Chapter 8:
Western Canada

Western Canada Within Canada

- Situated in the vast western interior of North America
- Two physiographic regions dominate the landscape – Interior Plains where agriculture takes place and Canadian Shield noted for mining and logging
- Water is a scarce resource and the region's dry continental climate sometimes results in a water deficit → crop failure
- Distance to world market has proven to be a major stumbling block to the region's economic development because of its need to export its surplus energy, food, and mineral resources
- Important measure of its economic well-being is Western Canada's low unemployment rate
- Evapotranspiration: part of the water cycle, sum of evaporation of water from the soil to the air and the transpiration of water from plants and its subsequent loss as vapour
- Led by Alberta, economic gains in this region are outstripping Ontario and Quebec
- While percentage population growth has been greater than that in Quebec over the past decade
- Vast majority live in the regional core, an area of major cities / towns / villages located in the southern half of this region

Western Canada's Physical Geography

- In the Interior Plains, sedimentary rocks contain valuable deposits of fossil fuels
- By value, the 4 leading mineral resources are oil, gas, coal and potash
- Western Sedimentary Basin:
- Athabasca Tar Sands: largest reservoir of crude bitumen in the world and largest of 3 major oil sands deposits in Alberta (oil sands)
- Upgrader: processing plant that breaks large hydrocarbon molecules into smaller ones by increasing H:C ratio, product is supplied to refineries
- In the Canadian Shield, rocky terrain makes cultivation virtually impossible
- Climate is characterized by cold / dry winters and hot / dry summers
- During the winter, Arctic conditions in the Prairies placing region in an Artic deep freeze
- Hot dry summer weather results from the northward migration of hot / dry air masses from the Southwest US
- Annual precipitation is among the lowest in all regions except the North
    - Distance from the Pacific Ocean reduces the opportunity of moist Pacific air masses to reach Western Canada

    - Orographic Uplift: air forced to rise and cool over mountains, if cooling is sufficient water vapour condenses into clouds
- Chinooks: dry, warm, downslope wind in the lee of a mountain range, dropped most of its moisture of windward slopes
- Alberta Clippers: low pressure system that begins when warm / moist winds from the Pacific Ocean come into contact with the Rocky Mountains and then the winds form a Chinook in southern Alberta, winter storms occur over the Canadian prairies when it becomes entangled with cold Artic air masses
- Palliser's Triangle: area of short-grass natural vegetation in southern Alberta and Saskatchewan, northern extension of Great American Desert and unsuitable for agricultural settlement
- Natural vegetation and the soil are largely determined by the evapotranspiration rate
- Southern portion has two natural vegetation zones (parkland and grassland) and three chernozemic soil zones (black, dark brown, and brown)
- Tall-grass natural vegetation zone and parkland to its north make up area known as the Fertile Belt where farming has been more successful
- South of this fertile arc is the area of short-grass natural vegetation and brown chernozemic soils known as the Dry Belt

Environmental Challenges

- Alberta is benefiting from extraction of their oil sands, the mining operation poses 3 major environmental challenges
    - Release of GHG to atmosphere is among largest in Canada
    - Open-pit mining has created a scarred industrial landscape and reclamation process will take time and money
    - Separating the oil from bitumen requires large amounts of water and resulting waste product is deposited into large toxic tailing ponds
- The tailing ponds are used to store the vast quantity of non-renewable water
    - Since these toxic waters cannot be released into local waters, must be stored in ponds for an indefinite time
    - Amount of toxic waters is increasing every day
    - Leakage from ponds have a negative effect
- Native communities downstream from tar sands development have experienced health consequences
- Tailings: waste / residue from a mining operation
- Constant threat of spring floods in Red River Valley
- Another challenge is the need to remove the radioactive wastes from the abandoned uranium mines near Lake Athabasca before it seeps into lake
- Intensive cattle and hog facilities pose a serious challenge to the environment

- Waste from cattle and hogs provide a serious threat to water resources through runoff and infiltration

