

CASE STUDY Cargo transport

<i>INSTITUTION</i>	Srednja škola Zlatar / Goran Šalika
<i>CASE STUDY OBJECTIVE(S)</i>	The case study aims to raise environmental awareness and green needs by choosing the most ecological ones a conscious transport route, but also a more environmentally friendly transport branch and create based on that transportation offer.
<i>STUDENTS COMPETENCIES</i>	<ul style="list-style-type: none">• Students decide on the quality of an inquiry• Students choose optimal railway route with regard to greenhouse gas emissions• Students choose appropriate number of wagons and arrange composition• Students calculate the price of the transportation and write an offer for transportation• students compare CO2 emissions in relation to road traffic
<i>PRE-KNOWLEDGE REQUIRED</i>	<ul style="list-style-type: none">• Students should know the what data should be included in a complete transportation offer

CASE STUDY CONTENT

Students organise optimal sustainable route for transportation of cargo by rail from Croatia to Serbia. After receiving offers from carriers, students select the best offer and calculate the transportation price in order to create the offer. Finally, from an environmental point of view, they show how much less CO2 there is by choosing railway instead of road transport.

(students work in groups)

- I. You are a logistics company Rail Cargo Logistics. You have received the enclosed transport inquiry. Read it carefully, discuss and answer the following questions:



INQUIRY / coil sheets/ Sisak Caprag – Smederevo

Recipient: Rail Cargo Logistics – Croatia d.o.o.

Dear Sir or Madam

We would like to ask you for an offer for transportation of coil sheets on Sisak Caprag – Smederevo route with regards to the following:

Goods: Coil sheets

NHM: 7303

Wagons: 4-axle wagons suitable for transportation of coil sheets

Transportation route: Croatia – Serbia

Shipping method: entire composition, recommended composition parameters

Amount: 5.000 tons in a single lot

Transportation route: Sisak Caprag – Smederevo (Srbija)

Custom clearance has not been done.

The goods is ready of loading so we kindly ask you to send us the offer as soon as possible.

Please feel free to contact us if you need any further information.

Activity 1

1. Does this inquiry include all necessary data to organise a transport?
2. If you decided that you have enough data to start organising transport, select optimal route.

Use the following website

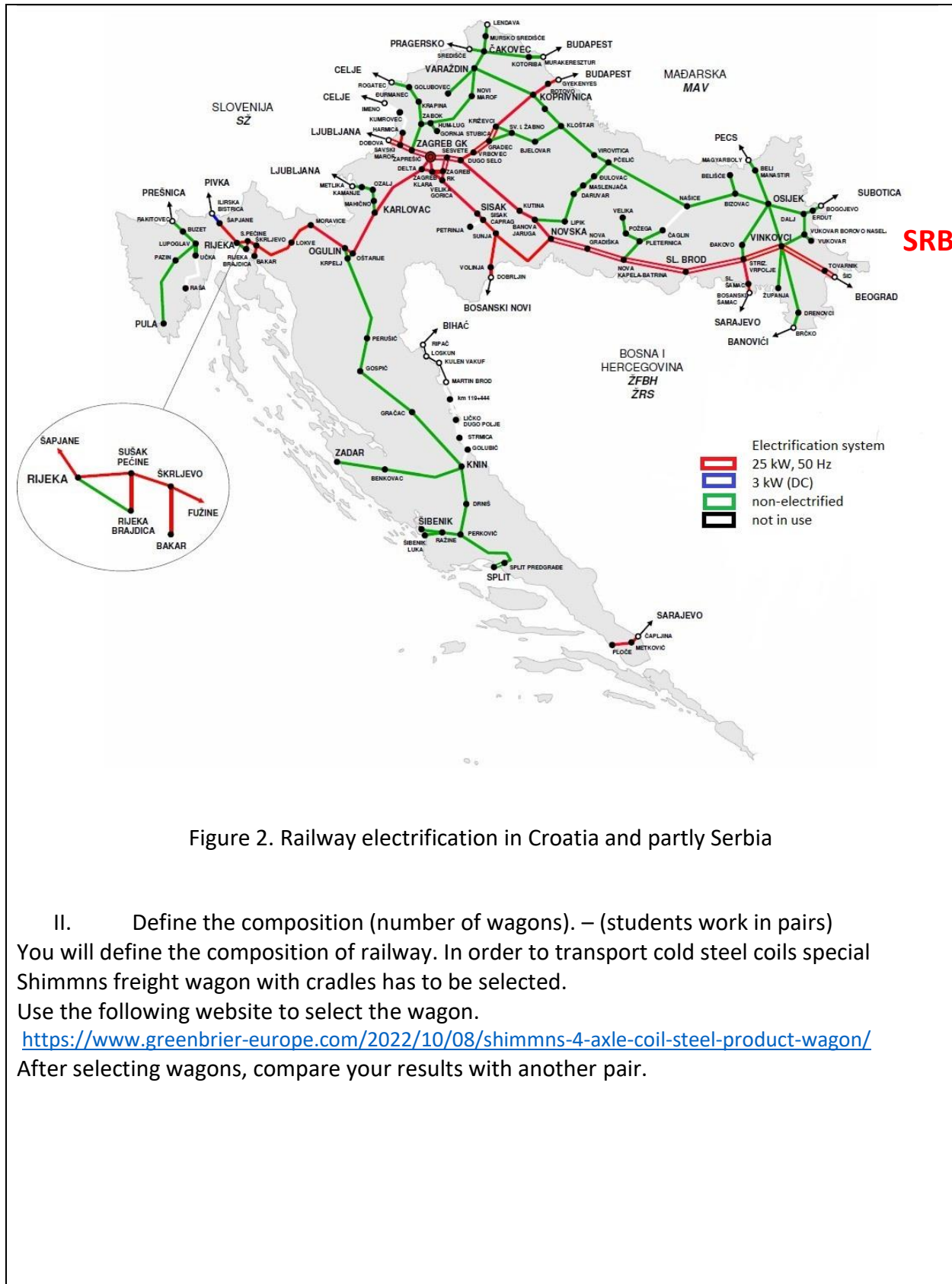
<https://dium.dbcargo.com/dium/profisuhe.do?style=stinnes> for checking distances.

