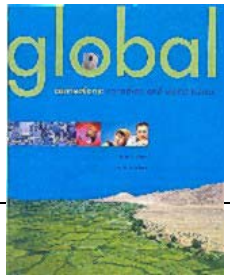
Global Connections Textbook Assignment:

Achieving a Sustainble Future



1) Read Chapter 28 in *Global Connections*. As always, check your understanding of this topic by defining the terms in **bold letters** that appear throughout the chapter. If you would like an official definition for each term, they are listed in the glossary at the back of the textbook.

2) Describe how each of the following initiatives contributes to the achievement of a more sustainable future, then discuss the usefulness of each in Canada.
   a) ISO 14 000
   b) extended producer responsibility
   c) green taxation
   d) Città Lente

3) Create two maps to be able to compare a country's average ecological footprint with either the available biological capacity or the ecological surplus or deficit, using the data attached. For each of the data sets, how will you establish the number of classes and the means used to decide their limits?

   Equal Area—as much as possible, puts an equal area in each group
   Equal Interval—takes the range of values from the highest and lowest and divides it evenly among the classes
   Natural Breaks—places class boundaries where there are the largest possible breaks between adjacent values (when sorted)
   Quantile—places an equal number of values (in this case countries) into each class
   Standard Deviation—groups values by the number of standard deviations above or below the mean value (this is often called *z*-scores in statistics)

4) In the mapping question above, what method of classification and what number of classes did you choose? Why?

5) By reading the maps you created above, determine the types of countries have the following characteristics. Ask classmates for help with the fields you did not map:
   a) High ecological footprints
   b) Low ecological footprints
   c) High available biological capacity
   d) Low available biological capacity
   e) Significant ecological surpluses
   f) Significant ecological deficits

6) What will happen to the values shown on your maps over the next 25 years? Why? How can this outcome be prevented?

Ecological Footprint (EF) – the amount of land needed to support each person in the country with the current standard and style of living in that country.

COUNTRY	EF
Afghanistan	0.96
Algeria	1.55
Angola	0.87
Argentina	3.03
Australia	7.58
Austria	4.73
Azerbaijan	1.73
Bangladesh	0.53
Belgium	6.72
Benin	1.15
Bhutan	0.79
Bolivia	0.96
Bosnia and Herzegovina	1.06
Botswana	1.48
Brazil	2.38
Bulgaria	2.36
Burkina Faso	1.18
Byelarus	3.27
Cambodia	0.83
Cameroon	1.11
Canada	8.84
Central African Republic	1.25
Chad	1.02
Chile	3.11
China	1.54
Colombia	1.34
Congo	0.92
Congo DR	0.80
Costa Rica	1.96
Croatia	2.69
Cuba	1.49
Czech Republic	4.82
Denmark	4.82
Dominican Republic	1.53
Ecuador	1.54
Egypt	1.49
Eritrea	0.79
Estonia	4.94
Ethiopia	0.79
Finland	8.42
France	5.26
Gabon	2.12
Georgia	0.91
Germany	4.71
Ghana	1.07

COUNTRY	EF
Greece	5.09
Guatemala	1.42
Guinea	1.21
Guinea-Bissau	0.70
Honduras	1.34
Hungary	3.08
India	0.77
Indonesia	1.13
Iran	1.96
Iraq	1.38
Ireland	5.33
Italy	3.84
Ivory Coast	0.92
Japan	4.77
Jordan	1.55
Kazakhstan	3.58
Kenya	1.09
Kyrgyzstan	1.14
Laos	0.82
Latvia	3.43
Lesotho	0.86
Liberia	0.91
Libya	3.28
Lithuania	3.07
Madagascar	0.88
Malawi	0.87
Malaysia	3.16
Mali	1.14
Mauritania	1.33
Mexico	2.52
Moldova	1.38
Mongolia	2.58
Morocco	1.10
Mozambique	0.47
Myanmar	0.70
Namibia	1.47
Nepal	0.83
Netherlands	4.81
New Zealand	8.68
Nicaragua	1.53
Niger	1.15
Nigeria	1.33
North Korea	3.04
Norway	7.92
Oman	3.39
Pakistan	0.64
Panama	1.72

