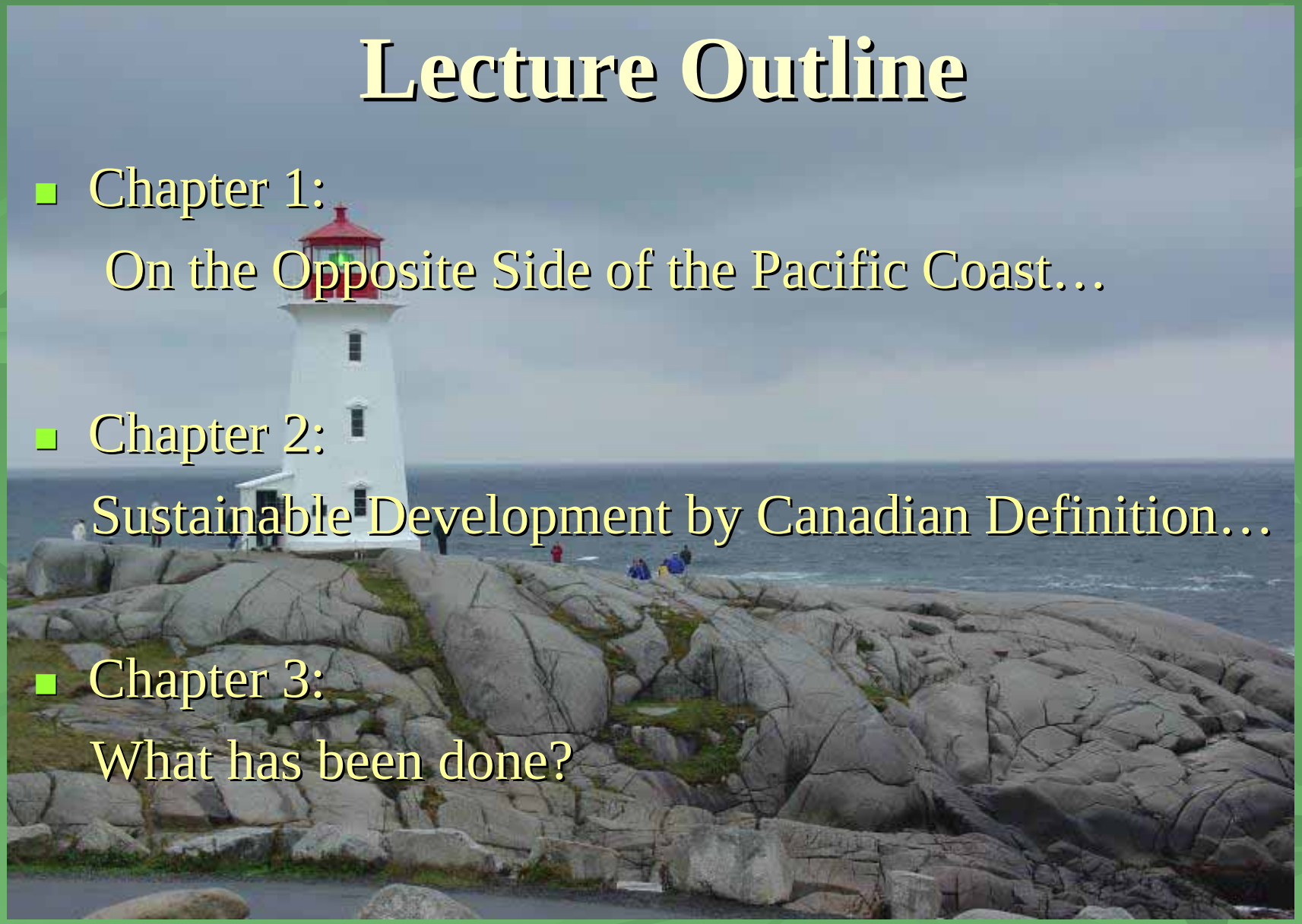
Sustainable Development

Canada's Experience and Practice

Lecture Outline



- Chapter 1:

  On the Opposite Side of the Pacific Coast…

- Chapter 2:

  Sustainable Development by Canadian Definition…

- Chapter 3:

  What has been done?

