

Perspective

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ECONOMY AND ENVIRONMENT SPECIAL

Where do we stand?

When we take action



Desjardins
Economic Studies



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NOTE TO READERS: In this text, the symbols **M** and **B** are used respectively to refer to millions and billions of dollars.

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EDITORIAL

The environment and the economy: sworn enemies?

Some would say that economic growth and the environment don't go together. However, the two can be reconciled. For example, Finland and Sweden managed to cut their greenhouse gas (GHG) emissions between 1990 and 2006 while at the same time boosting GDP. What this shows is that we can act without jeopardizing a nation's prosperity.

Years after scientists sounded the alarm, economists have finally heard the call and are now trying to estimate how much the damage will cost. This is how the environmental issue, which began as a question of survival, slowly evolved into an economic matter. We now understand that the cost of climate change and its effect on infrastructures, population shift and flora and fauna will be prohibitive.

At the same time, we have begun to measure the impact of human activity on the planet and realized that our current production and consumption patterns cannot continue. By gauging the pressure Québécois are exerting on nature, we have come to realize that we are overtaxing the planet. A real push is needed, and we can no longer rely on goodwill and persuasion. If the results obtained to date are to be believed, it's time to move from the carrot to the stick; in other words, stronger and more restrictive measures, rather than incentives are needed. From all indications, we still have a ways to go.

The tools are there and governments are multiplying their initiatives; for example, carbon subsidies with emission caps and taxes levied on all types of things, including carbon, non-recyclable garbage bags and traffic congestion. Now that they understand that this is not a passing phase, businesses have jumped on the bandwagon, with large European and some American companies requiring their suppliers to comply with specific environmental standards. The conditions are clear: no compliance, no contract. Ecological certifications abound and they are much more than cosmetic measures to appease consumers. Can Québec businesses circumvent these requirements?

Everyone is on the firing line—governments, business owners, merchants and citizens alike. We must all question our ways of doing things. Innovative solutions are needed to ensure the planet's survival. Ecodesign, an approach that takes into account a product's environmental impact during its whole lifecycle, is just one of many tools that we must use.

Québec ranks favourably in relation to its provincial counterparts in terms of GHG emissions. However, it's quite another story for its per capita garbage output. There is no "all-around champion" in environmental matters; there is work to be done at all levels and in all the provinces. The fact that Québec does not have its own special environmental challenges does not mean it is exempt from the general effort everyone must make to reduce waste and GHG emissions. In this regard, the government should give thought to an invaluable environmental comparative advantage: hydroelectricity. Is it time to capitalize financially on this advantage?

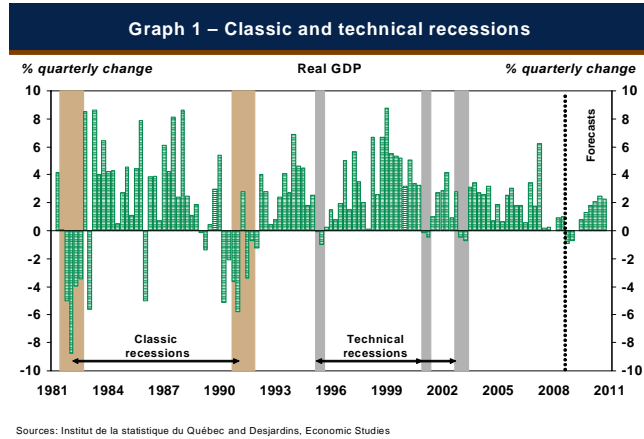
Do the economy and the environment clash? No, provided all the economic agents change the way they do things. Regulations and pricing will get us there faster than gentle persuasion, and only our governments have the tools required to make this happen.

François Dupuis
Vice-President and Chief Economist

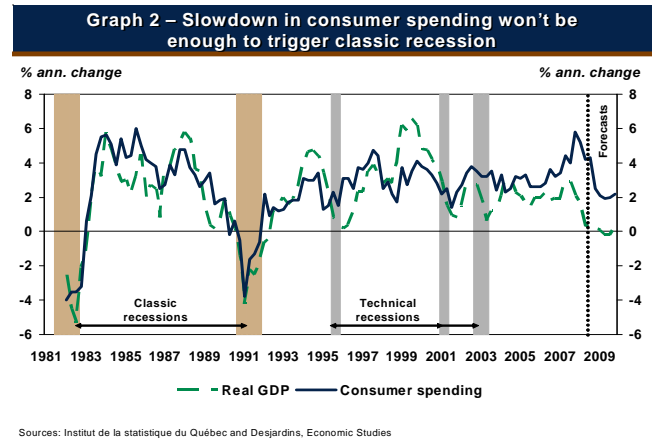
THE SITUATION IN QUÉBEC

Québec headed into a mild recession

Québec's economy has been holding on by a thread since mid-2007. The near zero growth in real GDP and the darkening world outlook, especially in the U.S., will be enough to drag us into negative territory. The province will thus undergo a technical recession, defined as two straight quarters of contracting economic activity. It will be different from a true recession in that real GDP is expected to fall only slightly (less than 1%) in the last quarter of 2008 and first quarter of 2009. Since 1981, Québec has seen two classic recessions and three technical recessions (Graph 1), i.e. a downturn that is not deep or long enough to be characterized as a true recession. For a recession as severe as the ones experienced in the early 80s and 90s, the economic indicators would have to show a much deeper and more widespread deterioration. However, if the situation in the United States persists, Québec's economy could take a turn for the worse. Our forecast scenario calls for real GDP growth of 0.7% in 2008 and flat growth in 2009. We will have to wait for 2010 before seeing a real recovery, which will translate into growth of 1.6%.



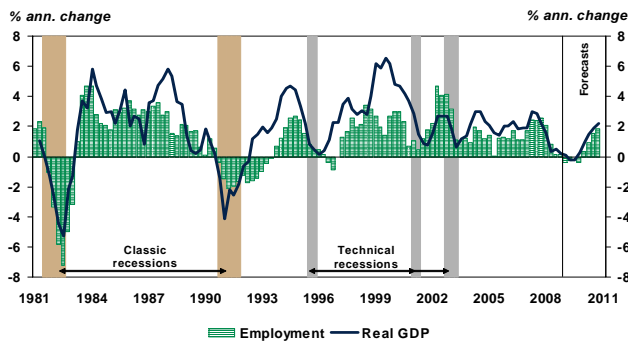
Consumer spending fell off sharply in Québec during the last two recessions (Graph 2). Interest rates were high and massive layoffs followed, with unemployment climbing to over 10%. This time, the conditions do not seem to be in place for a substantial reduction in consumer spending akin to what happened then. To date, the labour market is holding up, and the financial crisis and economic difficulties are pushing down key interest rates.



During this period of uncertainty, consumer confidence will play a decisive role. It has already plunged to a level typically consistent with a recession. If the stock market doesn't pick up soon or if it sustains additional heavy losses, spending may be more affected than expected. A drop in consumption would certainly plunge Québec's economy into a deep recession. Our scenario is banking on a much slower increase in goods and services spending in the last quarter of 2008 and in the first quarter of 2009. The toll of this loss of confidence from consumers remains to be seen.

The labour market has held up against the darkening outlook fairly well until now. If job losses rise sharply in the months ahead, consumption will be jeopardized. Since employment fluctuations usually lag somewhat behind changes in economic activity, employment is expected to decline in the next few months. However, Québec should feel the pinch less than Ontario in this regard. Ontario's jobless rate already reached Québec's in November for the first time in almost 30 years. For now, the Québec economy's lack of vitality is not enough to trigger massive layoffs of the kind seen in the last two recessions (Graph 3). The profound restructuring that began some time ago in the forestry, furniture and textile and clothing sectors could limit the damage. That said, job losses are expected by the end of 2008 and in early 2009. Although the unemployment rate is projected to climb from 7.1% in November 2008 to around 8.5% by mid-year, it will be well below the peaks reached in the previous two classic recessions (15.8% in August 1982 and 14.2% in November 1991). This time, the labour shortage that is already affecting a number of industries will limit the increase in the jobless rate.

Graph 3 – Employment will fare better than during genuine recessions: stability to fall slightly



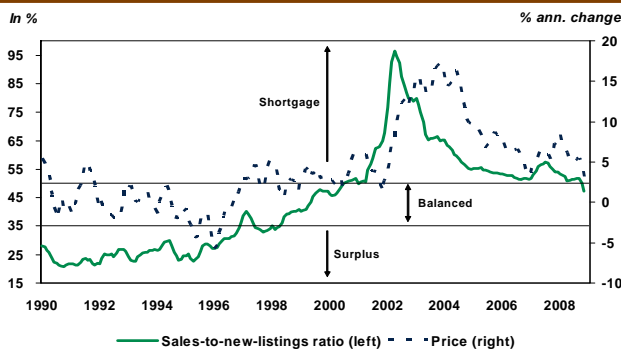
Sources: Statistics Canada and Desjardins, Economic Studies

New construction is still doing well in Québec. The slight drop in housing starts in 2008 eased fears of a collapse akin to the one underway in the United States. Less favourable economic conditions have shifted demand toward less expensive products such as semi-detached homes and condominiums. That said, housing starts are expected to fall off by about 10% this year.

Home resales are already slowing and price increases are gradually dwindling. They are expected to be in the neighbourhood of 4.5% for 2008 as a whole and 1.7% in 2009. A broad-based decline in prices that lasts for several months usually occurs when there is a surplus in the housing market, as was the case in the 1990s (Graph 4). If the economy deteriorates more than anticipated as a result of the financial crisis, we could find ourselves in a surplus situation, leading to a drop in prices. There is therefore a risk that the housing market will no longer be a force in the Québec economy's favour.

