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Building Convergence

Toward an Integrated Health & Agri-Food Strategy for Canada

August 2009

A discussion paper

by Laurette Dubé, Paul Thomassin and Janet Beauvais
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EXECUTIVE SUMMARY

The agriculture and agri-food sector is one of the key drivers of the Canadian economy. The health care system is one of the largest sources of government spending. Maintaining both a strong health care system and a strong, vital agriculture and agri-food sector are deeply entrenched Canadian values.

The health system, and the agriculture and agri-food system, are both confronted with significant economic challenges. These challenges have intensified with the recent financial crisis and economic downturn, which is occurring at the same time that the health care system is faced with dramatically rising rates of obesity and overweight people, and continuous increases in diet-related chronic diseases.

Currently, government policymakers, business strategists and civil society leaders in health, agriculture and agri-food systems in Canada and abroad face an extremely challenging situation. Moreover, they must prepare for a future beset by uncertainty regarding the collective resources they have available to achieve their respective primary functions, while contributing to the health and wealth of individuals, organizations, and nations.

As each of these sectors charts its path for the future, a present opportunity exists to ensure that health considerations are incorporated into future agriculture and agri-food policies and initiatives. As well, the food industry has an opportunity to capitalize on accruing economic value from innovative approaches that help address current and future health challenges.

This discussion paper – *Building Convergence: Toward an Integrated Health and Agri-Food Strategy for Canada* – was prepared to stimulate a dialogue among scientists, policymakers, professionals and managers from the health, agriculture and agri-food systems. Together, these parties will develop an integrated strategy. For this discussion paper, the authors examined the key issues and challenges facing the health care sector and the agriculture and agri-food sector. The discussion paper concludes that without significant intervention, the number of Canadians with obesity and diet-related chronic diseases will continue to rise, placing increasing pressure on the health care system in direct costs and to society as a whole in indirect costs. At the same time, rapid changes have occurred in the pace of globalization and in the structure of the agriculture and agri-food sector. The sector requires significant adjustments, including substantial and ongoing government support.

Both the health and agriculture and agri-food sectors have recognized the need for multi-sector collaboration. Recent policies and frameworks provide examples of areas in which integration and synergy are being pursued. This discussion paper suggests that a "Whole-of-Society" approach – one that engages the whole of the agri-food value chain – is required, in terms of media, culture, social sectors, transportation, and so on. However, this whole-of-society solution needs to place the consumer at the center, and must consider the conditions and dynamics of local and global markets from a systems perspective. This paper notes that using new and innovative approaches, such as taxes and subsidies, may achieve healthier patterns of eating. While little evidence exists to date to support this hypothesis, it is too early to dismiss these new approaches.

From this analysis, the discussion paper presents a vision of "improving the well-being of Canadians by providing safe, nutritious and accessible food that supports healthy eating, contains health care costs, and is promoted by innovative and sustainable agricultural, food and health sectors." Developing an integrated health and agri-food strategy to implement this vision will require galvanizing action across sectors, across systems, and across levels of policy development and decision at the local, national and global levels. This discussion paper, therefore, introduces a set of "levers for change" that will translate the proposed vision into a set of concrete initiatives. These initiatives must be suitably robust to contribute to improving the health and economic well-being of Canadians. Moreover, the discussion paper proposes a novel approach to building convergence and action around these levers.

The levers for change will include steps to assist Canadians in making healthier choices through:

- enhancing nutrition and health information at points of purchase and consumption;
- fostering policy and practice innovation in approaches to education in the home, school, and health professional settings; and,
- fostering innovative policies and practices in social and commercial marketing.

The levers for change will include ways to provide Canadians with more healthy food choices by:

- improving the nutritional quality of processed foods by reducing trans fat, salt, sugar and increasing fiber;
- using a Whole-of-Society approach to drive demand by consumers – and supply in the horticultural sector – to increase the consumption of fruits and vegetables; and,
- promoting the consumption of nutritious foods grown in Canada through the development of a Canadian Diet similar to the Mediterranean Diet.

The levers for change will demonstrate that opportunities exist to develop new markets both in Canada and globally by: extending traceability from a food safety focus to its use in assuring consumers that "value-added" food products have been produced with the desired attributes, such as fair trade; promoting access to and sustainability of the functional food, nutraceutical and natural health product sector; better promotion of technology, business and social innovation and entrepreneurship, to improve the links between small producers and local food businesses and consumers; and, recognizing that Canadian agriculture and agri-food products can contribute to meeting global food needs by providing an innovative, low-carbon footprint and affordable agricultural and processed food products to the poorest of the world who are at the "bottom of the pyramid."

