

# CO<sub>2</sub> on the way to School: Campaign Data Analysis

Scott Randall<sup>1</sup>

<sup>1</sup>Norwegian Institute for Air Research (NILU), sr@nilu.no



## Introduction

As CO<sub>2</sub> emissions are being recognized as the pivotal contributor to global climate change, it is becoming important for students to learn about how these emissions are generated and solutions for emissions reduction in which students can relate to. An ESD campaign with an ICT web-based platform was developed to increase awareness and understanding of the issue, and to affect attitudes and values towards the issue, at the global scale. To meet this goal the specific campaign exercise was developed in which student's measure their own individual CO<sub>2</sub> contribution during their daily travel to school, where the methods of this calculation were kept simple for greatest possible inclusion of students. The campaign was inspired through a similar campaign performed in Norway in 2007 entitled "CO<sub>2</sub> on the way to school".



"In the forest of valu lui traian" by SCOALA NR.1 VALU LUI TRAIAN (Romania)



SMK SG NIBONG, PENANG (Malaysia)

## Methods

The methods for the CO<sub>2</sub>nnect campaign participation were partially based upon the 2007 Norwegian Campaign, and were specifically designed to be simple and straight-forward in order to encourage the greatest amount of involvement from all age classes. The campaign was also open to all schools throughout the world (the campaign website was available in 18 different languages), for students and teachers to participate. The campaign composed of the following main parts:

1. Registration of user and school information
2. Enter transportation data and answer questionnaire
3. Analyze school results and compare to other's inputted data
4. Additional activities (working with local authorities, uploading climate ideas, projects, pictures, etc.).

## Recommendations

Due to the success of the campaign, the following recommendations are presented to consider for future planning:

- Ensure distribution of this summary report and the full report to campaign participants.
- Bring the campaign and its results to a larger audience through international teacher training workshops.
- Repeat the campaign in the near future with the same participants to begin to notice any trends in behavioral change.
- Perform a simple follow-up web survey for the participants to determine any potential effects from campaign participation on their behavior.
- Use the success of the campaign model on different environmental and social issues.
- Publish the campaign results/methods in an international journal (focusing on ESD or similar).

The poster is based on the following report which contains additional data analysis and discussion:  
Randall, S. (2010). CO<sub>2</sub>nnect, CO<sub>2</sub> on the Way to School: Campaign Data Analysis. Kjeller: NILU (OR 47/2010).

## Results: Participation

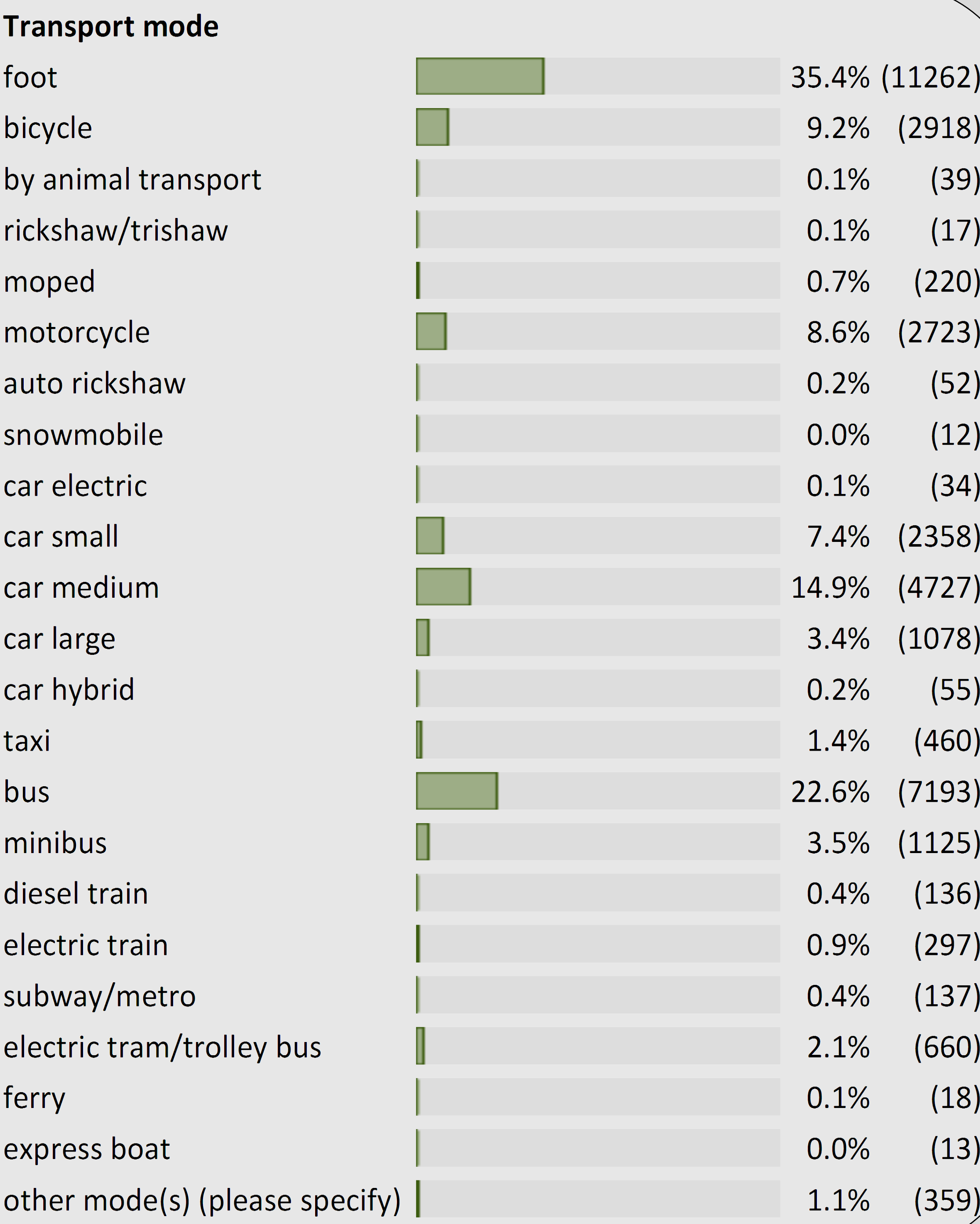
31808 individuals from 401 classes from 30 different schools participated in the campaign during the data analysis period (15.02.2009 – 15.05.2010), which shows how Malaysia and Romania alone made up for almost 50% of the total number of schools and classes which participated in the campaign, followed by Jordan, Hungary, and Finland which also demonstrated strong participation.