Exports will continue to fall this year due to the problems in the American economy. However, the aerospace sector's solid performance will help Québec get through this turbulent

Graph 4 – Surplus real estate dragged down prices in the 1990s



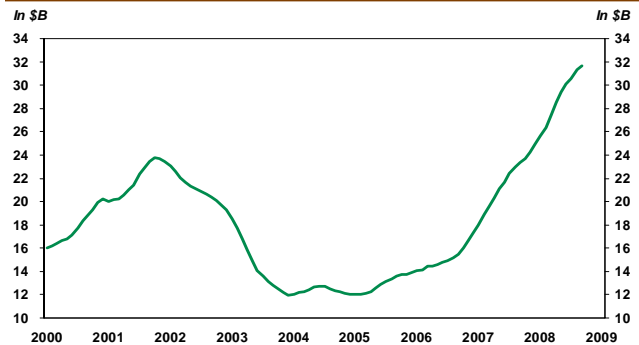
Sources: The Canadian Real Estate Association and Desjardins, Economic Studies

Detailed forecasts are on page 21.

period. Besides airplanes, our primary export product, Québec has many engine and part suppliers. They are part of the global integration chain and some are even involved in building the massive Airbus A380 jet. This industry's success, the result of geographic diversification, explains why Québec's international exports have not taken as much of a hit as during the 2001 U.S. recession. The aerospace sector's order books have been expanding for several years (Graph 5). As there is already a two-year lead time between aircraft orders and shipments, this should help maintain a solid production pace. It will not, however, be enough to keep Québec's overall exports from declining further. Already at a record level, the trade deficit will continue to deteriorate.

To date, Québec has held up well against North America's weakening economic situation, but it will find it tough to avoid a downturn. Its industrial structure, which depends on aerospace rather than on the automotive sector, will help it fare better than Ontario. Massive public investments in infrastructure and hydropower projects will also keep the economy out of a deep slump.

Graph 5 – Unfilled orders in Canada's aerospace sector



Sources: Statistics Canada and Desjardins, Economic Studies

Unless the labour market deteriorates substantially, pulling consumption and the housing market down with it, domestic demand will stay in positive territory. However, this will not be enough to offset the decline in foreign trade, which will ultimately take a bite out of real GDP. The Québec Infrastructure Plan, which calls for investments of \$7.6 billion in 2008-2009 and \$8.3 billion in 2009-2010, will help contain the damage. The federal government will also be injecting large amounts into infrastructure. Thus, the two governments are planning to invest a combined total \$12.5 billion in Québec this year, the biggest contribution to GDP since 1977. However, this will still not be enough to keep the province out of a technical recession, albeit a mild one.

Hélène Bégin
Senior Economist

THE SITUATION IN ONTARIO

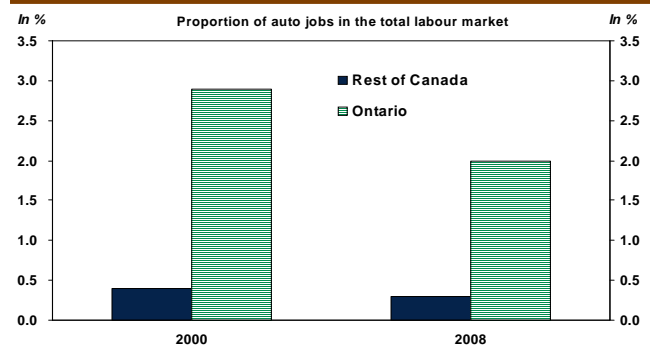
Ontario recession aggravated by auto industry troubles

Although the official figures are still inconclusive, there is no doubt that Ontario's economy is in recession. Several signs point to a sharp drop in domestic demand and foreign trade has been hit hard by the recession south of the border as well as the auto industry's difficulties.

The confidence of Ontario households continued to slide in the fall, with the index down more than 32% year-over-year and tumbling to a nearly 15-year low in December. According to the data on international merchandise trade, Ontario's exports abroad continued to decline in Q3, dropping 4.5%. Exports of industrial equipment and goods are down, of course, because business investment south of the border has fallen, but much of the deterioration comes from the 12.3% drop in automotive products.

These results are not surprising given that the automotive industry is in crisis. Besides the structural problems that have existed for several years, the industry must now contend with a substantial cyclical drop in sales. Ontario is especially vulnerable to the vagaries of this industry, which represents a little over 110,000 direct jobs, or 2.0% of all of the province's jobs. This proportion is much lower elsewhere in Canada, where the automotive industry only accounts for 0.3% of direct jobs.

Graph 7 – Ontario is especially dependent on the auto industry



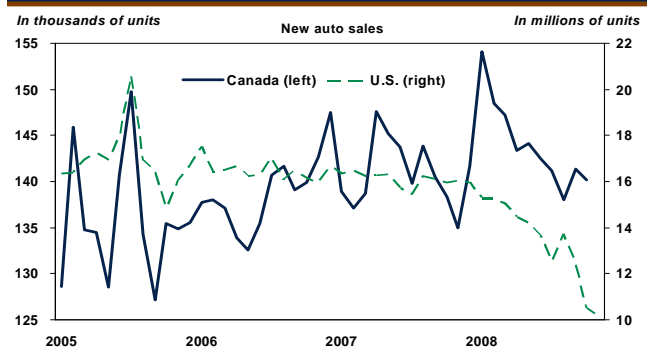
Sources: Statistics Canada and Desjardins, Economic Studies

Ontario will therefore be especially affected by the restrictive measures recently announced by the auto industry. General Motors and Chrysler will temporarily close almost all their North American plants. The new Toyota plant that was recently inaugurated in Woodstock will only produce 75,000 RAV4 vehicles a year—initial projections were for an output that was twice as big. As for Ford, it will close its Essex engine plant as well as the foundry, and has extended the Christmas shutdown by a week. Honda has just announced production cuts for its plant in Alliston, Ontario.

Mirroring the U.S. rescue package, Ottawa and Queen's Park recently announced their own aid package for the Canadian auto industry. The \$4 billion bailout comes with conditions, however, including the need to find a long-term solution in conjunction with employees and suppliers. The long-term survival of Ontario's automobile industry could thus be decided in the next few months.

That said, the changes will not occur overnight. In the short term, the problems in the automotive industry will magnify the deterioration in economic conditions and Ontario should undergo the worst recession of all the provinces in 2008-2009. A real GDP contraction is thus anticipated as of Q4 of 2008; it should continue to contract until mid-2009. All in all, 2008 should end with growth of just 0.1%. The recession should lead to an average real GDP decline of 0.7% in 2009.

Graph 6 – Auto sales down in North America



Sources: Statistics Canada, Bureau of Economic Analysis and Desjardins, Economic Studies

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Detailed forecasts are on page 21.

THE ECONOMY AND THE ENVIRONMENT

Where do we stand?

After fifty years of sampling the air, water and earth, the scientific community has increasingly disheartening news to report. As the alarm bells grew louder, the world began to heed the call and take steps to ensure the survival of our planet and its inhabitants. Economists soon jumped on the bandwagon, trying to calculate the cost of action versus inaction. Are the economy and the environment necessarily on opposing sides? Does this essentially involve pitting the short-term outlook against the long term? These are some of the questions Perspective will try to answer in this issue.

BACKGROUND

Concern about the planet’s demise is not something new. Although scientists’ warnings multiplied throughout the 20th century, the population actually began waking up to this reality in the 1970s, particularly in the Western world. Back then, the big issue was pollution, something hardly anyone talks about today.

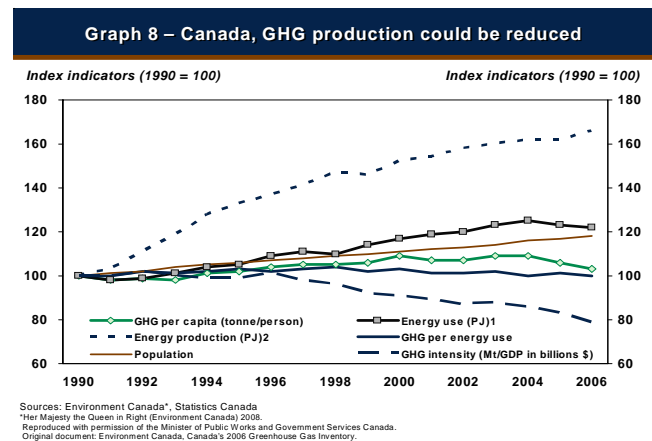
In 1972, the United Nations held its first conference on the environment. However, it wasn’t until 1987 that the movement beefed up its efforts and a common language was developed. It was also the year the Intergovernmental Panel on Climate Change (IPCC) was established to assess (scientifically and economically) the impact of climate change. That same year, the Bruntland Report¹ provided a key statement on sustainable development, defining it as “Development that meets the need of the present without compromising the ability of future generations to meet its own needs.” These two events were milestones in the history of environmental protection.

Several global initiatives followed, including the Rio Earth Summit (1992) and the Kyoto Protocol (adopted in 1997 and implemented in 2005). Briefly, the Protocol imposes restrictions on the emission of six greenhouse gasses, with CO₂ labelled as the number one enemy. Many intercontinental accords and alliances have followed since, all with a view to protecting the environment.

While climate change has clearly been at the forefront for almost four decades, sustainable development involves much more than fighting against climate change and protecting the atmosphere. It encompasses biodiversity preservation and the protection of environments and resources. It also includes the development of all human beings as well as social cohesion and solidarity between territories and generations. And last but not least, it entails coherent development with responsible production methods and consumption. The undertaking is massive and the challenge nothing short of colossal.