This Discussion Paper will ideally provide "food for thought" for representatives of the whole-of-society approach, who will engage in the next steps of developing an Integrated Health and Agri-food Strategy for Canada that meets health and economic needs both nationally and globally.

FOREWORD

Increasingly, governments, industry, and health organizations are recognizing the connections between health and food, as well as the opportunity offered to Canadians through initiatives to better converge health, agriculture, and agri-food policies. The Canadian Agri-Food Policy Institute (CAPI) has launched a project to develop an Integrated Health and Agri-Food Strategy for Canada. CAPI is a not-for-profit corporation that provides an independent voice on agri-food issues.

To pave the road to an integrated strategy, CAPI undertook an exhaustive study on the relationships between food and health (*Finding Common Ground: Food for a Healthy Population and a Healthy Agri-food Sector* available at: www.capi-icpa.ca/pubs.html). A project team of experts in agriculture, health care, and nutrition researched examples of integrated food and health policies around the world and found that few examples exist of integrated health and agri-food strategies or initiatives. In December 2007, following the presentation of CAPI's synthesis report,[1] the Institute received support from Health Canada, Agriculture and Agri-Food Canada, the Public Health Agency of Canada, and the Canadian Food Inspection Agency to pursue the groundwork for the establishment of an Integrated Health and Agri-Food Strategy for Canada. In January 2008, CAPI retained the service of Dr. Laurette Dubé, Founding Chair and Scientific Director of the McGill World Platform (MWP) for Health and Economic Convergence, to lead the preparation of a discussion paper to serve as the springboard in moving toward an integrated health and agri-food strategy. The paper is co-authored with agriculture, agri-food and nutrition experts of the MWP, Paul Thomassin and Janet Beauvais, both of McGill University. The discussion paper has benefited immensely from the virtual expert meetings and one-on-one interviews convened to collect insights from the Canadian and international scientists, policy leaders, and decision-makers affiliated with the McGill World Platform.

A Discussion Paper as the Springboard for an Integrated Health and Agri-Food Strategy for Canada

The McGill World Platform for Health and Economic Convergence follows a long-term collaboration between the Desautels Faculty of Management and the Faculty of Medicine to create a novel transdisciplinary, multi-sector and multi-level approach to science, policy, education, and action. This unique approach is called a Whole-of-Society (WoS) approach. The WoS approach uses knowledge dissemination to simultaneously push the boundaries of medicine and management (used here as a proxy for the diversity of related health and economic disciplines). Ideally, this approach will contribute to health and wealth for all. The core engines driving this collaboration have been the world renowned McGill Health Challenge Think Tanks and their satellite events (www.mcgill.ca/healthchallenge). Taking health, agriculture, agri-food and business as their initial domains of application, the

Think Tanks and satellite events have convened an unprecedented collaboration among some of the world's most innovative thinkers and organizations from agriculture, food manufacturing and marketing, economics and finances, along with experts in health, nutrition, and community development. Participants hailed from academia, government, non-governmental organizations (NGOs), and health and community organizations, as well as from multinational corporations and smaller companies.

The Think Tanks have allowed participants to join forces, so they can start examining how businesses and communities can contribute to the effort to bring about food and nutrition security worldwide, and thereby help combat the current rise of obesity and diet-related chronic diseases such as cancer, heart disease and stroke. The participants of the Think Tanks examined how to take a broad, integrative approach in this effort, one that incorporates the three facets of healthy eating:

(1) accessible food;
(2) nutritious food; and,
(3) safe food.

These three facets are central to an integrated health and agri-food strategy, if such a strategy is to ensure stability in the availability, access, and utilization of safe and nutritious food. The strategy must contribute to providing this stability in a manner that is economically, environmentally, socially and culturally sustainable, and in a manner that contributes to halting or reversing the rise in diet-related diseases.

In February 2008, an early-stage convergence building process was started with the participation of a project team that included experts from Health Canada, Public Health Agency of Canada, and Agriculture and Agri-Food Canada. The objective was to prepare a discussion paper that would foster cross-sectoral dialogue across the federal government. The aim of the building process was to articulate a common vision for an Integrated Health and Agri-Food Strategy for Canada, a vision around which these parties could assemble short-term and long-term start-up objectives for change, with associated outcomes and actions.