3. Study the two given maps, discuss and decide which of the two border crossings is better to cross with regard to greenhouse gas emissions. Present your conclusions.



Types of railways
 single-track railways
 double-track railways

Figure 1. Types of railways in Croatia and partly Serbia



Activity 2 (students work individually)

1. Given that the weight of the wagon (tare) is 23.50 t, and the net weight of the goods in the wagon is approx. 50 tons? The permitted gross weight on the section in the Republic of Croatia is 2200 t, while on the section through Serbia it is 1600 t define the total number of wagons for the train composition?
2. Estimated use of wagons is 6 days (loading/transportation/unloading/return). Based on the obtained data, create an offer for one composition with a wagon price of €24/wagon per day. Compare your results with another student.
3. Carry out an environmental study, so that if we consider that all the electricity used to drive the locomotive came from renewable sources (hydroelectric power plants, wind power plants...), by how much would we have reduced CO2 emissions if we had used road transport.

For road transport, use a tractor with a semi-trailer with a capacity of 24,000 kg. The tractor is a MAN TGX.510 D26, which has a fuel consumption of 25.1 l/100 km and CO2 emissions of 658 g/100 km.

(calculate only in one direction HR -> SERBIA)

Rail Cargo Logistic Croatia is part of the RC Group, and all are members of the Austrian State Railways - ÖBB.

<https://www.railcargo.com/en/dms/rcg-corporate-presentation/corporate-presentation-en.pdf>

<https://www.railcargo.com/en/dms/eco-presentation-en.pdf>

QUESTIONS FOR STUDENTS	<ol style="list-style-type: none"> 1. Does this inquiry include all necessary data to organise a transport?
-------------------------------	--

TASKS FOR STUDENTS	<ol style="list-style-type: none"> 1. If you decided that you have enough data to start organising transport, select optimal route. Use the following website https://dium.dbcargo.com/dium/profisuuche.do?style=stinnes for checking distances. 2. Study the two given maps, discuss and decide which of the two border crossings is better to cross with regard to greenhouse gas emissions. Present your conclusions. 3. Define the composition (number of wagons).
---------------------------	--

	<ol style="list-style-type: none">4. Create an offer for one composition.5. Compare CO₂ emissions in relation to road traffic (calculate only in one direction HR -> SERBIA)
--	---