However, behind the consensus on the need to act lies dissension on the diagnosis, the causes of the problems (is this temperature change normal or provoked by human activity?), the measurement tools and the actions needed. Amid the debate, the economist Nicholas Stern made headlines in 2006 when he published *The Economics of Climate Change*, a report in which he emphasized the need for action regardless of whether global warming is a normal trend or the result of human activity.

Backed by figures, the Stern Review shows the advantages of taking forceful action now rather than waiting. According to Stern, inaction could cause global GDP to fall by 5 to 10% by the year 2100, assuming that the current climate change caused by GHG emissions is attributable to humans. In contrast, the cost of stabilizing CO₂ (the main GHG culprit) to a level similar to that of 2006 (the year the review was published) would cost 1% of global GDP by 2050. Following this publication, the IPCC came out with its own figures, estimating that GHG stabilization would cost between 0.2% and 0.3% of global GDP by 2030. Who’s right? It’s hard to say.



Despite these disagreements, the evidence is incontrovertible: global warming is real. We are increasingly feeling the effects of climate change although not everyone agrees on just how serious the situation is. Over the years, the problems we attribute to climate change have become an economic burden as costs soar due to the damage caused by extreme weather events.

MEASURING THE DAMAGE

While there are many ways to calculate human pressure on ecosystems, the most popular is the “ecological footprint” developed by the Global Footprint Network (GFN), defined as follows: “It is a measure of the load imposed by a given population on nature. It measures how much land and water area a human population requires to produce the resources it consumes and to absorb its wastes.”² According to the World Wildlife Fund (WWF) and the GFN, in 2003, humanity’s footprint already exceeded the planet’s biocapacity by 25%. Biocapacity is “the capacity of ecosystems to produce biomass and to absorb waste materials generated by humans, using current management schemes and technologies.”³ One of the significant conclusions of this exercise was that each human consumed 2.2 global hectares whereas the planet’s biocapacity is estimated at 1.8 hectares per person.

This metric is not perfect; it only takes into account CO₂ emissions, not any other greenhouse gasses. Nor does it consider deforestation, soil erosion or the disappearance of animal and crop species. Still, it is the most complete tool available to date. In December 2007, Québec’s Sustainable Development Commissioner unveiled a version of this metric created specifically for Québec using the GFN’s methodology (Table 1). The picture was far from rosy: in 2003, Québec’s footprint was 6 global hectares per person, whereas, as mentioned earlier, the Earth’s capacity is estimated at 1.8 hectares per person. According to the Commissioner, “We

**Table 1 – Ecological footprint
(in global hectares per capita)**

2003	Canada	Québec	World
Cropland	1.14	1.14	0.48
Grazing land	0.40	0.37	0.14
Forest	1.16	1.55	0.23
Fishing ground	0.15	0.15	0.15
Built-up land	0.18	0.35	0.08
Energy	4.58	2.39	1.14
Total footprint	7.61	5.95	2.23

Sources: Québec Auditor General 2007-2008 Report to the National Assembly, Volume II, Sustainable Development Commissioner’s Report. Appendix, *Empreinte écologique du Québec*, and WWF, *Living Planet Report 2006*

**Table 2 – Biocapacity
(in global hectares per capita)**

2003	Canada	Québec	World
Cropland	3.37	0.77	0.53
Grazing land	0.26	0.01	0.27
Forest	9.70	9.00	0.77
Fishing ground	1.08	2.20	0.14
Built-up land	0.07	0.07	0.07
Total biocapacity	14.48	12.05	1.78

Sources: Québec Auditor General 2007-2008 Report to the National Assembly, Volume II, Sustainable Development Commissioner’s Report. Appendix, *Empreinte écologique du Québec*, and WWF, *Living Planet Report 2006*

would therefore need the equivalent of three planets if everyone followed our consumption habits.” Small consolation, Québec’s footprint is smaller than Canada’s (7.6 hectares/person) and the United States’ (9.6 hectares/person). Québec’s extensive use of hydroelectricity explains most of the difference between the provincial and national figures.

In contrast, Québec’s biocapacity, which can be defined simply as our “ability to absorb” the effects of human activity, was 12.1 hectares/person thanks to our vast forest area in relation to our population (Table 2). The Canadian capacity is 14.5 hectares/person. The difference between Québec and Canada is largely explained by the fact that we have less cropland and pastures.

However, just because our footprint is smaller than our biocapacity (as measured in 2003) does not mean that we can afford to sit on our laurels. Although blessed with a large biocapacity, Québecers and their lifestyles are putting excessive pressure on the planet’s capacity, which is why the call to action is so pressing.

FIGURES THAT ARE HARD TO SWALLOW

Environmental data was scarce in the 1980s. However, by the 90s, the need for reliable tools became clear. Statistics Canada, Health Canada, Environment Canada and Recyc-Québec are among the country’s leading sources of environmental, physical and monetary information on which the nation and Québec base their reports and action plans.

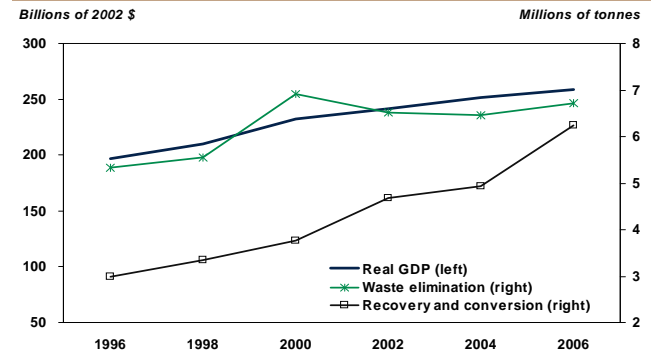
Most of the figures currently available are on air quality, GHG emissions, waste management and water quality. Statistics also exist on such diverse topics as utilization of compact fluorescent bulbs, the prevalence of programmable thermostats and low-flow shower heads, all of which help measure individual efforts.

Why are there so many reports on air quality and greenhouse gas emissions? Because we now know that air quality affects health. The goal of tracking these factors is to contain healthcare costs, which are ultimately borne by taxpayers. In Canada, per capita GHG production was 22.1 tonnes in 2006 (23.1 tonnes in 2005) and averaged 22.8 tonnes between 2002 and 2006. But what is a tonne of GHG? Environment Canada provides two examples regarding the automobile: driving a mid-size car for 5,000 kilometres or 20 cars idling for 2 minutes per day over a year would generate one tonne of GHG. The decrease in GHG observed in the last few years is largely due to a reduction in energy output by coal-fired power plants and to milder winters.

However, we need other metrics, particularly to calculate business performance as it pertains to sustainable development. How do we introduce financial and non-financial environmental indicators and create budgets that incorporate environmental aspects? Although not easy to do, we must develop standards soon if we are to be accountable for our environmental actions.

Of the other indicators available besides the GHG metric, the one on waste is certainly not encouraging either. In 2006, 889 kg of waste was eliminated per person in Québec, an increase of 4% over 2004. Of this amount, about one third was generated by individuals and two thirds by business and institutions. In addition, 321 kg of recycled waste was generated per person that same year, up 15.3% from 2004. Thus, the proportion of recycled waste out of the total waste produced in Québec rose from 24.8% to 26.5% during this period, an improvement but still far from where we need to be.

Graph 10 – Recovery is gaining ground



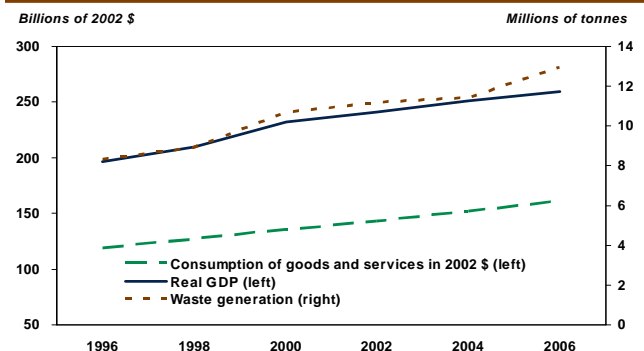
Sources: Recyc-Québec and Desjardins, Economic Studies

ECONOMIC GROWTH AND THE ENVIRONMENT: A CONTRADICTION?

It is interesting to compare economic and waste variables. In so doing, we notice that despite repeated calls to protect the environment, the most recent economic boom came hand in hand with an increase in waste (Graph 9). Indeed, from 2004 to 2006, waste generation outpaced real GDP growth, which begs the question, are the awareness efforts having any impact at all? Graph 10 illustrates the progress of recovery and conversion in relation to elimination and the increase in GDP. Fortunately, the volume of recovered and converted waste grew faster than the volume eliminated.

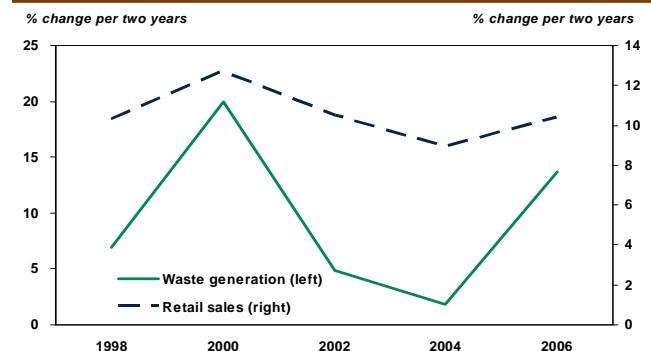
Parallels can also be drawn between waste generation and the retail trade. Here too, waste generation is growing in step with sales (Graph 11). However, the two-year change shows that waste is increasing at a slower pace than retail sales. That said, the gap narrowed considerably in 2006.

