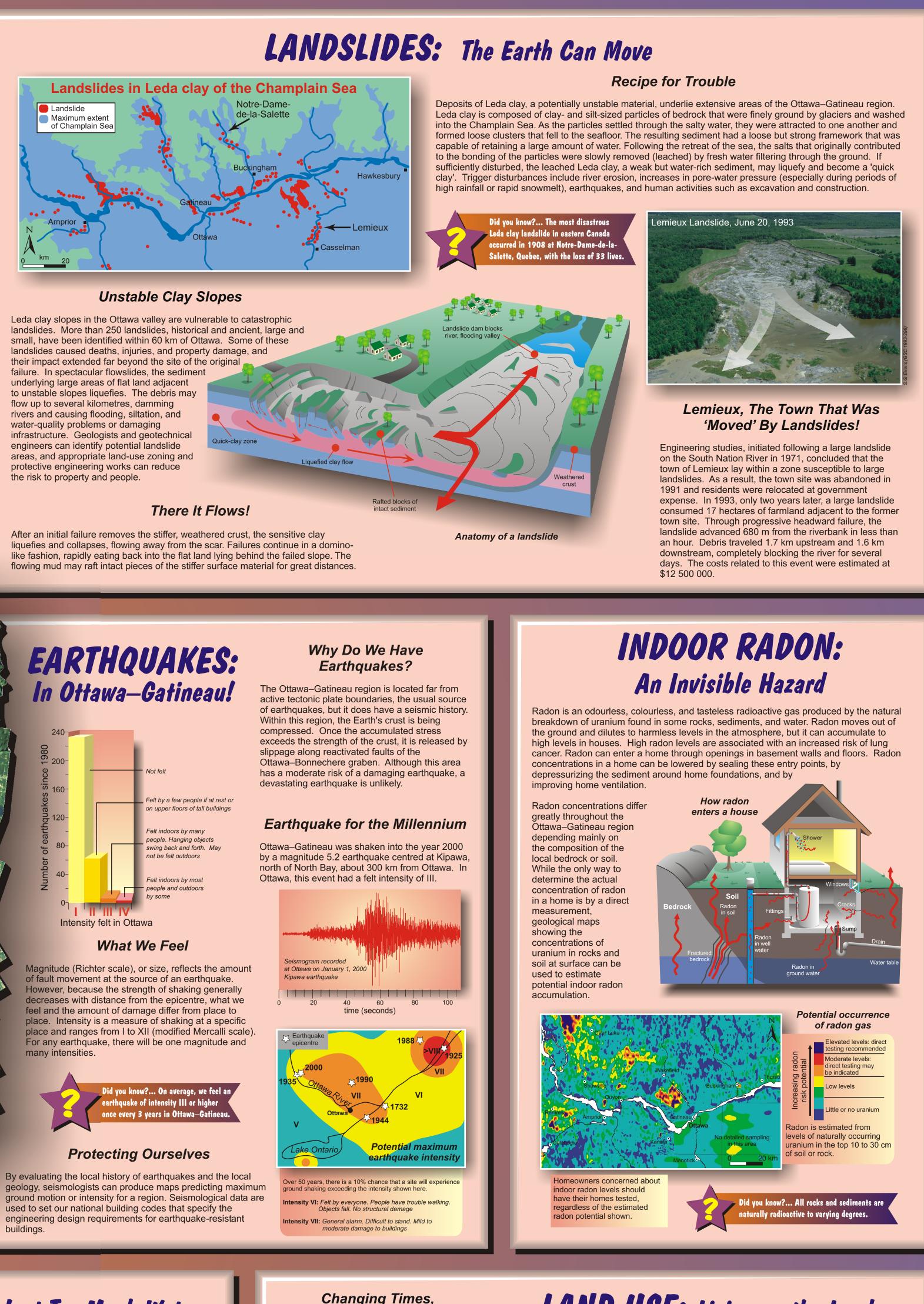
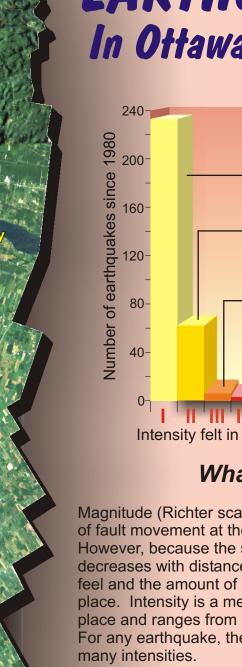