Chapter 1

On the Opposite Side of the Pacific Coast…

When someone talks about Canada… the first word comes to your mind is…


©GraphicMaps.com
Arctic Ocean
Banks Island
Prince of Wales Island
Somerset Island
Bylot Island
N
Beaufort Sea
Nunavut
Baffin Bay
Victoria Island
MacKenzie R.
Greenland
Arctic Circle
Baffin Island
Foxe Basin
Davis Strait
Great Bear Lake
Yukon Territory
Northwest Territories
Southampton Island
Iqaluit
Godthab
Yukon River
Nunavut
Hudson Strait
Yellowknife
Mt. Logan
Whitehorse
Great Slave Lake
Labrador Sea
Lake Athabasca
Manitoba
Newfoundland & Labrador
Alaska (U.S.)
British Columbia
Alberta
Churchill River
Lake Winnipeg
Quebec
Queen Charlotte Islands
Fraser River
Edmonton
James Bay
Saskatchewan
New Brunswick
Calgary
Regina
Winnipeg
Ontario
St. Lawrence River
Vancouver Island
Vancouver
Quebec
PEI
St. John's
Victoria
Lake Manitoba
Ottawa
Great Lakes
Nova Scotia
800 mi
Moncton
Charlottetown
Montreal
800 km
Halifax
Toronto
Pacific Ocean
United States of America
Atlantic Ocean


100 mi
100 km
QUEBEC
St. Lawrence River
Gaspe Peninsula
Isle D' Anticosti
Gulf of St. Lawrence
Sydney
Charlottetown
PEI
Maine
Fredericton
NOVA SCOTIA
CANADA'S SEACOAST
Truro
Bay of Fundy
NOVA SCOTIA
Cape Breton Is.
Augusta
Halifax
Yarmouth
Atlantic Ocean
©GraphicMaps.com

NOVA SCOTIA
CANADA

Size

- 560 km (350 miles) long
- 52,841 square km (20,402 sq. miles)

- 7,400 km (4,625 miles) of coastline
- Maximum of 56 km (35 miles) to the sea
- 5,400 lakes