Graph 9 – Waste grows in step with GDP and consumption



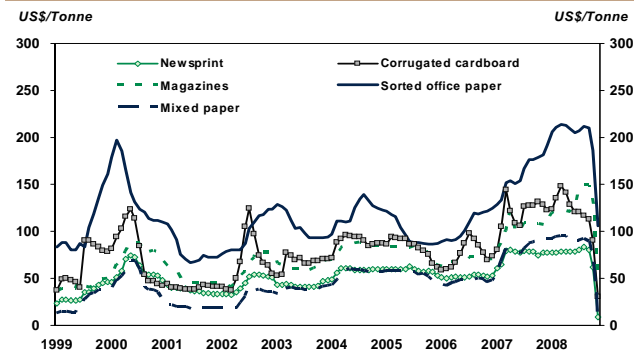
Sources: Recyc-Québec and Desjardins, Economic Studies

Graph 11 – Waste generation not increasing as fast as retail sales



Sources: Recyc-Québec and Desjardins, Economic Studies

Graph 12 – Price of recycled paper fluctuates



Sources: RISI – Pulp & Paper Week and Desjardins, Economic Studies

Waste also has a value. For instance, just last summer, recycled newsprint sold at approximately \$US80/tonne (Graph 12). But since then, the economic slowdown and the erosion of Chinese demand for recycled paper have sent prices tumbling. There is also a price for recycled metals and plastics. However, at a time when commodity prices are collapsing, so are the prices of recycled materials. In fact, in some cases, sorting centres must store the already sorted recycled materials and even pay to dispose of the overstock.

Does this mean that economic growth is the enemy of the environment? If we persist with our current production methods, the answer is yes. Continuing on this path will surely lead to a dead end. However, in order to answer no to this question, we have to change the way we produce by including environmental protection measures at each step of development. Making this shift is well worth the effort considering the planet's very survival is at stake.

CARBON: PUBLIC ENEMY NUMBER ONE

Why hunt down carbon? Because it is the most abundant greenhouse gas after water vapour. This gas stores sunlight and releases some of it back towards the Earth. This heat is trapped in the atmosphere. Since the Industrial Revolution, the rampant burning of fossil fuels (coal, oil and natural gas, among others) has overtaxed the capacity of natural processes to absorb carbon dioxide, thereby increasing its concentration in the atmosphere. This situation is further exacerbated by deforestation. Because trees absorb carbon dioxide, their reduction has decreased the Earth's ability to absorb this greenhouse gas. In short, by increasing GHG production and reducing the number of trees, we have created a situation conducive to global warming.

Other than cutting down on the burning of fossil fuels, what can we do? Is there a way to reduce CO₂ emissions? Creating a carbon market and imposing GHG caps are part of the answer. Caps are a good way to reduce total CO₂ emissions provided they are lower than those currently in place. For example, the Canadian government has undertaken to cut its GHG level by 20% between 2006 and 2020. In 2010, the CO₂ emissions of the following industrial sectors will have to be 18% below their respective 2006 levels: electricity, oil, pulp and paper, iron and steel, iron ore pelletizing, smelting and refining, cement, lime, potash, chemical products and fertilizer. Companies have one year to prepare. They can achieve their targets by making investments in their plants or by purchasing reduction credits from companies that have reduced their emissions below their allotted quota. They can also purchase a futures contract on the Montréal Climate Exchange, launched on May 30, 2008. Right now, the biggest emitters will have trouble circumventing the 2010 deadline; we already know the worst offenders as well as their emission levels. For now, the Canadian market is closed, meaning trade is not possible with Europe, which is way ahead in this area.

Does the carbon market really work or is it just a ploy to buy time? The fact is, this strategy was already successfully used at the end of the 90s in the U.S. to combat acid rain. And the carbon market has existed in Europe since 2005. The first two years were a trial period. The second phase is from 2008 to 2012. At the beginning of the new phase, each member state had to submit a national quota allocation plan (PNAQ) to the European Commission for approval. A few conclusions can be drawn from the European experience.⁴ First, you can launch a trade system without all the elements being perfectly in place, and second, carbon really does have a price. Third, carbon pricing encourages emission reductions, and to date, no market share loss resulting from carbon pricing has been empirically verified. The experience is therefore worth trying on this side of the ocean.

Another way to cut emissions would be to impose a carbon tax on products containing fossil fuels or produced with oil, gas or coal. Ideally, consumers would favour these greener products. The truth is that almost all products would be affected and it would be hard to measure the real impact on CO₂ emissions. This didn't stop Ireland, which a few years back started taxing plastic bags (the equivalent of 33 cents per bag), resulting in a 90% reduction in their use. Following suit, the mayor of New York announced last November that he plans to implement a similar initiative.

AND IF WE DO NOTHING?

Without sounding alarmist, we can already foresee the effects of global warming. In Québec, less snow and melting ice could cause the water level to rise and increase the risk of flooding and erosion, a disturbing possibility considering the number of people living along the banks of the St. Lawrence River. Will roads have to be moved? Should we already start thinking about moving the residents along the river bank? According to the Ouranos consortium, the growing frequency of rain, mild spells in winter, and heavy precipitation hastened coastal cliff erosion along the St. Lawrence between 1992 and 2006, a situation that is expected to worsen.

Rising temperatures will also redefine where we grow our crops. Perhaps the soil farther north will become more conducive to certain plant species found in the St. Lawrence Plain. If so, the number of pests will also increase. A dramatic example is the mountain pine beetle, a destructive insect whose proliferation was favoured by milder winters in British Columbia. The infestation was so severe that timber harvesting had to be stepped up in order to limit the negative impact on the province's forests and economy. The fact is that there has been an increase in the invasion rate of new species in North America in recent years as well as a rise in the spread of native invasive species. The zebra mussel, which attacks water pipes, is a painful example. The cost of controlling these infestations is deemed prohibitive by the authorities, who are trying to find more effective and cheaper solutions.

Warmer temperatures also increase the number of freeze-thaw cycles during winter, which wreaks havoc on roads, driving up the cost of maintenance and repair. This situation will be particularly costly in the Great North, where the permafrost is disappearing, meaning that new road infrastructures will have to be built.

As regards air quality, Health Canada estimates that 5,400 people die prematurely each year due to poor air quality. This estimate is for Canada's eight largest cities and was calculated a few years ago. The damage also extends to vegetation, crop yields, and ecosystem health. Acid deposits in the air accelerate the corrosion of materials, which increases building and transportation infrastructure costs.

Deteriorating water quality (toxins, algae proliferation, warming, etc.) also brings its own set of problems and additional costs. Treating water to make it potable is only one aspect of the problem; the impact on fishing and tourism must also be considered.

Table 3 – Québec: Materials prepared for recycling - 2006

	<i>Tonnes</i>
Newsprint	593,000
Corrugated and non-corrugated cardboard	462,540
Organic materials	360,000
Household appliances	248,000
Construction, renovation and demolition waste	236,000
Mixed cellulosic fibres	130,460
Glass	117,000
Ferrous metals	111,800
Plastics	95,000
Tires	70,000
Mixed metals	18,500
Copper and aluminum	10,000
Electronics	3,000
Other materials	1,000
Total	2,456,300

Sources: Statistics Canada, Environment Division, Recyc-Québec and Desjardins, Economic Studies

The work goes much further than just cleaning up our territory. Europe and a growing number of U.S. firms are already taking preventive and curative action aimed at limiting their footprint as well as their products' imprint on the environment. They are also choosing their business partners based on these criteria. Québec companies that don't get with the program will simply be left out of the bidding process. Can they afford to pass up on international opportunities?

ACTIONS TO CHANGE THE TREND

There is so much to do, it's hard to know where to begin. Everyone seems to agree that reducing GHG emissions is a priority. Setting CO₂ emission caps is one strategy that appears to be catching on everywhere around the world. Last fall, some 200 Canadian economists got together and called for a national debate on the possibility of imposing a carbon tax. Certainly not new, this option has been the subject of debate for more than a decade. Finland's and Sweden's success in this regard is convincing: between 1990 and 2006, GHG emissions fell by 9% while economic growth, as measured by GDP, was up 44%, proving that environmental stewardship and economic growth are not incompatible. But this means agreeing to change the way we do things.

While controversial, the carbon tax has the merit of putting a price on pollution and forcing polluters (businesses, institutions and citizens) to factor this cost into their decisions and into the cost of using polluting resources. Economists refer to this as the “price signal.” This idea is not new: at the turn of the 20th century, economist Arthur Pigou expressed concern about the negative impact (negative externalities) of over-consumption or excessive production on the well-being of the population. The carbon tax has been called a Pigouvian carbon tax.

The price signal can be used in another way. In Switzerland, some districts tax garbage bags, with the result that between 1992 and 2003, the amount of household trash collected in bags fell 15%, particularly for cardboard and paper. At the same time, the population grew by 3.9% and no delinquency (clandestine dumping or illegal incineration) has been reported. This has been a positive experience in terms of costs because in Switzerland, it usually costs less to convert than to incinerate trash. The price signal was applied differently in London, where a “congestion tax” was levied, leading to a sharp drop in traffic. The proceeds are used to finance the city’s transport system.

QUÉBEC’S CHALLENGES

Québec does not have a monopoly on environmental problems. In the medium term, as a result of global warming, we will have to build infrastructures that can withstand volatile and extreme weather conditions, meaning they will have to be more sophisticated and expensive.

