Sustainable Mobility – Introduction - Basics

Assignment #1 (delivery, excel/pdf, 18 October 2020)

1. Estimate your "Walking speed" in km/h and "Walking final energy consumption" in MJ/pkm and kcal/pkm. You can use either a fit application (e.g. activity watch) or a heart rate, weight, etc, mathematical correlation. Quantify the useful energy and kinetic energy, according to the following Sankey. Tip: define your step distance, use that as the measure for "m" and a time chronometer. Heart rate and resting heart rate can be taken from pulse measures.

2. Consider the fuel sales and electricity consumption (demand) in the transportation sector, in Portugal:

   a) What is the final energy for road and rail transport?, in MJ? And in toe?

   b) Draw the Sankey Diagram with information regarding, final and your estimations for useful and kinetic energy. Tip for the Sankey: you can use for example, http://sankeymatic.com/build/

   c) What is your estimated energy conversion efficiency from final to kinetic energy in the Portuguese Transportation System (excluding maritime and air transport)?Justify.

Venda de combustíveis para consumo Fontes de Dados: DGEG/MAAC Fonte: PORDATA Última actualização: 2020-04-21		**Amount**
Fuel sales (2017)	Gasoline 95	80 417 ton
	Gasoline 98	952 114 ton
	Diesel	4 466 224 ton
	LPG	34 317 ton
Electricity consumption (2017)	Transport	592 530 497 kWh