Population

943,000

Capital City

Halifax

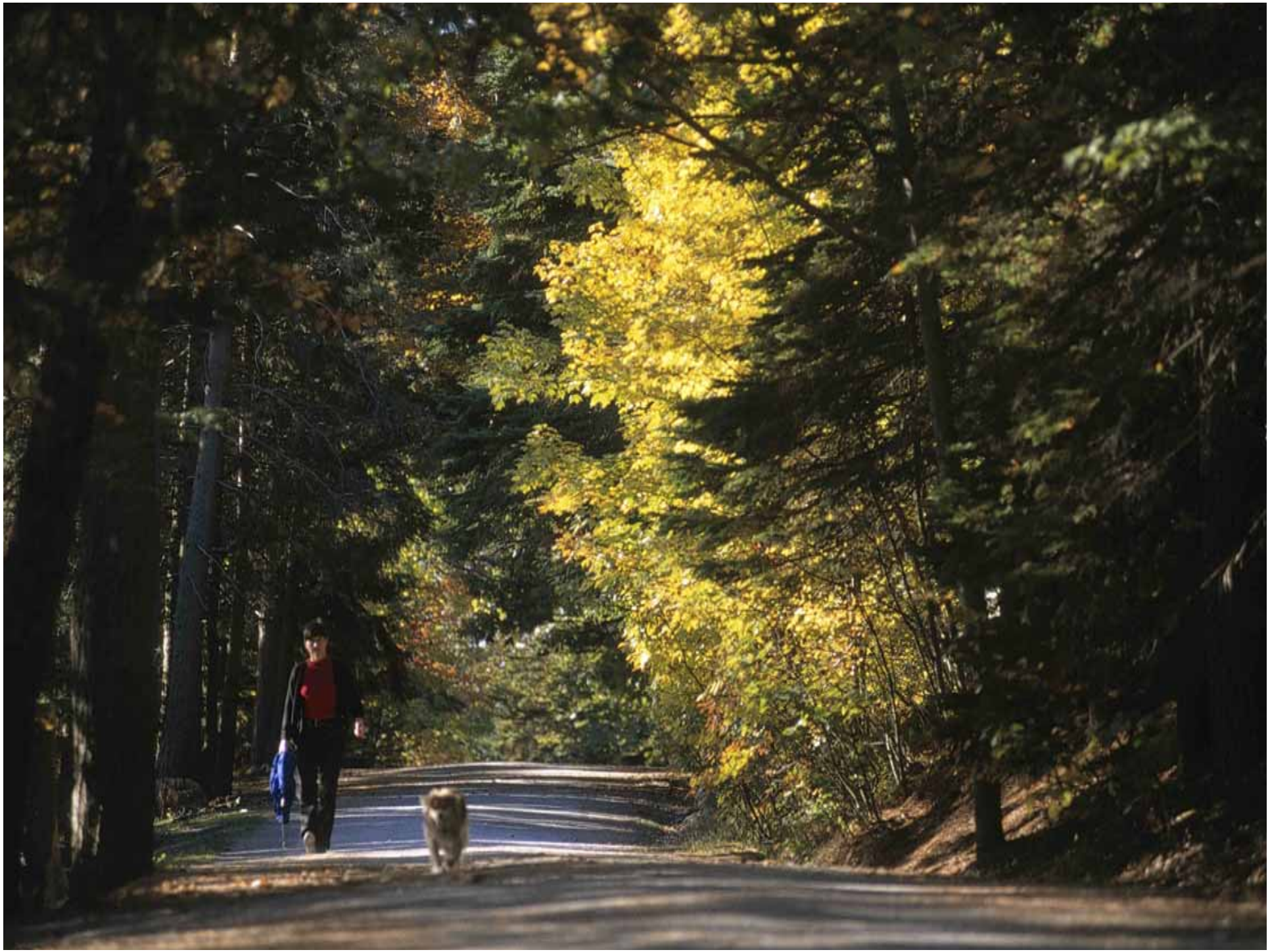
Highest Elevation

544m (1,800ft.) In the Cape Breton Highlands

Average Temperature

Summer 16-24 ˚C. (60-75 ˚F.)
Winter-3 ˚C. (20 ˚F.) -25℃.


Q104 WELCOMES THE WORLD
PRIVATEERS' WHARF
DIRECTORY

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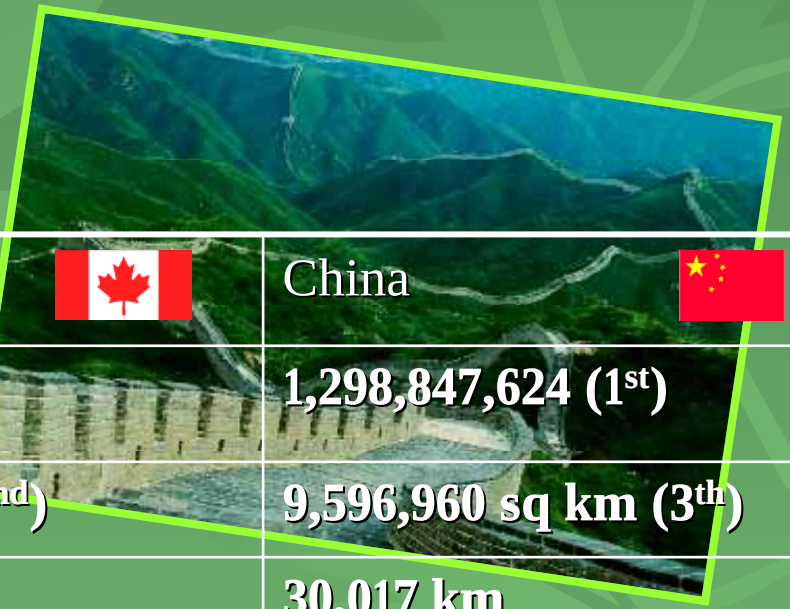
Comparison of Country Facts
Canada vs. China



Country	Canada	China
Population	**32,507,874 (35th)**	**1,298,847,624 (1st)**
Area	**9,984,670 sq km (2nd)**	**9,596,960 sq km (3th)**
Coastline	**265,523 km**	**30,017 km**
Population with in 100 km of coast	**24%**	**24% (>50%)**
Languages	**English & French**	**Mandarin**

When comparing Canada to China, what else can you think of?