GHG reduction is a worldwide issue that everyone, including Québec, must address. Although our hydroelectric capacity places us in a better position than the other provinces, Québec imports fossil fuels and must take decisions as regards the prices and use of hydrocarbons.

Moreover, Québec is very active in foreign trade, exporting goods that are largely produced with electricity and importing goods dependent on fossil fuels. Will it try to improve its performance and become a responsible environmental citizen? How can it reap financial benefits from the advantage conferred by its hydroelectricity, whose footprint is smaller than that left by fossil fuels? How will it protect its water from being diverted over long distances? Will preserving the Boreal Forest, which naturally locks in carbon emissions, come at a price? Should citizens be charged for the treatment and delivery of the water they drink? Québec possesses 3% of the world’s freshwater reserves. In this case, it seems to be a problem of having too much rather than too little. Although we are privileged in this regard, we still have a responsibility to act.

Are the economy and the environment necessarily on opposing sides? The answer is no. Choices have to be made, and tough ones at that, because no one wants to pay now (incur the cost) for results that won’t materialize until much later (20 or 30 years). This goes against the mantra adopted by most Western societies, i.e. buy now, pay later. As well, political parties are often not in power long enough to really get things done in this regard, i.e. there is a conflict between short- and long-term visions. However, if there is to be a long term, we must act now. We must change our ways of doing things, even if it costs more than maintaining the status quo.

Joëlle Noreau
Senior Economist

¹ Brundtland Report: Gro Harlem Brundtland was the Chair of the World Commission on Environment and Development, which introduced the concept of sustainable development in its report, entitled *Our Common Future*, in April 1987.

² Québec Auditor General, *Québec Auditor General’s 2007-2008 Report to the National Assembly, Sustainable Development Commissioner’s Report*, Volume II, 2007, p.143.

³ Ibid.

⁴ MIT, Mission Climat de la Caisse des Dépôts, Université Paris-Dauphine, University College Dublin, *Le marché européen du carbone : leçons de la première phase, March 2007*.



THE ECONOMY AND THE ENVIRONMENT

When we take action

Over the last few years, most people have jumped on the environmental bandwagon. They have done so in a variety of ways, for example, by giving up plastic bags, taking the car less often, joining pressure groups, buying locally, recycling and composting. However, citizens are not prepared to shoulder the entire burden of ensuring a viable environment for future generations. Their continued commitment will depend on the involvement of the other economic stakeholders, namely, the government and business. Right now, we are witnessing a movement where everyone is looking to demonstrate their contribution to saving the planet. But can we reduce the negative impact on the environment without regressing to a pre-industrial lifestyle?

THE ENVIRONMENT: A SHARED RESPONSIBILITY

The environment is a shared responsibility between the provincial and federal governments, which explains why some initiatives have a pan-Canadian scope while others apply mostly to Québec. Although the Québec government's environmentally-related decisions and initiatives were modest at the outset, as in most of North America, they began to multiply in the 1990s. Québec has since adopted the 2006-2012 Action Plan on climate change. The plan has a budget of over \$1.5 billion, most of which will come from gasoline and fossil fuel duty collected by the Régie de l'énergie and funnelled to the Green Fund of the MDDEP (Ministère du Développement durable, de l'Environnement et des Parcs). The federal government will contribute \$350 million to this plan.

In 2006, Québec adopted the *Sustainable Development Act* along with a sustainable development strategy. The primary goal was to ensure coherence among the 150 government departments and agencies (enterprises, boards, etc.), which must come up with their own sustainable development plans. While this strategy primarily concerns the public administration, some provisions could apply by decree to municipalities and educational institutions. However, without measurement tools, this exercise would be theoretical, and therein lies the problem. Under the *Act*, sustainable development indicators must be developed, annual reports produced, and a Sustainable Development Commissioner appointed. The latter not only reports to the government but also to the National Assembly and answers to the Auditor General of Québec.

Besides this policy, which seeks to ensure that the government does what it says it will do, other steps have been taken. For example, every department and agency must incorporate the notion of sustainable development into their purchasing policy and develop a waste management policy.

Québec has been called an environmental leader in Canada. Ahead of its time or in a hurry? Québécois seem to be imbued with a sense of urgency. They are ahead of many provinces and states in North America and also in a rush to see results. Our close ties with Europe and the fact that this economic partner is ahead in matters of environmental stewardship may be what is driving us.

FASTER, HIGHER, FURTHER

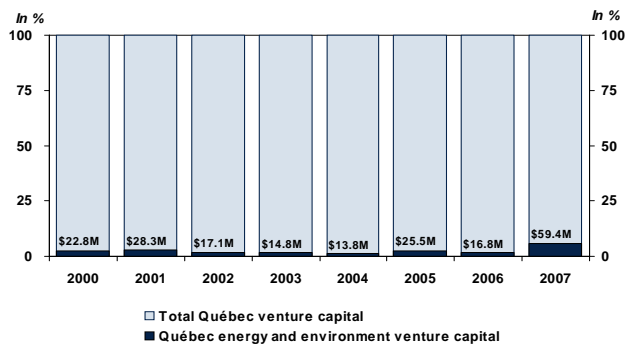
Notwithstanding the initiatives taken to date, we still have a long way to go. Québécois' ecological footprint¹ is much bigger than what the planet can withstand. And it looks like voluntary measures won't be enough to make it smaller. Time is running out, which explains why many scientists, economists and environmental activists are calling for the governments to beef up their efforts.

These "impatient environmentalists," who want to see action before the damage becomes irreversible, are demanding change, beginning with placing a price on carbon emissions. In this regard, the governments can legislate carbon taxes, regulate emissions through caps and promote trade mechanisms (see the article on pages 7-12 on this topic).

Another way is to encourage innovation, research, and the development of more energy-efficient technologies and less polluting materials. Innovation can allow us to maximize the use of materials by producing less waste throughout the product lifecycle. In the U.S., entrepreneurs have sensed a good business opportunity, investing unprecedented amounts of venture capital in green technology (Cleantech). These types of investment are also popular in Québec (Graph 13).

Finally, a special effort is needed to improve energy efficiency. Beyond the campaigns mounted by the governments, budgets should be set aside for researchers and companies dedicated to innovating in this field. While many steps have been taken, they should only be viewed as the beginning. Encouraging energy efficiency is not enough. Using the carrot and stick

Graph 13 – The environment finds its way into venture capital in Québec



Sources: Thomson Financial, MDEIE and Desjardins, Economic Studies

analogy, there is growing consensus that the stick will be necessary to achieve better results. And in this regard, economists and accountants will have to develop new work tools to measure the progress and to conduct cost-benefit analyses.

BUSINESS: WALKING THE TALK

Growing pressure is being placed on companies to adopt “green” management methods and socially responsible procurement rules. What’s the story? Some environmental organizations go as far as to issue report cards grading public and private institutions. For their part, businesses boast about implementing management practices that favour sustainable development. A marketing ploy or genuine concern? It’s hard to say, particularly since there is no independent third-party oversight in this regard. Adopting standardized accounting could be an answer. At this time, there are no generally recognized accounting principles for environment-related information in Québec or elsewhere in the world.

In the meantime, there are other ways of measuring the efforts, for example, by calculating the amount spent on complying with environmental regulations, agreements and protocols, or acting upstream and obtaining recognition from certain organizations.

As regards the funds invested to comply with standards, Statistics Canada reports that in 2006 Québec companies spent \$370 million on capital assets and \$726 million on operations. Nearly 50% of the operating expenditures were for waste management and sewer services. As for capital expenditures, \$283 million was spent on pollution prevention. Although these amounts are considerable, the fact that we are still facing massive environmental problems means that we have to do more.

GETTING CREDENTIALS: CERTIFICATION

Obtaining certification is becoming a “passport” for businesses. There are countless types of certifications: they can apply to a type of product, to services, to producers and even to a production line involving many players. Certification is usually valid for a certain period of time, after which the company must once again show compliance with the required standards. There are also fees for registration and the audit, which is the inspection that is required before certification is granted. Companies that pass muster are entitled to display a logo that sets them apart from their competitors.

ISO 14001 certification is one such example. Although not based on highly specific indicators but rather on the implementation of practices and policies, it is nevertheless a step in the right direction.

Certification is available for food, furniture, cosmetics, household cleaning products, paint and almost any other staple. Almost everyone has seen these types of labels on household products. One of the best known is the FSC certification issued by the Forest Stewardship Council. The most highly regarded by the international environmental movement, this certification is hard to obtain. According to its criteria, companies must cut fewer trees, imitate nature’s own pattern in harvesting, conserve biodiversity and leave the undergrowth in as natural a state as possible, among others. Given that it makes the work of foresters longer and more expensive, eco-certification is not likely to grow in popularity. For its part, however, the market is becoming increasingly demanding. For example, a few years ago, Home Depot, North America’s leading retailer of wood products, asked its suppliers to use FSC-certified products. IKEA, another major buyer of wood products, followed suit. Pressure from retailers and environmental groups is prompting forestry companies to jump on the bandwagon.

There are also building certifications. The LEED (Leadership in Energy and Environmental Design) standard is the most common. It applies to new construction and major renovations and encompasses public or private buildings and dwellings (single homes, apartments, etc.). Initially launched in the U.S., this certification is now available on this side of the border. Canada has developed its own standards based on its climate, construction practices and regulations. To obtain LEED certification, the building must be constructed according to a rating system checklist that takes into account the site of the building, its energy efficiency and even the origin of the materials used. Owners and managers of commercial buildings are not exempt from the trend and are now bound by



standards developed by organizations such as BOMA (Building Owners and Managers Association), which has been representing building owners and managers for over a century.