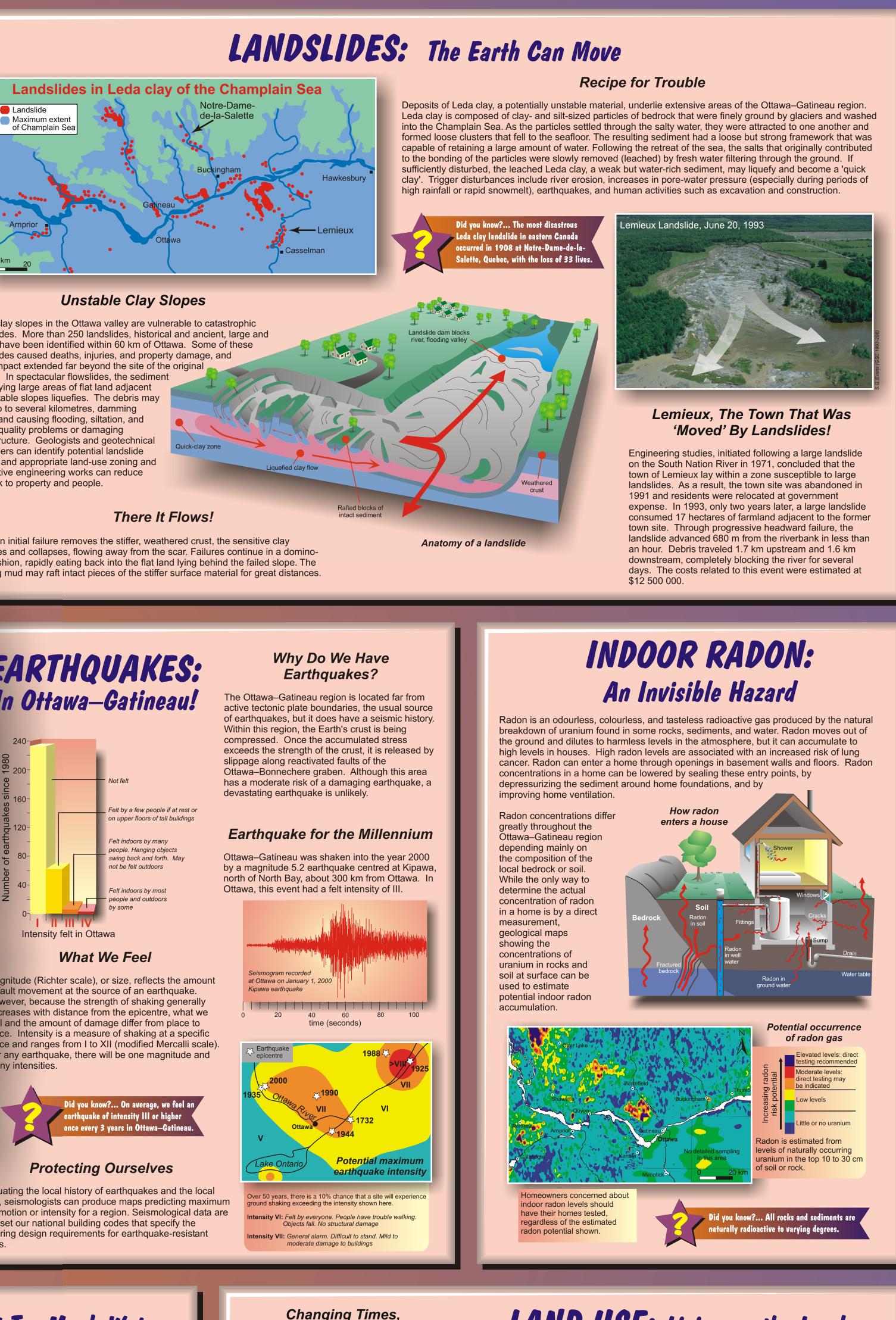
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Living With Our Geological Landscape