Chapter 2

Sustainable Development by Canadian Definition is…

1.What is Sustainable Development? The Ultimate Goal

What is the most internationally acknowledged buzz-word on SD?

- In 1983, the World Commission on Environment and Development (**Brundtland Commission**) defined "sustainable development" as….

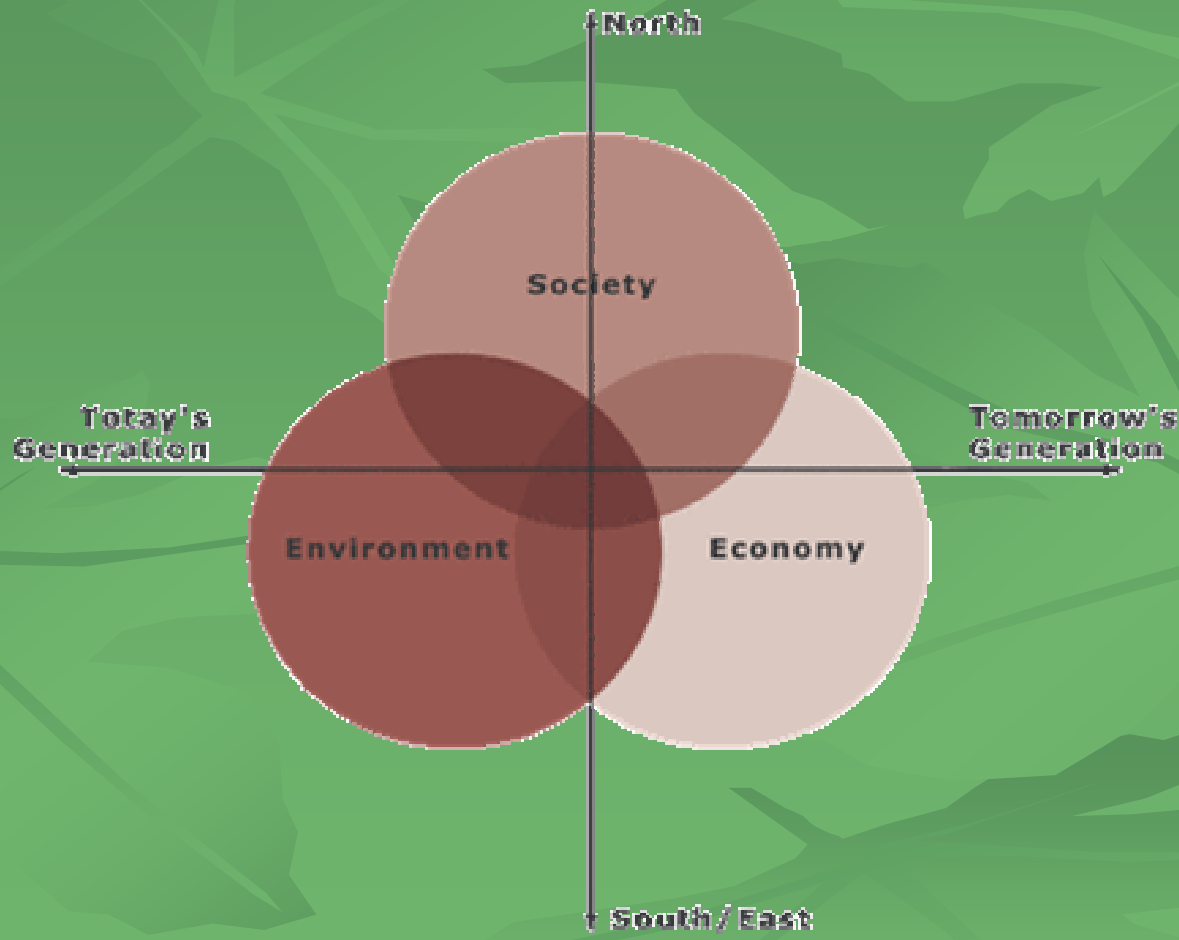
"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