COUNTRY	EF
Papua New Guinea	1.42
Paraguay	2.51
Peru	1.15
Philippines	1.17
Poland	3.70
Portugal	4.47
Romania	2.52
Russia	4.49
Saudi Arabia	4.07
Senegal	1.31
Serbia	2.14
Sierra Leone	0.54
Slovakia	3.44
Somalia	1.05
South Africa	4.02
South Korea	3.31
Spain	4.66
Sri Lanka	1.00
Sudan	1.06
Sweden	6.73
Switzerland	4.12
Syria	1.62
Taiwan	4.34
Tajikistan	3.66
Tanzania	1.03
Thailand	1.53
Togo	0.86
Tunisia	1.69
Turkey	1.98
Turkmenistan	3.62
Uganda	1.06
Ukraine	3.37
United Arab Emirates	10.13
United Kingdom	5.35
United States	9.70
Uruguay	3.79
Uzbekistan	1.91
Venezuela	2.34
Vietnam	0.76
Yemen	0.71
Zambia	1.26
Zimbabwe	1.32

Available Biological Capacity (ABC) – the amount of biologically productive space, per capita, available in a country.

COUNTRY	ABC
Afghanistan	0.78
Algeria	0.54
Angola	5.88
Argentina	6.66
Australia	14.61
Austria	2.76
Azerbaijan	0.90
Bangladesh	0.30
Belgium	1.13
Benin	1.05
Bhutan	2.60
Bolivia	6.39
Bosnia and Herzegovina	1.11
Botswana	3.92
Brazil	6.03
Bulgaria	1.84
Burkina Faso	0.94
Byelarus	2.57
Cambodia	1.36
Cameroon	3.92
Canada	14.24
Central African Republic	6.20
Chad	1.68
Chile	4.23
China	1.04
Colombia	2.53
Congo	9.05
Congo DR	3.36
Costa Rica	2.31
Croatia	2.13
Cuba	1.10
Czech Republic	2.32
Denmark	3.24
Dominican Republic	0.74
Ecuador	2.61
Egypt	0.78
Eritrea	0.75
Estonia	4.15
Ethiopia	0.46
Finland	8.61
France	2.88
Gabon	28.70
Georgia	0.92
Germany	1.74

COUNTRY	ABC
Ghana	1.20
Greece	2.34
Guatemala	1.20
Guinea	2.01
Guinea-Bissau	4.19
Honduras	1.56
Hungary	1.75
India	0.68
Indonesia	1.82
Iran	0.89
Iraq	0.23
Ireland	6.14
Italy	1.18
Ivory Coast	2.00
Japan	0.71
Jordan	0.16
Kazakhstan	3.33
Kenya	1.05
Kyrgyzstan	0.99
Laos	4.49
Latvia	4.56
Lesotho	0.71
Liberia	3.26
Libya	0.93
Lithuania	3.02
Madagascar	1.86
Malawi	0.82
Malaysia	3.39
Mali	1.27
Mauritania	0.62
Mexico	1.69
Moldova	0.82
Mongolia	6.43
Morocco	0.87
Mozambique	1.87
Myanmar	1.62
Namibia	5.04
Nepal	0.58
Netherlands	0.79
New Zealand	22.95
Nicaragua	3.09
Niger	0.91
Nigeria	0.88
North Korea	0.81
Norway	5.94
Oman	0.70

COUNTRY	ABC
Pakistan	0.39
Panama	3.09
Papua New Guinea	14.00
Paraguay	6.67
Peru	5.31
Philippines	0.56
Poland	1.63
Portugal	1.60
Romania	1.37
Russia	4.84
Saudi Arabia	0.98
Senegal	1.49
Serbia	1.21
Sierra Leone	1.07
Slovakia	2.35
Somalia	1.06
South Africa	2.42
South Korea	0.73
Spain	1.79
Sri Lanka	0.51
Sudan	2.04
Sweden	7.34
Switzerland	1.82
Syria	0.61
Taiwan	0.20
Tajikistan	0.31
Tanzania	1.29
Thailand	1.37
Togo	0.81
Tunisia	1.00
Turkey	1.23
Turkmenistan	2.02
Uganda	0.89
Ukraine	1.47
United Arab Emirates	1.26
United Kingdom	1.64
United States	5.27
Uruguay	4.57
Uzbekistan	0.66
Venezuela	3.28
Vietnam	0.84
Yemen	0.52
Zambia	2.67
Zimbabwe	1.42

Ecological Surplus or Deficit (Eco +/-) – the difference between the ecological footprint of a country and the per capita available biological capacity of the country. A positive value indicates a surplus.