In June 2008, an Advisory Committee that includes governmental and non-governmental stakeholders in this initiative convened to review the early-stages of the discussion paper. Attendees suggested that a small discussion group be formed to refine the common vision before elaborating a set of start-up objectives, outcomes, and actions in more detail. This group met on September 4, 2008 and agreed on a common vision that would guide the further preparation of the discussion paper. The discussion paper would serve as the springboard for the convergence building process, which in turn would lead to the formal development of the Integrated Health and Agri-Food Strategy for Canada.

Ideally, this discussion paper will provide a basis for further dialogue among Canada's government and non-government leaders in the health and agriculture and agri-food sectors, with the objective of developing an integrated strategy. To this end, these leaders could meet at a summit during which they would be invited to play a foundational role in the creation of multi-level (national, provincial and global) and multi-sector (governments, business and civil society actors in agriculture, agri-food and health) knowledge and action networks. Such networks are necessary for the strategic development, implementation and sustainability of the specific initiatives required. The networks would also build public awareness and foster political commitment. The outcome of such a summit could be the draft version of a strategic framework for action that would constitute the Integrated Health and Agri-Food Strategy for Canada. The strategy would be presented to the ministers of Health Canada and of Agriculture and Agri-Food Canada, and subsequently promoted by business and civil society leaders to catalyze action.

I. INTRODUCTION

The health sector, and the agriculture and agri-food sector, faces significant challenges in Canada. The health system is pressured by the ever-increasing costs of providing universal health care. For example, as the obesity epidemic and diet-related non-communicable diseases spread through the world, the share of the health care costs attributed to unhealthy eating is estimated to be more than CAD $6 billion per year.[2] Meanwhile, the growth and profitability of Canadian farms and businesses in the agriculture and agri-food system have shrunk to levels that threaten the financial viability of a number of businesses in these key sectors of economic activity. For example, government subsidies in recent years have surpassed market incomes in the agriculture sector.[3]

Globally, the world faces yet another food crisis, with food-price inflation sending markets into turmoil and food insecurity becoming a reality for an increasing proportion of the world's poor, especially the approximately one billion who subsist on less than US $1 per day. As well, food safety has become a growing concern, with practices in one part of the world often resulting in food-borne illnesses in others. A steady stream of media headlines have emerged about bovine spongiform encephalopathy (Mad-Cow Disease), food recalls prompted by outbreaks of salmonella and E-coli, and fears of avian influenza contagion from poultry supply. The issue of food safety has created a challenging environment in which government policy-makers, business strategists, and civil society leaders in health, agriculture and agri-food systems must manage new realities and prepare for an uncertain future.

The past year has highlighted the steep opportunity costs of sectoral isolation in addressing the intractable issues that lie at the interface between health, agriculture and agri-food systems. But the past year has also presented an unprecedented opportunity for a new kind of collaboration, one that produces more effective, integrated solutions. These solutions must emerge through a Whole-of-Society approach. This approach starts with individuals from businesses and communities across all sectors of health and economic activity.

They must act at local, national and global levels. Indeed, the ideological walls that have impeded business, NGOs, government and community convergence in the past have been among the costliest variables in our efforts to find comprehensive, long-term solutions.

Canada can become a world leader in integrating health, agriculture, and agri-food policies, thanks to several advantages:

- Canada's health system is highly regarded worldwide, and is a well-established benchmark for universal access to quality and comprehensive health care. Furthermore, Canada has taken a leadership position globally in developing policies related to food safety, infectious diseases, nutrition, and chronic disease prevention;
- Canadian agriculture has a strong base in many food commodities, including grains, meat, dairy, and pulse products, and can provide environmentally and economically sustainable solutions to chronic and crisis-driven food insecurity worldwide, while gaining a competitive advantage in global markets to help feed the world;
- Canada's strategic and sustained investment in science and technology, an investment that supports research and development, has created opportunities for the health and agriculture and agri-food systems to play a leading role in developing marketable and societal solutions for urgent global health and economic challenges;
- Canada's policy agendas for health, agriculture and agri-food, and nutrition are already well-equipped with frameworks for action, many of which reflect major, forward-looking paradigm shifts and acknowledge the need for further integration between health, agriculture and agri-food agendas.