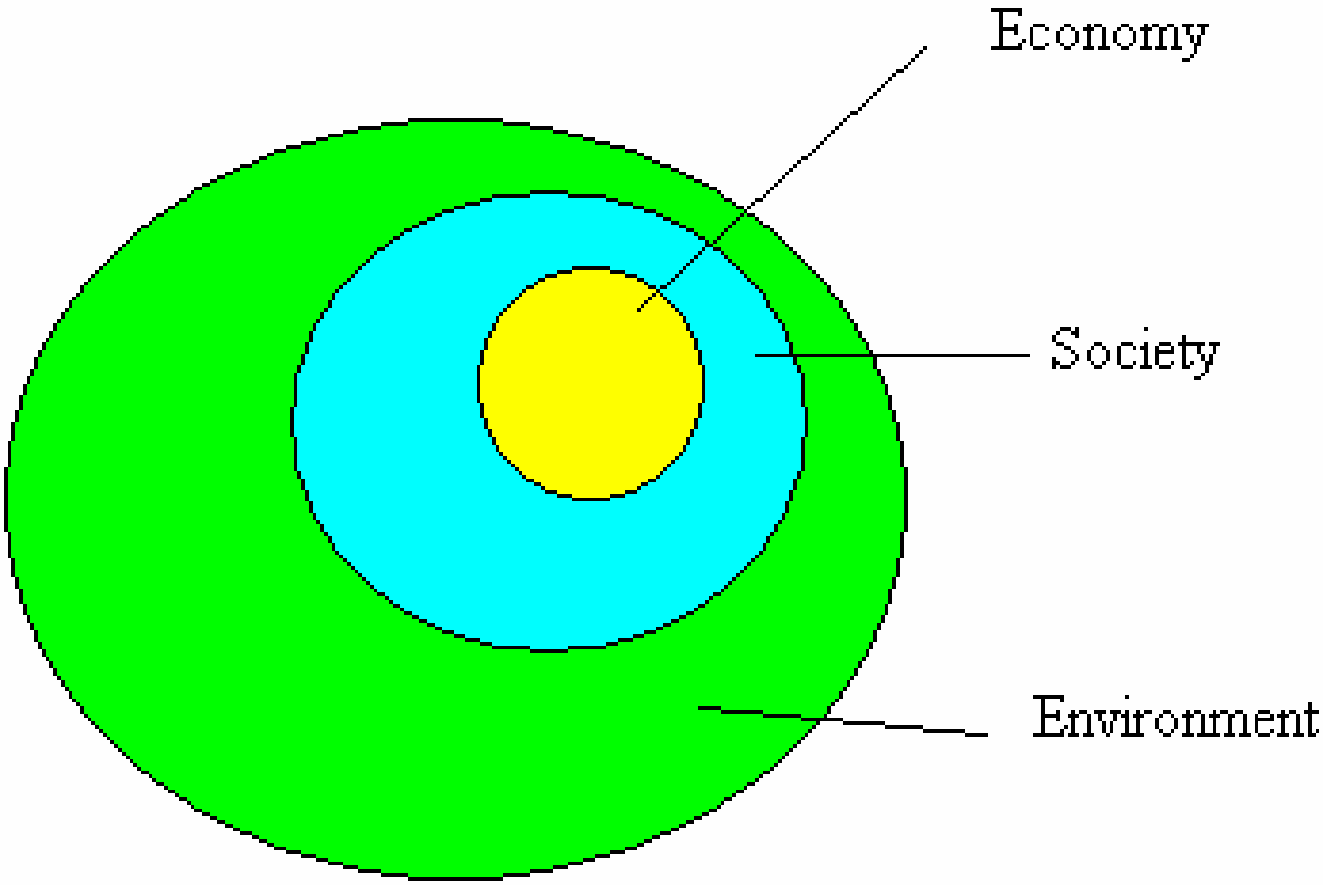
Others Defines the Ultimate Goal…

- **“Positive socioeconomic change that does not undermine the ecological and social systems upon which communities and society are dependent.” (Ress,1989)**

A Sustainable Development approach inspires an evolution away from the focus of “sustaining the output” to a more multifaceted and integrated view of “sustaining the process as much as the output”.