Western Canada's Historical Geography

- Before 1870, when Canada was ceded these lands by the British government, the HBC used this vast territory exclusively for the fur trade
- In 1856, the British government and Royal Geographical Society sponsored an expedition into the Canadian West to determine suitability of the Canadian West for agricultural settlement
- Great American Desert: treeless Great Plains as described by American explorers in the 19th century
- In 1869, Canada's new government sent surveyors in the Red River Settlement to prepare a land registry system for the expected influx of settlers
- Dominion Land Survey: survey method divided Western Canada into one-square-mile sections to allow ownership of specific land units by homesteaders
- Homesteader: settler who obtained land, settlers paid $10 for a quarter section in Western Canada
- Key attraction for homesteaders in Western Canada was free land but many settlers were ill-prepared for the harsh continental climate and absence of forests
    - Arable land in Western Canada lies much further north
    - Hence, a shorter growing season in the Canadian Prairies affects selection of crops and chances of a successful harvest
    - Disadvantage of short growing season, grasshoppers, hail, untimely frosts
- With the virtual extinction of the buffalo, the Plains Indians could no longer support themselves and were forced to sign treaties and live on reserves
- Arrival of land surveyors and settlers led the Metis to mount the Red River Rebellion in 1869
- Ottawa sent troops to exert Canada's control over the new province and settlers began to pour into Manitoba changing demographic balance of power
- Treaties with Ottawa offered the Indians prospects for survival and time to find a place in a new economy but treaties also made them wards of the Crown
- Living on reserves, Indians were isolated from the evolving Canadian society and became increasingly dependent on federal government
- Without the Canadian Pacific Railway, Ottawa feared that the West would be lost to the Americans
- Settling of Western Canada marks one of the world's great migrations and the transformation of the Prairies into an agricultural resource frontier
    - First wave of homesteaders came from Ontario, Great Britain, and US
    - Second wave came from continental Europe

- Canadian government initiated an aggressive campaign to lure more settlers to Canadian West
- Large influx of primarily non-English-speaking immigrants lead to a quite different cultural makeup in Western Canada from that in Central Canada
- Isolated still posed a problem for many, land survey system encouraged a dispersed rural population
- By early 20th century, a prairie agricultural economy had replaced the Aboriginal hunting one but this commercial economy and its transplanted Euro-Canadians faced severe geographic challenges
    - Distance to market, high cost of shipping grain long distances
    - Climate – drought, hail, and frost threatened crops
    - Short growing season which leaves crops vulnerable to frost damage
- Summer Fallow: farming practice of leaving land idle for a year or more to accumulate sufficient soil moisture to produce a crop / restore soil fertility
- Shift in the farm economy from a labour-intensive operation to a capital-intensive one
- Introduction of machinery changed the way farms were run and reduced the need for farm labour
    - Further technological changes continued to affect the size of the farm labour force and size of the farms
    - Consolidating farms into larger and larger units saw the number of farms decline while size of farms increased
- Mechanization of agriculture triggered a demographic movement of farm and rural people to urban settings
- Organization of Petroleum Exporting Countries (OPEC):
- American demand for oil and gas from Alberta grew
- Saskatchewan's potash and uranium extraction grew
- Manitoba became a hub of nickel and hydroelectric production
- Carbon Tax: emissions pricing policy, emitters would pay for every tonne by purchasing emissions allowances auctioned by government
- Western Alienation: feeling on the part of those in Western Canada and BC that they have little influence on federal policy and that Central Canada controls government
- Negative feeling stems from peripheral position, decisions for Western Canada being made by those outside of the region
- Ottawa is often seen as either an uncaring government that ignores western grievances or manipulative state power than places interests of Central Canada first

Western Canada Today

- Economy and population of Western Canada continue to grow
- While agriculture remains a basic element, most wealth is created by resource industries (oil sands, potash, uranium)

- Crow Benefit: signed in 1897 and ended in 1995, ensured that the rail rates for grain were low to overcome disadvantage of long rail distance
- Alberta is the economic giant of the 3 provinces
- Saskatchewan has most of the cropland and leading producer of potash and uranium
- Manitoba has richest agricultural land in West and produces vast amounts of hydroelectric power from Nelson River
- Primary Prices: prices for commodities such as food stuffs, raw materials and other primary products
- Manufacturing sector in Western Canada is still relatively small
- Clean Energy Fund: federal $1 billion fund for research / development to advance carbon capture and storage technology

Agriculture

- Driving force behind settlement and development of Western Canada in the last 19th and early 20th centuries
- Most homesteaders grew spring wheat for export to Great Britain
- Canola now exceeds spring wheat in returns to farmers and matches it in sown acres, and durum wheat and specialty crops are commanding a stronger place
- Cattle and hog production remains on the edge
    - Exports to US are hampered by American border restrictions
    - Disease has affected both consumption and export of beef and pork
- Decline of rural towns and villages and loss of farm population illustrate the weak position of the rural economy
- Struggle to find its footing has seen a shift from grain to other crops and farm activities
- Higher prices for canola and spring wheat have been triggered by indirect effect of the expanding demand on the part of European and US ethanol plants for biomass to produce an alternative fuel for vehicles, and taken much land out of cultivation for human food
    - Will growth of the ethanol industry in North America continue and reduce supply of grain?
    - Will demand for agricultural products from Pacific Rim continue to grow?
    - If price of grain increases, then more land is seeded to grain the next year, if productions increases then price declines
- Western Canada is global centre for canola research
- Blessed with rich black, dark brown, and brown chernozemic soils that are well-suited for growing cereal crops
- Fertile Belt: area of long-grass and parkland natural vegetation associated with black and dark-brown chernozemic soils which supports a mixed farming area