Environmental certification is not a passing fancy but rather an asset that all companies must have. Failure to comply with these new standards will see them quickly overtaken by the competition, which will capitalize on this advantage to capture market share. As suppliers, they will also be snubbed by large companies or corporations that choose to follow and apply these standards to their production lines.

CONCRETE ACTION

More and more companies are beginning to walk the talk. For example, a growing number of retailers have banned disposable bags while others are charging for them. Some are advertising their shift to a greener way of doing business, stocking products that are more ecological or purchased locally.

On another front, carmakers are now offering hybrid and electric vehicles. Still, the auto industry has a long way to go. Although the number of models is growing every day, their appeal is extremely limited due to their higher price and mileage and speed constraints. In aeronautics, Pratt & Whitney Canada will invest \$360 million over the next three years in Longueuil to develop a new generation of more fuel-efficient and quieter engines.

Goods-producing companies are not the only ones concerned about the environment. A growing number of hotels are adopting greener practices, implementing recovery programs that go beyond paper and cardboard. Some are even composting the organic waste from their kitchens. And biodegradable laundry and cleaning products are becoming the norm. Hotels are looking to buy locally and to centralize and cut down on deliveries. Many hotels and convention centres now offer green event organization packages with assorted options from which organizers can choose based on their convictions and pocketbook. At the top is the “zero waste, zero carbon” (GHG) option, which is also the most expensive because it requires closer follow-up and the purchase of trees to offset the greenhouse gas emissions produced during the event.

Service firms, such as financial institutions, have also come on board. For example, Desjardins has already responded to the Équiterre² campaign calling for “twelve actions for a more environmentally and socially responsible world.” However, before touting itself as an environmentally responsible company, Desjardins began by cleaning up its own house by

instituting waste sorting at its head office at the end of the 1980s and setting up a shuttle service between Lévis and Montréal at the beginning of the 90s. Although many more initiatives have been taken since then, they are just a prelude to more concerted action. In the near term, efforts will be made to further reduce paper use, business travel and fuel consumption. The organization will also encourage responsible procurement, local farming, the purchase of fair trade certified coffee, the redistribution of leftover food from large meetings and greater social involvement by its employees. Finally, Desjardins will try to improve the efficiency of its buildings and equipment.

Big changes are also underway in the food industry. In Britain, the distribution giant Tesco now affixes carbon labels showing consumers how much carbon was emitted to produce and transport the product they are purchasing. Tesco is aiming high with plans to label the 70,000 products it sells. Launched in 2007, this initiative was adopted by the French group Casino in 2008. Now, European agri-food, pharmaceutical and cosmetic groups are following suit. The methodology developed by Carbon Trust, a partner agency of Britain’s environment ministry, can be viewed as a prelude to establishing a new certification.

AN OUNCE OF PREVENTION IS WORTH A POUND OF CURE

Beyond all these practices, there is one that is trying to find its place: ecodesign, defined by the Institut de développement de produits as follows: “To design a product (good or service) by improving its environmental characteristics throughout its lifecycle without diminishing its quality or performance – the goal is to design a successful product.”³ Higher raw material prices should alone be enough motivation to optimize their use. Moreover, new market requirements are leading companies to adopt different practices. The most popular is the product lifecycle approach, which begins from the time the raw material is extracted and ends when the product reaches the end of its useful life. Although the best time to act is at the design stage, the approach can still be very effectively used to improve products already on the market. Companies have successfully used these processes and managed to reduce their production costs by using fewer materials and streamlining their packaging, and by extension, the number of trucks required for shipping. So the answer to the question, “Do we have to go back to the pre-industrial era to preserve the environment?” is no. We simply have to work differently.

It looks like the notion of “environment” is increasingly taking hold in the business community, with consumers and within government. We now even have an environment industry, creating jobs, which in turn, create wealth.

THE INDUSTRY AND THE ENVIRONMENT

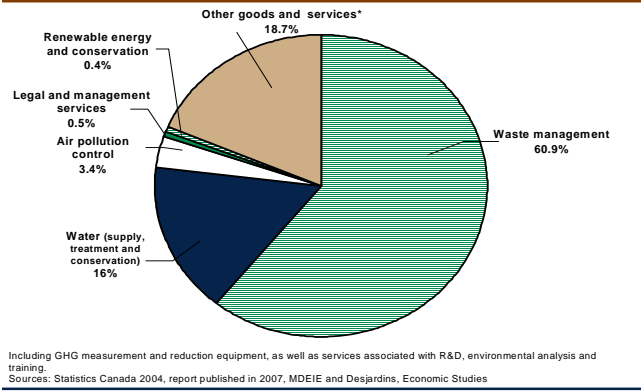
Painting a portrait of the environment industry is no easy task. In an attempt to get a handle on this growing sector, Statistics Canada published a report in fall 2007 on the industry’s performance in 2004. The data covers Canadian businesses involved entirely or partially in sales of environmental goods and services. These environmental goods and services are “used to measure, prevent, limit or correct environmental damage... to water, air, soil as well as problems related to waste, noise and ecosystems.”⁴

The report contains some statistics for Québec. As such, the number of companies in Québec decreased from 1,716 in 2002 to 1,662 in 2004 (Table 4). Closures or mergers? Hard to say, but at the same time, revenues from the sale of environmental goods and services rose, from \$3,062 million in 2002 to \$3,478 million in 2004, an increase of 13.6%. Total Canadian sales advanced 17%, fuelled by Alberta, which recorded an increase of almost 25%.

In Québec, sales of environmental goods rose 19.5% to \$2,112 million, while services picked up 5.5% from 2002 to 2004, to \$1,366 million. Thus, 60.7% of total sales revenues were attributable to environmental goods and 39.3% to services.

Nearly 50% of goods sales were attributable to the fight against noise, vibration and other. The second largest industry in terms of goods sales in Québec is water supply treatment and conservation (more than 25%), followed by products for air pollution control. In 2008, sales growth in Québec was probably spurred by the commissioning of the ethanol plant in Varennes and the implementation of wind parks.

Graph 14 – Breakdown of Québec environment industry revenues by market segment in %, 2004



In 2007, there were some 34,000 jobs and 1,600 companies in Québec’s environment and green technology industries. In comparison, the Ontario industry is more prominent in Canada (Graph 15). In Québec, this industry has succeeded in securing some \$200 million in venture capital since 2000. In 2007, about 35% of all Canadian venture capital invested in this sector was in Québec firms. For example, Desjardins has invested in five wind power companies.

There are some forty research groups and chairs in Québec’s universities. Work is also underway at the Institut national de la recherche scientifique (INRS), which includes the following components: INRS-Eau, INRS-Terre and INRS-Environnement, as well as the Institut de recherche sur l’hydrogène. Finally, we have ten technology transfer college centres and four industrial research centres whose activities are related to the environment industry.

In addition to all these stakeholders, there are numerous industry associations and support organizations, including the Association québécoise pour la maîtrise de l’énergie (AQME), the Canadian Wind Energy Association and the Conseil des entreprises de services environnementaux (CESE), as well as countless groups and coalitions.

Table 4 – Revenues from sales of environmental goods and services 2004 (in \$ Millions)

Province or territory	Environmental establishments (number)	Sales of environmental goods (including construction)	Sales of environmental services	Total revenues
Québec	1,662	2,112.2	1,365.8	3,478.0
Canada	8,503	10,070.1	8,383.3	18,453.4

Sources: Statistics Canada, Environment Accounts and Statistics Division, and Desjardins, Economic Studies

Table 5 – Revenues from sales of government goods - 2004

In \$ Millions	Québec	Canada
Water supply, treatment, conservation	557.2	3,386.7
Air pollution control	113.0	671.0
Waste management, remediation	N/A	839.7
Clean technologies	N/A	662.8
Analytical equipment	N/A	371.4
Noise/vibration abatement	1,031.5	4,138.6
Total revenues	2,112.2	10,070.2

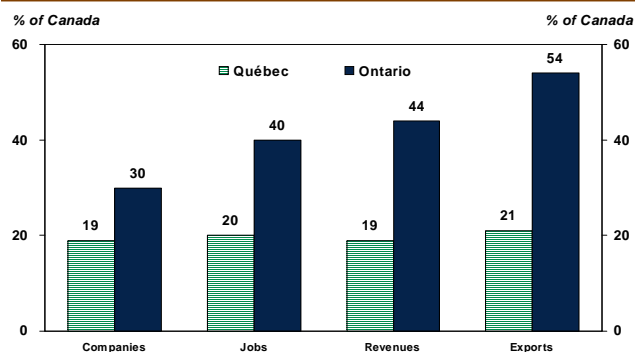
Sources: Statistics Canada and Desjardins, Economic Studies

THE REGIONS

Although many of these organizations are found in the major urban centres of Montréal and Québec City, a large number are active across Québec. As such, under the Accord (Action concertée de coopération régionale de développement) program, four regions have developed environmental action plans.

The Centre-du-Québec region is a pioneer in recycling and using residual material. The region has developed a niche of excellence in “technologies and logistic systems for the recovery and use of industrial and municipal residual material.” Its vision is to affirm itself, by 2011, as a leader in the development and adaptation of the aforementioned technologies and systems. To this end, it already has a network of over 80 well-established companies, employing some 3,000 people. Although the region represents about 3% of Québec’s population, it accounts for 19% of the jobs in the province’s residual waste industry (conversion and elimination).

Graph 15 – Four parameters of the environment industry under scrutiny - 2004



Sources: Statistics Canada 2004, report published in 2007, and Desjardins, Economic Studies

Bas-St-Laurent’s niche of excellence is “peat soil development and agri-environmental technologies.” This region’s vision is to become, by 2017, an international leader in the peat and environmental technology industries through sustainable resources management, innovative technologies, a diverse product offering, and a positive impact on the environment. While developments are expected in the shorter term, the region is already ahead of Québec’s other regions in this regard since it is responsible for 45% of this industry’s total output.