COUNTRY	ECO+/-
Afghanistan	-0.18
Algeria	-1.01
Angola	5.01
Argentina	3.63
Australia	7.03
Austria	-1.97
Azerbaijan	-0.83
Bangladesh	-0.23
Belgium	-5.59
Benin	-0.10
Bhutan	1.81
Bolivia	5.43
Bosnia and Herzegovina	0.05
Botswana	2.44
Brazil	3.65
Bulgaria	-0.52
Burkina Faso	-0.24
Byelarus	-0.70
Cambodia	0.53
Cameroon	2.81
Canada	5.40
Central African Republic	4.95
Chad	0.66
Chile	1.12
China	-0.50
Colombia	1.19
Congo	8.13
Congo DR	2.56
Costa Rica	0.35
Croatia	-0.56
Cuba	-0.39
Czech Republic	-2.50
Denmark	-1.58
Dominican Republic	-0.79
Ecuador	1.07
Egypt	-0.71
Eritrea	-0.04
Estonia	-0.79
Ethiopia	-0.33
Finland	0.19
France	-2.38
Gabon	26.58
Georgia	0.01
Germany	-2.97

COUNTRY	ECO+/-
Ghana	0.13
Greece	-2.75
Guatemala	-0.22
Guinea	0.80
Guinea-Bissau	3.49
Honduras	0.22
Hungary	-1.33
India	-0.09
Indonesia	0.69
Iran	-1.07
Iraq	-1.15
Ireland	0.81
Italy	-2.66
Ivory Coast	1.08
Japan	-4.06
Jordan	-1.39
Kazakhstan	-0.25
Kenya	-0.04
Kyrgyzstan	-0.15
Laos	3.67
Latvia	1.13
Lesotho	-0.15
Liberia	2.35
Libya	-2.35
Lithuania	-0.05
Madagascar	0.98
Malawi	-0.05
Malaysia	0.23
Mali	0.13
Mauritania	-0.71
Mexico	-0.83
Moldova	-0.56
Mongolia	3.85
Morocco	-0.23
Mozambique	1.40
Myanmar	0.92
Namibia	3.57
Nepal	-0.25
Netherlands	-4.02
New Zealand	14.27
Nicaragua	1.56
Niger	-0.24
Nigeria	-0.45
North Korea	-2.23
Norway	-1.98
Oman	-2.69

COUNTRY	ECO+/-
Pakistan	-0.25
Panama	1.37
Papua New Guinea	12.58
Paraguay	4.16
Peru	4.16
Philippines	-0.61
Poland	-2.07
Portugal	-2.87
Romania	-1.15
Russia	0.35
Saudi Arabia	-3.09
Senegal	0.18
Serbia	-0.93
Sierra Leone	0.53
Slovakia	-1.09
Somalia	0.01
South Africa	-1.60
South Korea	-2.58
Spain	-2.87
Sri Lanka	-0.49
Sudan	0.98
Sweden	0.61
Switzerland	-2.30
Syria	-1.01
Taiwan	-4.14
Tajikistan	-3.35
Tanzania	0.26
Thailand	-0.16
Togo	0.00
Tunisia	-0.69
Turkey	-0.75
Turkmenistan	-1.60
Uganda	-0.17
Ukraine	-1.90
United Arab Emirates	-8.87
United Kingdom	-3.71
United States	-4.43
Uruguay	0.78
Uzbekistan	-1.25
Venezuela	0.94
Vietnam	0.08
Yemen	-0.19
Zambia	1.41
Zimbabwe	0.10