We live in the Ottawa valley, a lowland traversed by the Ottawa River and its tributaries, and bordered by the rugged terrain of the Canadian Shield. Over geological time, this area has experienced mountain building and erosion, tropical and temperate seas, thick ice sheets, and erosion by rivers. The greater Ottawa–Gatineau area is underlain by soil, sediment, and rock that have been, and still are being, shaped by earth processes, yielding a geological landscape, or geoscape. Understanding how our geoscape works is essential to the wise use of the land.







FLOODING: Just Too Much Water

Why Floods Happen

andsat TM (5/7) shaded relief fusion

Landsat TM 7 Data collected by

USGS EROS Data Center and

for Remote Sensing.

provided courtesy of Canada Centr

Flooding is a natural process. It nappens when a river overtops its banks and inundates nearby low-lying areas. In communities built on these floodplains, properties, roads, bridges, and railways can be damaged or destroyed by high water levels and sometimes by moving ice. Floods can be caused by rapid melting of large amounts of snow, or rain on snow, or prolonged or torrential rainfall. Ice jams and landslide debris can also temporarily block a river, causing

upstream flooding.



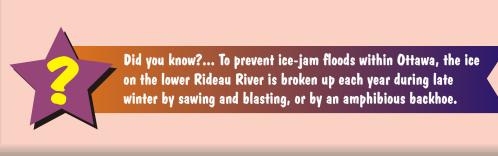
100-year flood' refers to the d level that has a 1% chance nd thus may actually occur

such as dikes.

GATINEAU

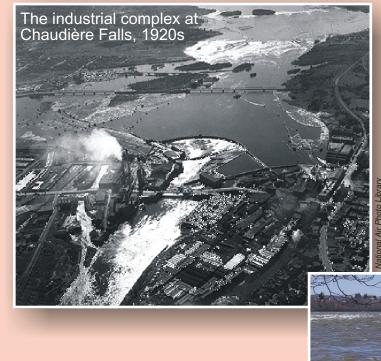
Defending Against Floods

Flood damages can be reduced substantially by avoiding development on flood-prone lands. Parks (such as Brewer Park along the Rideau River and Leamy Park in Gatineau), playing fields, and natural areas are appropriate land use for these flood-prone areas. Dikes, elevated embankments that provide a physical barrier between low-lying land and the river, can protect developments on the floodplain. A dike along the Gatineau River protects part of

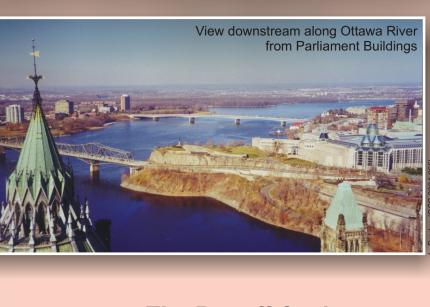






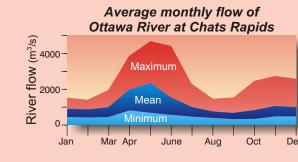


Did you know?... The bed of the Ottawa River has een dredged for gold — gold in the waste that wa ce discharged from the Royal Canadian Mint!



The Runoff Cycle

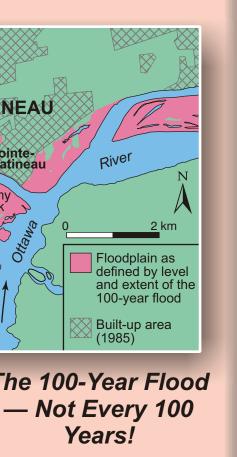
Flow varies considerably throughout the year. High unoff during the spring is caused by snowmelt. Thi is followed by lower flow during the drier summer months, an increase in flow due to fall rains, and fairly steady flow through the winter. The lower Ottawa River experiences two spring flood peaks. Spring arrives earlier along the southern tributaries Mississippi, Rideau, and South Nation rivers) which causes the Ottawa River to rise to its first peak. The second, and normally higher, peak arrives about three weeks later from snowmelt in the northern part of the basin.