Summary of results	All schools
Emission intensity (g/km)	80.4
No of reporters (students and teachers)	31808
Mean school way distance (km)	5.3
CO <sub>2</sub> emitted for pooled reported distances (kg)	13513.7
CO <sub>2</sub> per reporter per school year (190 days, kg)	161



## Results: Modes of Transportation

Participants recorded the length of their travel to school, and the transportation method(s) used. Overall there were 22 different transportation modes used during the campaign. 45% of participants use transportation modes which do not emit CO<sub>2</sub> (walking, biking, etc.), where 30% use mass transportation modes (busses, trains, etc.), and 36% use personal transportation modes (cars, motorcycles, etc.).



## Results: CO<sub>2</sub>

CO<sub>2</sub> emissions varied greatly between participant countries, where countries such as the UK, Bahrain, Spain, and Malaysia reported high CO<sub>2</sub> emission intensities over 100g/km; while countries such as Belgium, Finland, Romania, and Norway reported lower CO<sub>2</sub> emission intensities which were under 70 g/km .

Country	No. of schools	No. of reporters	School-way distance km (mean)	CO <sub>2</sub> (kg)	CO <sub>2</sub> kg/year/reporter	CO <sub>2</sub> g/km
Bulgaria	1	21	5.3	13.9	250.6	124
United Kingdom	5	508	2.6	149.8	112	112
Bahrain	2	136	7.5	105	293.4	103
Spain	6	690	2.5	174.9	96.3	102
Malaysia	138	13619	4.4	5658.6	157.9	94
Greece	12	486	5.5	245.5	192	93
Italy	8	203	6.6	115.7	216.6	86
Jordan	51	2588	5.6	1236.4	181.5	86
Slovenia	3	209	2.5	44.4	80.8	86
Estonia	2	64	6.9	35.6	211.5	80
Austria	3	102	19.7	155	577.4	77
Thailand	2	177	12.1	162.8	349.6	76
Korea (Republic of)	3	110	5.6	46.5	160.5	76
Germany	12	1376	10.6	1100.6	304	75
India	1	193	8.3	116.1	228.6	73
Denmark	9	179	8.9	114.5	243	72
Portugal	1	16	6	6.8	161.7	71
Norway	17	452	5.1	160.5	135	69
Hungary	8	1570	5.8	610.1	147.7	67
Romania	77	7110	5.5	2581.5	138	66
Turkey	2	42	12.8	35.1	318	66
Slovakia	1	29	3.2	6	78.9	65
Finland	25	1763	5.3	593.4	127.9	64
Sweden	2	15	10.3	9.4	237.2	61
Belgium	4	98	6.3	32.4	125.4	52
Cyprus	1	13	0.8	0.5	15.8	52
Poland	1	22	1.1	0.8	14.1	34
Netherlands	2	17	3.9	1.9	42.6	29
Russia	1	1	0.1	0	0	0
Iraq	1	1	1	0	0	0

## Results: Questionnaire, Reports, Climate Ideas

**Questionnaire:** Overall survey results show agreement with given statements and "research/technology" were popular choices for climate solution areas.  
**Climate Ideas:** 266 climate ideas submitted (from 19 different countries ).  
**Project Reports:** Over 40 schools submitted reports (11 different countries).