Visual of Sustainability





Canadian Visual of Sustainability

2. SD Theory, Now and the Changes Needed…

The three pillars of sustainable development, from left to right, the theory, the reality and the change needed to better balance the model

SD system MUST meet 4 conditions:

- **Ecological Systems**
  - exhibit balance and resilience
- **Economic Growth**
  - unthreatened ecosystems with production & consumption
- **Political Governance Institutions**
  - reflect sound management and responsiveness
- **Socio-cultural Wellbeing**
  - safeguard traditional practice, custom and culture

If, and only if, these conditions hold will a system dispose toward sustainability…

Canadian SD—*NOT* just a-piece-of-cake

4. Canadian Indicators of SD

- **Ecological Life-Support Systems**
  - Biodiversity
- **Human Health and Well Being**
  - Urban air quality and water quality
- **Natural Resources**
  - Agriculture, Forestry and Fisheries
- **Human Activities**
  - Consumption patters: energy use and transportation

If all indicators are high, it can be argued that a country has achieved sustainability.

By Canadian definition, SD can be achieved through…

1. Protecting the Health of Human and of Ecosystems

- Virtually eliminating toxic substances and adopting a pollution prevention approach
  - Preventing pollution and waste rather than dealing with their consequences after-the-fact.
- Protecting representative areas
  - Representative areas are important indicators of overall ecosystem health.

What would be an example of this in China or Canada?

1. Protecting the Health of Human and of Ecosystems

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What would be an example of this in China or Canada?

- M.W.R approach
  - An effective monitoring, warning and adaptive response capability is critical for reducing the socioeconomic costs of natural disasters. i.e. landslides, tornadoes, forest fires, hailstorms, and avalanches.

2. Meeting the International Obligations

- Protecting the ozone layer:
  - In 1987, 139 countries signed the *Montreal Protocol on Ozone Depleting Substances*
- Reducing greenhouse gas emissions:
  - Canada, along with over 141 other nations signed the *Kyoto Protocol*, which came into affect February 16, 2005.
- Conserving biodiversity:
  - In 1992 Canada became the 1st industrialised country to ratify the *United Nations Convention on Biological Diversity* in Montreal.

3. Promoting Equity

Two-dimensional commitment to equity

- Intergenerational Equity:

  Ensure an equal access to quality of life for generations to come
- Intragenerational Equity:

  Ensure an equal access to quality of life for current generations.

4. Improving Quality of Life and Well-being

- Fostering improved productivity through environmental efficiency
  - producing more with less
- Supporting innovation towards sustainable development.
  - always updating and keep up with the changes
- Broadening measures of progress to include its non-monetary dimensions.
  - adopting a broader view of progress that incorporates those elements that are critical to the public

5. Sustaining Our Natural Resources… Jobs, Communities and Industries

- Ensuring renewable resources development is sustainable.
  - A strong natural resources sector can only be supported within a framework of sound ecological and environmental practices.
- Ensuring efficient use of non-renewable resources.
  - the role of these resources in a sustainable development strategy can be assured by sound policies.

Time for Brainstorming…

Dealing with HOT SD Problems

- Half the world – nearly three billion people – live on less than 2 US dollars a day.
- 4 billion people live in countries with a poor or bad level of human development.
- 20% of the world population does not have access to safe drinking water.
- 1/2 of the world population does not have sanitation.
- The world population has tripled since the beginning of the 20th century, and is expected to reach the benchmark of 10 billion people by 2080.
- One billion people entered the 21st century unable to read a book or sign their names.
- At least 7 inter-state armed conflicts of the past century were over shared freshwater resources.
- An average citizen in the USA uses 600 litres of water per day against a Jordanian's daily consumption of 85 litres.
- 28 million Africans were facing severe food shortages in the year 2000.
- Global military expenditure in 2000 was US$804 billion, against US$53.1 billion of total official international development aid (ODA) in the same year.
- 20% of the world's people in the highest-income countries account for 86% of total private consumption expenditures.