II. SETTING THE CONTEXT FOR THE CANADIAN HEALTH, AGRICULTURE AND AGRI-FOOD SYSTEMS

This overview is intended to provide scientists, policy-makers, professionals and managers from the health, agriculture and agri-food systems with an initial understanding of the key issues and challenges in one another's sectors in order to provide a foundation for their collective future work in developing an integrated strategy. Notably, a full portrait of the Canadian context for health, agriculture and agri-food systems is beyond the scope of this paper. For more detailed information on trends in the health care costs, disease rates, and in the agriculture and agri-food sector, see Appendix 1.

Trends in Health Care Costs and Rates of Diet-Related Diseases and Overweight/Obesity

Between 1975 and 2005, health care expenditures in Canada rose from 7% to 10.5% of the Gross Domestic Product (GDP), and now exact an estimated annual cost of $160 billion.[4] Per capita health care expenditures have doubled from about $1,700 to about $3,600 (1997 $).[5] Furthermore, the prevalence of diet-related chronic diseases such as cancer, cardiovascular diseases, diabetes, and stroke (Figure 1)[6] – which all together take up two-thirds of the direct costs of the health system[7] – continues to rise and is projected to significantly increase. Chronic diseases are all together estimated to contribute about 60% of indirect health care costs to the Canadian economy, costing $54.4 billion annually (in 1998$).[8] In addition, the number of Canadians in all age groups who are overweight and obese continues to rise: half of the adult population is now overweight or obese, while weight issues are becoming increasingly prevalent in children and youth. A recent modeling exercise by the Milken Institute in the United States shows that, under an "optimistic scenario" of intervention which assumes reasonable improvements in health due to more comprehensive prevention and lifestyle changes, the rates of chronic diseases could be slowed down from a potential increase of 43% to 17%.[9]

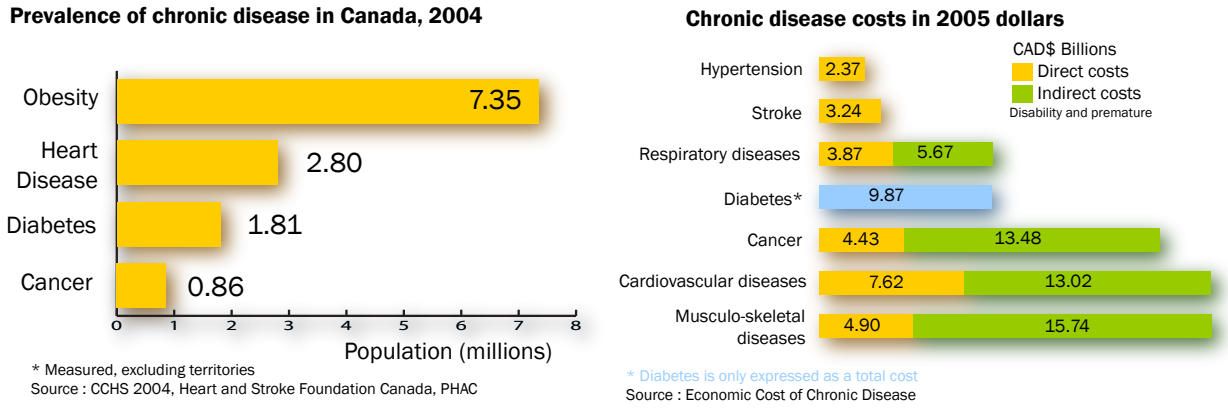


Figure 1. Current state of chronic disease in Canada and examples of economic projections of health care costs.

It is now well-established that changes in the individual lifestyle behaviours such as diet and physical activity can significantly reduce the prevalence of chronic diseases. Appropriate nutrition and physical activity could reduce the prevalence of cancer by 24%[10] and lead to dramatic reductions in cardiovascular disease.[11] The public health community has devoted considerable efforts to developing a stronger evidence basis to guide individual choices and to assess the impacts of programs to prevent chronic diseases and obesity. Figure 2[12] illustrates the results of a U.K. study that evaluates the impact of different types of programs in reducing the body mass index (BMI) of children. The study suggests that significantly altering the rising rates of obesity in children can only be accomplished through a combination of nutrition and physical activity programs delivered by different sectors and levels of society.[13] It points out that the agriculture and agri-food sector is one of many sectors that need to engage in delivering some of these programs (e.g. nutrition labelling).

