured using calibrated and certified meters.

More than 95% of the data used to calculate emissions is based on measured fuel and energy consumption. Thus, the measurements represent a high degree of precision of the calculated emissions.

2. Selection of GHG emission factors

Energy consumption quantities were converted into GHG emissions by multiplying these figures with emission factors. The used emission factors comply with national and international standards of emissions for the selected types of resources. The emission factors are specific for each energy source and serve for converting the quantities as consumed by each energy source into GHG emissions. Table 1 shows the emission factors used for the calculation of the carbon footprint.

Table 1. Emission factors

Item	Emission factors (EF)	Units
EF diesel	2.68	kg CO2/litre
EF natural gas	1.87	kg CO2/m³
EF electricity	0.521	kg CO2/kWh

IV. RESULTS

In 2021 the total estimated GHG emissions at the premises of Giurgiulesti International Free Port of activities generated by Danube Logistics amount to 1,164.8 t CO2e increasing by 34.2% compared to 2020 (table 2). As in previous years, the majority of emissions in 2021 results from scope 1 - diesel and gas combustion (table 3). Emissions from CH4 and N2O are negligible with an accumulated share of 0.4% of total CO2e emissions.

Table 2. Total estimated GHG emissions

CO2e in tons	Factor	2017	2018	2019	2020*	2021
CO2	1	851.3	942.1	906.7	864.3	1,160.4
CH4	25	1.5	1.9	2.0	1.9	2.6
N2O	298	1.0	1.3	1.4	1.3	1.8
Total CO2e		**853.9**	**945.3**	**910.1**	**867.6**	**1,164.8**

* 2020 was adjusted in order to ensure consistency

Table 3. Share of CO2 Emissions by Scope

Scope	CO2 emissions in tons	2021
Scope 1: Fuel and gas consumption	781.4	67%
Scope 2: Electricity consumption	379.0	33%
Total CO2	**1,160.4**	**100%**

a) Fuel consumption (scope 1)

The total consumption of fuel amounts to 250,886 liters corresponding to CO2 emissions of 729.8 tons which is an increase of 34% compared to previous year. The growth of fuel consumption reflects the strong increase of transshipment volumes at the cargo terminal. Subsequently, a second material handler was procured in November 2021. Thus, the major consumer of diesel fuel is the equipment for cargo transshipment, i.e. the mobile harbor crane and two newly acquired material handlers in 2020 and 2021, accounting for 80% of the fuel consumption. Overall the fuel consumption contributed with 63% to the total CO2 emissions in 2021 (Figure 2).

The fuel consumption of vessels included in this report represents the tugboat operated by Danube Logistics for ensuring safe navigation of maritime vessels.

Similarly to previous years, 93% of the CO2 emissions within scope 1 refer to the consumption of fuel. The remaining 7% refers to the consumption of gas.

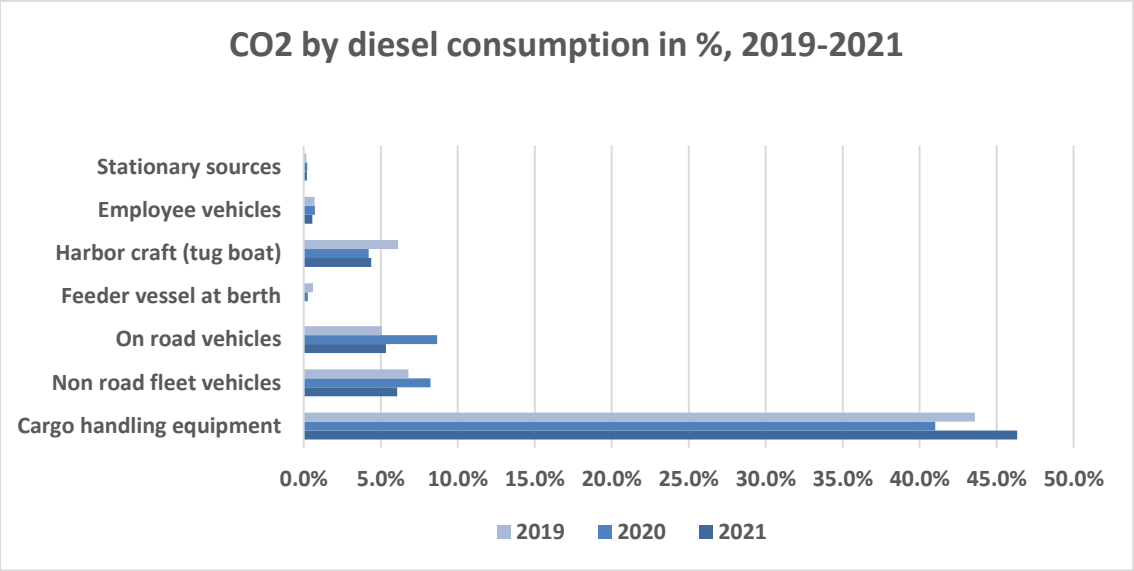


Figure 2. Share of diesel consumption of total CO2 emissions of Danube Logistics in 2020- 2021

b) Natural gas consumption (scope 1)

The consumption of natural gas used for heating of the buildings within the GIFP Business Park amounted to 27,456 m³ in 2021. The lower temperatures during the winter period resulted in 12% more use of heating than in 2020. The share of natural gas in relation to all CO2 emissions amounted to 4%.

c) Electricity imported (scope 2)

Only the electricity used by the units owned and controlled by Danube Logistics, it was taken into consideration. In 2021, the electricity consumption reached 727.446 kWh corresponding to 378.9 tons of CO2 emissions. The increase by 40% in 2021 compared to previous year results mainly from the growth of truck loading activities at the oil terminal.

d) CO2 emission indicator

In order to better understanding the impact of operational activities on CO2 emissions and to establish a benchmark for further GHG emissions the following CO2 emission indicator was calculated (table 4):

Table 4. CO2 Emissions indicator

CO2e indicator	2017	2018	2019	2020*	2021	change
t CO2e	853.9	945.3	911.9	867.6	1,164.8	34.2%
t DL transshipments	473,404	567,106	556,082	609,350	962,620	58.0%
kg CO2e/ t transshipped	**1.8**	**1.7**	**1.6**	**1.4**	**1.2**	**-15.0%**

* 2020 was adjusted in order to ensure consistency

The transshipments of Danube Logistics do not include the transshipments of grain conducted at the terminals of residents and the transshipment of vegetable oil. Over the past years, the emission indicator decreased steadily from 1.9 in 2016 to 1.2 kg CO2e per ton of transshipped cargo in 2021.

V. CONCLUSIONS

The total estimated GHG emissions equivalent to CO2 emissions generated by Danube Logistics activities at the premises of Giurgiulesti International Free Port increased by 34.3% from 867.6 in 2020 to 1164.8t CO2e in 2021. This year's increase is mainly due to the growth of transshipment activities at the cargo terminal by 58% driven by strong demand and facilitated by newly acquired cargo handling equipment. The fuel consumption for cargo handling equipment at the general cargo shows an improved efficiency not only due to the increased transshipment volumes but also by the increased usage of more fuel-efficient material handlers compared to the port crane. Overall, the increase of transshipment volumes over the last five years together with the replacement of newer lighting technology are the major drivers for the reduction of CO2e emissions per ton of cargo transshipped.

As fossil fuel used for internal combustion engines is the major source of CO2 emissions, the control and optimization of diesel use for port equipment will remain important for both environmental and economic reasons. In the mid-term, it is recommended to procure electrical powered loading and unloading equipment in order to reduce the emissions.

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