It's Time to Share your Analysis and Thoughts…

- Choose one SD **HOT** issue from the previous list or any SD issue you are interested in.
- Identify which condition(s) may have gone wrong in the four pillars of SD?
- Which indicator(s) of sustainability may demonstrate that a problem exist?
- What SD objective(s) may be applicable to achieve SD as a solution for your issue and why?
- As a decision-maker, what would you do to have your issue solved and make it really sustainable?

Chapter 2:

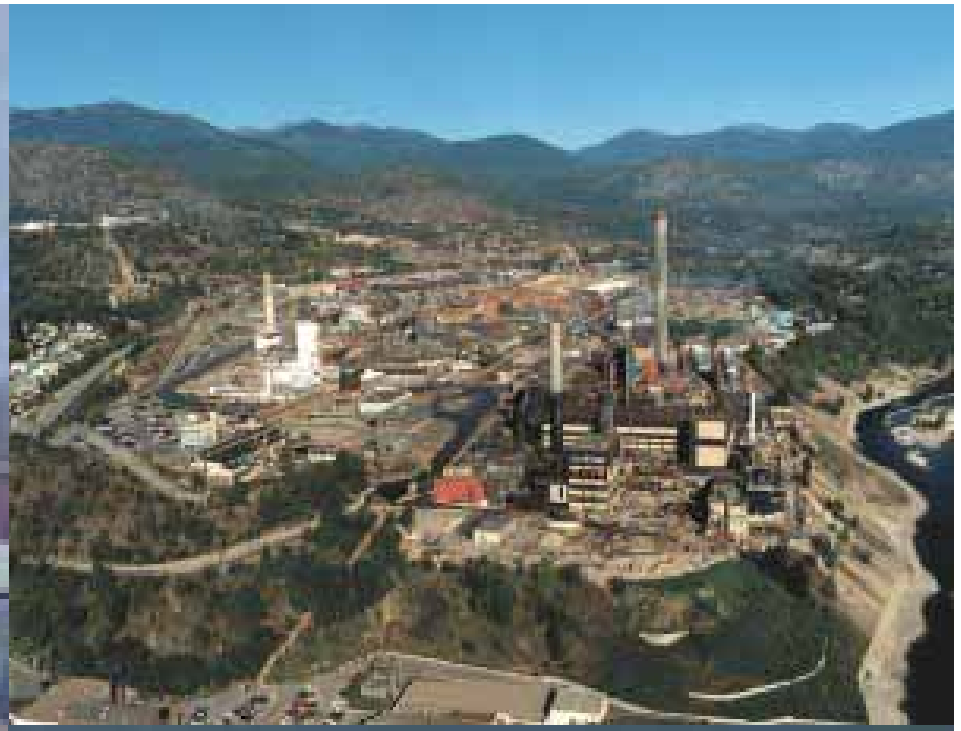
Canada's Kyoto Action Plan

Canada

- Canada ratified the Kyoto Protocol in 2002.
- Canada is now legally obligated to reduce its greenhouse gas levels by 2012.

Canada is NOT Perfect

- Per Capita CO_2 emission one of the highest in the world.
- Heavy reliance on natural resource extraction (mining, forestry, natural gas), such industries produce high levels of greenhouse gases.



Challenges facing Canada

1. Government has not implemented laws, all Kyoto plans are currently non binding.
2. High dependence on fossil fuels and non renewable energy.
3. High consumption patterns of Canadian residence.

Efforts to address challenges…

1. Government has not implemented laws:

- Serious Challenge
- Currently Environment Canada, the Ministry of the Environment and Non Government Organizations are pressuring the government to alter its strategy.
- The government is also being pressured by industry and corporation not to alter its strategy.

2. High dependence on fossil fuel and non-renewable energy:

- Phasing out all coal fired power plants by 2007.
- Researching new technologies including the Hydrogen Fuel Cell.
- Replacing non renewable energy with solar, wind and tidal energy.

Nanticoke Power Plant

- Canada's largest source of industrial pollution.
- Greenhouse gas emissions equivalent to 3.5 million cars.

- The government intends to close Nanticoke Power Plant by 2007.

Alternative Energy

- Wind, Solar and Tidal Energy expected to replace coal fired power plants by 2007.