A Precious Resource

ne Ottawa River is the source of drinking water for many local communities. The City of Ottawa is the neaviest of these users, drawing 341 million litres of water from the river daily at the Britannia and emieux Island purification plants. Historically, the Ottawa River has been a transportation route for native peoples, fur traders, and the timber industry. In the 1840s, saw and grist mills were located at Chaudière Falls. This site later developed into a prawling complex of saw, pulp and paper, and carbide mills, and hydroelectric plants,

> all utilizing the water and exploiting the energy of the falls. Some of these industries remain in operation today. Recreation is now a major use of the river.



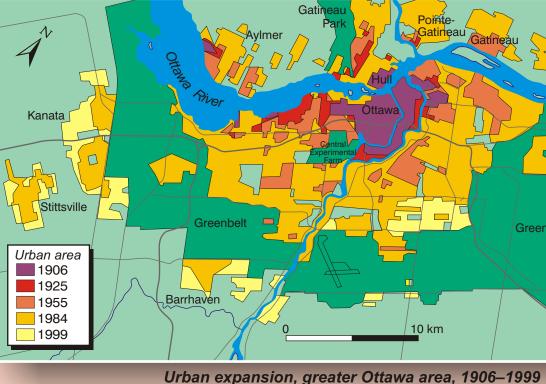
curring in any given year, more often than once in a century or, alternatively, not happen at all. The magnitude of the 100-year flood is commonly used to define flood zones and to design flood-protection structures

Gatineau. Although the reservoirs are too small to control flood discharge, the many power dams along the Ottawa River can alert downstream communities of potential flood

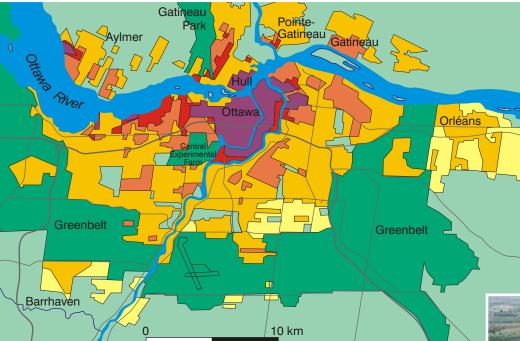
conditions.



The local rivers and Rideau Canal, which provided the primary means of transportation for settlers, fur traders, loggers, and the military. defined the early settlement of the region. Most early settlements were along rivers. Extensive logging in the 19th century was followed by development of farms in the lowland areas, and mining, mainly in the Gatineau Hills. In the 20th century, urban areas expanded greatly at the expense of natural areas and agricultural land, so that much of the vacant land within the urbanized area has some form of environmental constraint. Ottawa's growth has also been shaped by the Greenbelt, almost 20 000 hectares of publicly owned lands (farms, forests, wetlands, institutional complexes, and recreational areas) in a rural setting.



rléans – 19



Geology and Agriculture

Soil texture, which is determined by the underlying geological material, determines how suitable the land is for agriculture. Nutrient-rich silt and clay soils are highly productive as long as surface drainage is adequate. Networks of long drainage ditches are common in these areas. Till, which has a fine-grained matrix, is also nutrient-rich and retains moisture wel



LAND USE: Living on the Land



Decisions Can Be Hard

Many of us might like to live in a home on a bluf with a beautiful view of the valley below or perhaps on the banks of a quiet river. Beware! Both may be hazardous. A bluff on Leda clay may be vulnerable to landslides and the riverside home may be prone to flooding. In Ottawa, development on clay slopes, on organic soils, o in areas vulnerable to flooding is either prohibited or subject to review by a geotechnical engineer.



piles built from boulders pulled from the fields. Sandy soils may be low in nutrients and do not hold moisture, and thus are poor agricultural soils. In the Bourget-Plantagenet vicinity, abandoned farms on the dry sand plain of the early Ottawa River have been returned to pine forest, now the Larose public recreation forest.