For its part, Saguenay-Lac-St-Jean plans to carve a reputation as a world-class, four-season eco- and adventure tourism destination. This niche of excellence seeks to develop a top-quality, diversified offering of great outdoors and interpretation services and activities underpinned by sustainable development that will provide socio-economic benefits for the local and regional communities.

Finally, the Capitale-Nationale region has built its niche of excellence around “green and intelligent buildings,” which offer economic advantages (lower operating, maintenance and waste management costs), ecological advantages (lower energy consumption, GHG emissions, water consumption, etc.) and social benefits (positive effect on health thanks to air quality, natural lighting and healthy materials).

While some actions are aimed at developing less polluting products and services, others are on the other side of the spectrum, i.e. recovery. The regions have also established a foothold in this field. An assessment conducted by the Centre de recherche industrielle du Québec (CRIQ) of Québec’s sorting centres in April 2008 shows that the volume of materials collected grew faster in the resource regions than in the metropolitan regions. Why the difference? Is it because selective collection was implemented later in the resource regions than in the big cities? Or is it because materials were shifted to regional sorting centres? Perhaps, but a quick per capita calculation shows that the resource regions are not at the back of the pack.

As regards renewable energy, the regions stand out for their potential. Québécois are all very familiar with hydro-electricity and will soon know just as much about wind power. In the inventory of wind energy potential submitted in June 2005⁵ to the Ministère des Ressources naturelles et de la Faune du Québec, the resource regions stand apart. Table 7 indicates the potential measured.

Table 6 – Revenues from sales of environmental services - 2004

<i>In \$ Millions</i>	<i>Québec</i>	<i>Canada</i>
Water supply, treatment, conservation	N/A	714.4
Air pollution control	6.6	100.1
Waste management, remediation	1,020.2	5,504.9
Environmental research and development	N/A	146.5
Renewable energy and energy efficiency	14.4	98.4
Engineering and analytical consulting	N/A	794.2
Environmental management systems	N/A	129.9
Management consulting and legal services	16.7	577.0
Environmental education, training and information	N/A	27.6
Noise/vibration abatement	68.1	291.4
Total revenues	1,365.8	8,383.4

Sources: Statistics Canada and Desjardins, Economic Studies

All these illustrations show that the environment is not just an urban issue. It also concerns the regions both as regards developing and implementing solutions.

Table 7 – Exploitable wind potential* in Québec
Excellent technical wind potential (more than 10,000 MW per region)

- ° Nord-du-Québec (3,473,440 MW)
- ° Côte-Nord (395,075 MW)
- ° Saguenay-Lac-St-Jean (49,642 MW)
- ° Bas-Saint-Laurent (21,604 MW)
- ° Gaspésie-Îles-de-la-Madeleine (19,605 MW)

Very good technical wind potential (more than 1,000 MW)

- ° Chaudière-Appalaches (7,306 MW)
- ° Montérégie (6,535 MW)
- ° Capitale-Nationale (3,312 MW)
- ° Centre-du-Québec (2,461 MW)
- ° Estrie (2,318 MW)
- ° Mauricie (1,288 MW)

Average technical wind potential (i.e. marginal (less than 1,000 MW))

- ° Abitibi-Témiscamingue (780 MW)
- ° Laurentides (512 MW)
- ° Lanaudière (344 MW)
- ° Outaouais (93 MW)
- ° Laval (11 MW)
- ° Montréal (0 MW)

* There may be exploitation constraints, including network capacity, which limits exploiting the full potential

Sources: Helimax Energy, AWS Truewind for the MRNFQ, *Inventaire du potentiel éolien exploitable du Québec*, June 2005 and Desjardins, Economic Studies

So the answer to the question, “Do we need to regress to save the planet?” is no. We simply have to change the way we do things. The environmental issue is not a passing fancy; businesses are increasingly complying with the demands of major distributors and consumers. And complying with the new ways of doing things is not an option, it’s a matter of survival.

Joëlle Noreau
 Senior Economist

¹ Ecological footprint is defined as a measure of the load imposed by a given population on nature. It measures how much land and water area a human population requires to produce the resources it consumes and to absorb its wastes.

² Équiterre: Équiterre’s mission is to help build a grass roots citizen-based movement influencing personal and collective choice to be both ecologically and socially responsible.

³ Institut de développement de produits, Écoconception et stratégies d’entreprises, presentation to the ASDEQ, May 2007.

⁴ Statistics Canada, Environment Industry: Business Sector 2002 (revised) and 2004, p.5 no.16F0008 in the Catalogue, September 2007.

⁵ Helimax Energy and AWS Truewind, LLC, *Inventaire du potentiel éolien exploitable du Québec*, June 2005.

INTERPROVINCIAL SHOWCASE

No province is a clear winner

There are a number of indicators to measure the contribution or burden of each province as regards Canada's environmental landscape. Although establishing a ranking is useful, the results are not necessarily flattering. As in any comparison, there are winners and losers. The relative ranking of each province varies according to the indicators selected. However, what the numbers do show is that there is no "all-around champion."

A LIST YOU DON'T WANT TO BE ON

Annual per capita garbage output topped 1,000 kilograms in Canada in 2006. Of that total more than 75% (835 kg) went to landfills or was incinerated while 237 kg was diverted. Of the total waste generated—35 million tonnes—63% came from business and industry sources while 27% came from homes.

In terms of per capita garbage disposal, Québec's performance is not impressive. Four provinces and one territory topped the Canadian average of 835 kg (Table 8) with Alberta leading the way, followed by the Northwest Territories, Québec, Manitoba and Saskatchewan. In terms of residential garbage, Newfoundland and Labrador generate the most per capita with 446 kg in 2006, followed by Manitoba, Northwest Territories, Saskatchewan, Ontario, Alberta and Québec, all of which drive up the Canadian average.

Table 8 – Disposal of waste, by source - 2006

	Kilograms		
	Residential sources/person	Non-residential sources/person	Total waste eliminated
Newfoundland and Labrador	446	353	799
Prince Edward Island	N/A	N/A	N/A
Nova Scotia	181	248	429
New Brunswick	289	312	601
Québec	285	604	889
Ontario	292	530	822
Manitoba	386	483	869
Saskatchewan	300	544	844
Alberta	289	844	1,133
British Columbia	222	454	676
Yukon	214	595	809
Northwest Territories	347	665	1,012
Nunavut	N/A	N/A	N/A
Canada	283	552	835

Sources: Statistics Canada, Environment Accounts and Statistics Division, and Desjardins, Economic Studies

GHG EMISSIONS

The comparison of greenhouse gas (GHG) emissions varies depending on how the figures are presented. In 2005, the year for which the latest provincial data is available, the Canadian average was 23.1 tonnes (Table 9). It bears mentioning that among the G8 nations, Canada is the second biggest per capita emitter of CO₂ after the U.S. (24 tonnes).¹ On a per capita basis, Québec is the lowest emitter in the country, with 12.1 equivalent CO₂ tonnes in 2005. The Yukon is just behind Québec with 12.8 tonnes, followed by British Columbia (15.4 tonnes per capita), Prince Edward Island (16.3) and Manitoba (17.3). No doubt due to their oil and gas operations, Alberta and Saskatchewan are tied for the worst performance at 70.6 tonnes.

In Canada, Alberta accounted for 31.1% of total emissions in 2005 although it only represented 10.2% of the Canadian population. The corresponding figures for Saskatchewan were 9.5% and 3.1% respectively. Québec and Ontario accounted for 12.3% and 26.8% of total emissions, while their

Table 9 – Per capita GHG emissions 2005

	Emissions 2005	Per capita emissions in 2005
<i>t of CO₂ eq./per capita</i>		
Newfoundland and Labrador	10.5	20.4
Prince Edward Island	2.3	16.5
Nova Scotia	22.7	24.2
New Brunswick	21.3	28.4
Québec	92.0	12.1
Ontario	201.0	15.9
Manitoba	20.3	17.3
Saskatchewan	70.9	71.7
Alberta	233.0	70.6
British Columbia	65.9	15.4
Yukon	0.4	12.8
Northwest Territories and Nunavut	1.6	36.4
Canada	747.0	23.1

Sources: Environment Canada, MDDEP, Statistics Canada, Québec inventory of greenhouse gas emissions, 2007

relative share of the Canadian population was 23.4% and 38.9% respectively.

A look at the rise in emissions between 1990 and 2005 shows Saskatchewan leading the way with an increase of 60.8%, way above the Canadian average of 25.3% during this period. Three other provinces topped the Canadian average: Alberta (+37.1%), New Brunswick (+31.5%) and British Columbia (+30.2%). Although emissions grew by 5.2% in Québec and 14.9% in Ontario, these figures are nothing to crow about when compared to France (-3.5%), the U.K. (-15.1%) and Germany (-18.2%) for the period between 1990 and 2006. Although France met its Kyoto Protocol target, transportation-related emissions are stable and additional efforts will be needed to ensure the upward trend does not resume in the future. On this side of the Atlantic, gargantuan efforts will have to be made to meet the Kyoto targets.

BUSINESS SPENDING ON ENVIRONMENTAL PROTECTION

In 2006, businesses spent an estimated \$8.6 billion on environmental protection in Canada in order to comply with environmental regulations, conventions and voluntary agreements. There were two types of expenditures: operations and capital investments in environmental protection, and capital investments on pollution prevention and control. According to Statistics Canada, year after year, most of the environmental protection expenditures were on “dealing with pollutants after they were created.”² All to say, businesses still have a long way go.