- Hydrogen Fuel Cell technology: partially developed in Canada

3. High consumption patterns:

- Canadians, on average, emit 5 tonnes of greenhouse gas per person per year.
- Canadians, on average, consume 450 liters of water per person per day.
- Fossil Fuel consumption increased by 21% between 1990 and 2000.
- Total Energy use increased by 15% between 1990 and 2000.

One Tonne Challenge

- Asks Canadians to reduce their personal greenhouse gas emission by one tonne.
- Average Canadian emits 5 tonnes of greenhouse gases per year, therefore this would be a national reduction of 20%.

Take the Challenge:
http://www.climatechange.gc.ca/onetonne/calculator/english/

Additional Efforts

Protecting National Forests:

- Forests act as carbon sinks, storing up to 2 billion tonnes of greenhouse gases.
- By engaging in reforestation or other “greening” programs, countries can significantly reduce their greenhouse gas emission.


North ★ Pole
Norwegian Sea
Norway
Polar Ice
Greenland Sea
UK
Russia
Arctic Ocean
Quttinirpaaq
Kalaallit Nunaat
(Grønland)
(Denmark)
Iceland
Bering Strait
Alaska
(USA)
Ivvavik
Aulavik
Baffin Bay
Scale
300 0 300 600 900 km
Vuntut
Sirmilik
Tuktut Nogait
Auyuittuq
Davis Strait
Yukon Territory
Kluane
Northwest Territories
Nunavut
Labrador Sea
Nahanni
Atlantic Ocean
Pacific
Ungava Bay
Newfoundland and Labrador
Wood Buffalo
Hudson Bay
Gwaii Haanas
British Columbia
Alberta
Wapusk
Terra Nova
Gros Morne
Jasper
Elk Island
Saskatchewan
Manitoba
Mingan Archipelago
Glacier
James Bay
Quebec
(FR)
Mount Revelstoke
Pacific Rim
Banff
Yoho
Kootenay
Prince Albert
Forillon
Cape Breton Highlands
Kouchibouguac
PEI
Saguenay–St Lawrence
Prince Edward Island
Fundy
NB
NS
Riding Mountain
Waterton Lakes
Grasslands
La Mauricie
Kejimkujik
Ocean
Ontario
Pukaskwa
United States of America
Lake Superior
Fathom Five
Georgian Bay Islands
Bruce Peninsula
St Lawrence Islands
Lake Ontario
Lake Michigan
Huron
Lake Erie
Point Pelee
Canada's National Parks
National Parks / National Park Reserves
National Marine Conservation Areas
NS = Nova Scotia
NB = New Brunswick
PEI = Prince Edward Island
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Chapter 3

Challenges facing the Kyoto Protocol

Challenges to Kyoto

- Two major producers of Greenhouse gas have refused to sign the Kyoto Protocol: Australia and the United States
- Both countries produce about 7 tonnes of greenhouse gas per person per year, higher than any other country.

THE INTENSIVE "WHO CARES?" UNIT

PROUDLY PRESENTS:

Save the Kyoto Protocol!

Kyoto Can't Stand Alone

Climate change is but one environmental problem facing our planet. We must also consider biodiversity, water quality, ecosystem integrity and more. While the Kyoto Protocol is a good beginning, it is not a means to an end and must be accompanied by other wide spread regulations and laws for environmental protection and sustainability.

Discussion…

- Consider the positives and the negatives of the Kyoto Protocol.
- List 5 things that are good about the Kyoto Protocol.
- List 5 things that are not good about the Kyoto Protocol.
- In the end, do you think the Kyoto Protocol is a good solution to climate change?

References:

- CSIRO Atmospheric Resources http://www.dar.csiro.au
- United Nations Framework Convention on Climate Change http://unfccc.int
- World Watch Institute http://www.worldwatch.org
- Sierra Club of Canada http://www.sierraclub.ca
- Climate Change Canada http://www.climatechange.gc.ca
- David Suzuki Foundation http://www.davidsuzuki.org
- Environmental Protection Agency http://epa.gov

Chapter 3

- Your take home message: A lot needs to be done to ensure Sustainable Development, the world is not sustainable!
- But it is important not to get discouraged, we can think about the progress that has been made. Can you think of examples?