- Dry Belt: semi-arid parts where crop failures due to drought are more common, primarily devoted to grain farms and cattle ranches
- Agricultural Fringe: agriculture at its physical limits, short growing season
- Major factors controlling those conditions are the number of frost-free days and soil moisture
- On the northern margin of crop agriculture where the length of the growing season is short
- Slight variations in weather conditions have either a positive or negative impact on crops
- Other weather conditions affecting crop farming: late spring seeding due to cold / wet weather, summer frosts before crops are mature, wet weather in the fall, and pests
- Inland Terminals: rail hubs linked to a port by regular rail services
- Higher levels of soil moisture, adequate frost-free period, and rich soils make the fertile belt ideal for variety of crops and livestock
    - Grain and specialty crops are combined with beef, pork, and poultry production
    - Market gardens, dairy farms, and other specialized forms of intensive agriculture are developing near major cities
- Dry belt contains both cattle ranches and large grain farms
    - Arid nature of the dry belt is due to longer summers and higher evaporation rates
    - Continuous Cropping: stubble left after harvest is not tilled and serves to control weeds and reduce soil erosion by wind
- Agricultural fringe is a narrow transitional strip of forested land located just to the north of the Fertile Belt
    - Grain, livestock, and hay crops are principal agricultural activities
- Liberalization of international trade and the Free Trade Agreement opened up the US and other foreign markets for Western Canadian agricultural products and exposed farmers more directly to demand and supply
- First phase of this agricultural transition was marked by end of federal subsidies for grain transportation and by rising prices for fertilizers, fuel, pesticides, and other farm inputs
- Second phase began with global demand outstripping supply
    - Demand for more meat from China
    - Need of biofuel industry for corn and other crops
- Amount of land seeded in crops has increased substantially – shift from summer fallowing to continuous cropping
- Due to loss of Crow Benefit, farmers searched for crops and livestock that can be sold and processed locally
- Grain production has been the prairie staple for over 100 years
    - Do well in dry conditions whereas other crops would fail
- Livestock industry restructuring and consolidating processing plants – specializing in a single product in each plant

Western Canada's Resource Base

- Oil and gas are Western Canada's most valuable natural resources
- Bakken Formation: geological structure containing large quantities of oil trapped in shale
- Bitumen: tar-like mixture of sand and oil
- Economic impact of petroleum on Western Canada has been remarkable prices have continued to climb
- Hewers of Wood and Drawers of Water: laboring classes of capitalism doing the most menial, low-paid work necessary for operation of capitalist society
- Geology of each province differs sufficiently to produce 3 distinct types of mining
    - Alberta contains rich coal reserves
    - Potash, uranium, and diamonds are major mineral deposits in Saskatchewan
    - Manitoba has two major mineral deposits – copper-zinc and nickel
- Potash: potassium salts, nutrient essential for plant growth
- While the boreal forest stretches across northern part of Western Canada, the forestry industry depends on exports to the US
- Western Canada's forest industry has hit the skids, plants have closed and little logging is taking place

Western Canada's Population

- Land-hungry-homesteaders poured into the Prairies creating a rural landscape of small farms and villages
- Rural people moved from the countryside to towns and cities and urban centres
    - Push factors of this migration were mechanization of the agricultural sector, consolidation of farms and shrinking need for farm labour
    - Pull factors included employment opportunities and greater amenities that existed in towns and cities
- Rural-to-urban migration resulted in a redistribution of people within Western Canada
- High natural rate of increase of Aboriginal peoples account for the fact that both Indian reserves and Metis communities and urban Aboriginal population are increasing
- Stryker: slang term for a prospective gang member

Western Canada's Urban Geography

- Process of urbanization in Western Canada has lagged behind
- Nearly ¾ of Western Canada's residents live in urban centres
- With the building of the Canadian Pacific Railway, Winning became known as the Gateway to the West

- Calgary-Edmonton Corridor has emerged as the most urbanized region in the province and one of the densest in Canada
- Calgary has become one of Canada's key corporation headquarters
- Edmonton serves as a staging centre for the oil sands and for diamond mining in the Northwest Territories

Faultline: Aboriginal / Non-Aboriginal Populations

- Highest proportion of Aboriginal population in southern Canada
- Issues range from employment to housing and healthcare