Of all the provinces, Alberta has spent the most on environmental protection infrastructures and equipment. Business capital spending alone reached almost \$1.9 billion in 2006, versus \$371 million and \$827 million respectively for Québec and Ontario.

ENVIRONMENT INDUSTRY SALES

The environment industry has seen its sales increase in Canada. According to Statistics Canada’s most recent figures, sales of environmental goods and services (water supply, air pollution control, waste management, reduction of greenhouse gas (GHG) emissions, noise abatement, etc.) rose 17% between 2002 and 2004, while nominal GDP (in current dollars) advanced 12% during the same period. Sales grew 13.6% in Québec and 15.3% in Ontario, both below the Canadian average. Alberta (+24.5%), British Columbia (+18.6%), Saskatchewan (+39.3%), Manitoba (+24.5%) and Newfoundland and Labrador (+26.6%) all topped the Canadian average. There’s no doubt that commodities exploration fuelled sales due to environmental requirements (Table 10).

Table 10 – Revenues from sales of goods and services - 2004

<i>Province or territory In \$ Millions</i>	<i>Environmental establishments</i>	<i>Total revenues</i>
Newfound and Labrador	148	147.1
Prince Edward Island	50	33.8
Nova Scotia	384	389.3
New Brunswick	271	335.6
Québec	1,662	3,478.0
Ontario	2,638	8,016.6
Manitoba	268	492.0
Saskatchewan	325	401.0
Alberta	1,330	2,814.0
British Columbia	1,352	2,300.2
Yukon, Northwest Territories	75	45.8
Canada	8,503	18,453.4

Sources: Statistics Canada, Environment Accounts and Statistics Division, and Desjardins, Economic Studies

GARBAGE ACCOUNTS FOR THE LION’S SHARE

In Canada, the sale of waste management and remediation services account for almost two thirds of environmental services, and 75% of such sales in Québec and 68% in Ontario. These statistics can be interpreted in two ways. We can either lament the fact that we’re putting a lot of effort trying to fix what’s broken or we can assume that the expertise we’ve developed is in demand. So basically, we’re investing in know-how built over time.

So what do these comparisons tell us? Well, we can be proud of the fact that our performance in CO₂ emissions is among the best in Canada and that these emissions have increased the least between 1990 and 2005. However, we should be humbled when we look at the efforts being made in some parts of Europe. And at the national level, when we look at the money businesses spend on environmental compliance, we see that it’s mostly to fix what’s broken rather than on prevention. All to say that, although we’ve made some progress and acquired expertise, we still have a long way to go.

Joëlle Noreau
 Senior Economist

¹ WWF, Allianz, G8 Climate Scorecards, July 2008.

² Statistics Canada, *The Daily*, November 17, 2008, page 4.

FORECAST TABLES

Table 11
Canada: Major economic indicators

	2006	2007	2008f	2009f	2010f
Annual average in % (except if indicated)					
Real gross domestic product*	3.1	2.7	0.7	-0.3	1.9
Personal consumption expenditures	4.3	4.5	3.4	0.9	2.3
Residential construction	2.2	3.0	-1.5	-1.6	1.0
Business fixed investment	9.9	3.5	3.2	-1.2	1.7
Inventory change (\$B)	10.8	13.2	8.3	-3.4	1.3
Public expenditures	4.1	4.2	3.9	4.0	3.6
Exports	0.6	1.0	-4.6	-5.8	-0.2
Imports	4.6	5.5	1.2	-3.7	1.9
Final domestic demand	4.8	4.2	3.1	1.1	2.3
Other indicators					
Real disposable personal income	5.5	4.1	4.4	2.2	1.6
Weekly earnings	3.0	3.2	2.7	1.9	2.1
Employment	1.9	2.3	1.6	-0.3	0.8
Unemployment rate (in %)	6.3	6.0	6.1	7.2	7.4
Housing starts (in thousands)	227.4	228.3	213.3	162.5	176.3
Corporate profits** (1)	5.8	3.3	9.6	-9.0	5.0
Personal savings rate (in %)	3.1	2.7	3.3	3.8	2.9
Total inflation rate (1)	2.0	2.2	2.3	0.8	2.2
Core inflation rate*** (1)	1.9	2.1	1.6	1.7	1.4
Federal gov't balance (\$B) (2)	10.2	15.4	1.0	-4.8	-6.1
Current account balance (\$B)	20.2	13.6	21.9	9.9	21.0

f: forecasts

* 2002 \$ ** Before taxes *** Excluding food and energy (1) Annual change (2) National accounts

Sources: Statistics Canada, Canada Mortgage and Housing Corporation and Desjardins, Economic Studies

Table 12
Québec and Ontario: National accounts

	2006	2007	2008f	2009f	2010f
Annual average in % (except if indicated)					
Québec					
Real gross domestic product	1.7	2.6	0.7	0.0	1.6
Personal consumption expenditures	3.2	4.3	4.0	2.1	2.7
Residential construction	-0.7	5.7	-3.6	-0.4	1.8
Business fixed investment	6.1	7.6	4.6	2.7	3.5
Inventory change (\$M 2002)	1,758	2,117	805	700	840
Public expenditures	2.7	4.4	5.2	3.6	2.7
Exports	1.5	0.6	-2.5	-2.4	1.0
Imports	2.6	4.6	2.7	2.1	3.1
Final domestic demand	3.0	4.7	4.0	2.4	2.7
Ontario					
Real gross domestic product	2.6	2.3	0.1	-0.7	1.8
Personal consumption expenditures	3.5	3.8	3.5	0.6	2.0
Residential construction	0.9	2.0	0.4	-1.3	1.3
Business fixed investment	9.3	9.2	-0.8	-3.1	2.2
Inventory change (\$M 2002)	2,826	3,932	3,761	-813	750
Public expenditures	3.9	2.9	4.4	4.8	4.0
Exports	0.6	0.9	-8.6	-7.2	0.2
Imports	2.9	3.8	-4.4	-6.1	1.9
Final domestic demand	4.0	4.0	3.0	1.0	2.4

f: forecasts

Sources: Statistics Canada and Desjardins, Economic Studies

Table 15
Canada: Major economic indicators by provinces

	2006	2007	2008f	2009f	2010f
Annual average in % (except if indicated)					
Real GDP growth*	3.1	2.7	0.7	-0.3	1.9
Atlantic	2.0	3.6	0.5	0.0	1.5
Québec	1.7	2.6	0.7	0.0	1.6
Ontario	2.6	2.3	0.1	-0.7	1.8
Manitoba	4.0	3.3	1.5	-0.2	1.7
Saskatchewan	-0.3	2.5	2.0	0.4	2.2
Alberta	6.1	3.1	2.0	0.6	2.5
British Columbia	4.4	3.0	1.0	-0.2	2.8
Inflation rate*	2.0	2.2	1.0	0.8	2.2
Atlantic	1.9	1.8	0.0	1.0	1.5
Québec	1.7	1.6	0.0	1.1	1.9
Ontario	1.8	1.8	2.3	0.5	2.3
Manitoba	2.0	2.0	2.5	0.9	2.2
Saskatchewan	2.1	2.8	2.3	1.2	2.5
Alberta	3.9	5.0	2.2	1.5	2.5
British Columbia	1.7	1.8	2.2	0.8	2.2
Employment growth*	1.9	2.3	1.6	-0.3	0.8
Atlantic	0.5	1.4	1.2	0.4	0.5
Québec	1.3	2.3	0.8	-0.3	1.0
Ontario	1.5	1.6	1.5	-1.1	0.5
Manitoba	1.2	1.6	1.7	-0.1	0.6
Saskatchewan	1.7	2.1	2.1	0.6	0.7
Alberta	4.8	4.7	2.8	0.8	1.1
British Columbia	3.1	3.2	2.1	-0.2	1.3
Unemployment rate*	6.3	6.0	6.1	7.2	7.4
Atlantic	9.8	9.1	9.3	10.2	10.5
Québec	8.0	7.2	7.3	8.2	7.9
Ontario	6.3	6.4	6.5	8.2	8.4
Manitoba	4.3	4.4	4.1	5.5	5.8
Saskatchewan	4.7	4.2	4.1	4.9	5.2
Alberta	3.4	3.5	3.5	3.9	4.1
British Columbia	4.8	4.2	4.5	5.5	5.6
Retail sales growth*	6.4	5.8	4.3	1.5	4.6
Atlantic	5.4	6.0	6.2	1.5	4.0
Québec	5.1	4.6	5.7	2.0	4.5
Ontario	4.1	4.0	4.6	0.5	3.8
Manitoba	3.9	8.8	7.3	1.8	4.5
Saskatchewan	6.5	13.0	10.7	2.3	5.0
Alberta	15.4	9.3	0.7	2.5	5.5
British Columbia	7.2	6.7	1.8	1.5	6.0
Housing starts* (thousands of units)	227.4	228.3	213.8	162.5	176.3
Atlantic	12.0	12.4	12.6	9.9	10.4
Québec	47.9	48.6	47.8	43.0	45.0
Ontario	73.4	68.1	75.5	53.0	58.0
Manitoba	5.0	5.7	5.9	4.5	4.9
Saskatchewan	3.7	6.0	7.1	4.8	5.0
Alberta	49.0	48.3	30.0	21.9	25.0
British Columbia	36.4	39.2	34.8	25.5	28.0

f: forecasts

* Data for Canada.

Sources: Statistics Canada, Canada Mortgage and Housing Corporation and Desjardins, Economic Studies



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