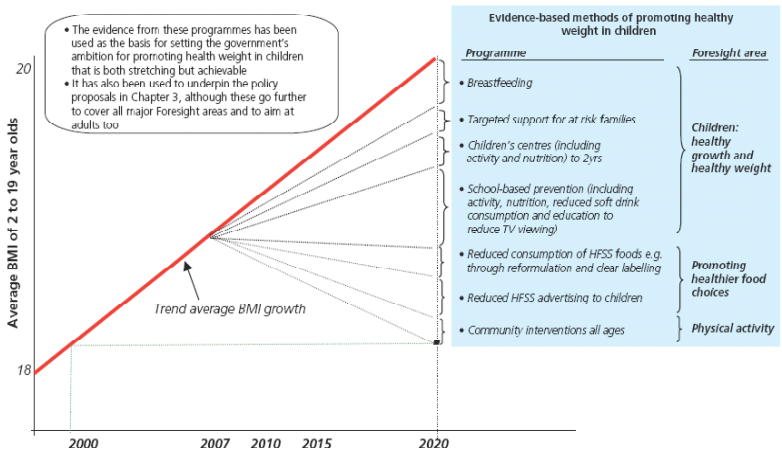


Figure 2. Illustrative chart of potential reduction in average BMI in children from implementing best practice programs – indicative trajectory. Modified from the report *Healthy Weight, Healthy Lives: a Cross-Government Strategy for England*, by Cross-Government Obesity Unit, Department of Health and Department of Children, Schools and Families, 2008, pg 9. Copyright 2008 by Cross-Government Obesity Unit.

The Canadian Agriculture and Agri-Food System

In 2006, the agriculture and agri-food sector – including primary production (unprocessed), food processing (value-added), retail/wholesale and food services – contributed $87.9 billion dollars (1997$) to the Canadian economy, representing 8% of the GDP.[14] The agriculture and agri-food sector employs 2.1 million individuals, representing 12.8% of Canadian active manpower.[15] Overall primary production in Canada is focused on red meats, grains and oilseeds, and dairy. Sixty percent of Canadian farms are considered small (under 400 acres)[16] and more than 20% of Canada's farms have a yearly farm income of less than $10,000[17] (Figure 3). However, these small farms represent only 10% of the total primary production output, while very large farms (which represent just 17% of total farms) provide 75% of total output.[18] Small farms are often hobby or leisure enterprises, whose owners are employed in other occupations or retired. Large farms in Canada are business-focused and are more likely to be incorporated operations. Furthermore, while the retail and wholesale sectors have undergone significant consolidations in recent years, many small- and medium-sized

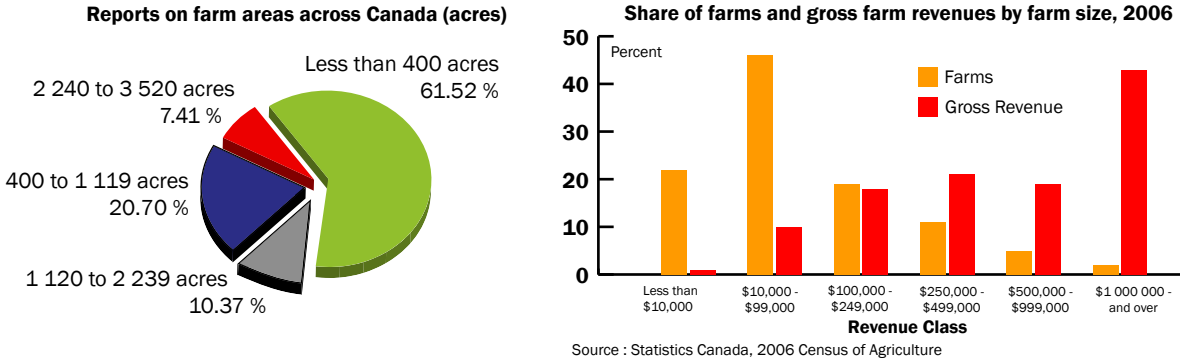


Figure 3. Farm size and revenue in Canada.

businesses persevere. Therefore, when considering the challenges and opportunities for the agriculture and agri-food sector, it is important to consider the size, nature and type of businesses operating at each level of the whole value chain within this sector.

Over the past 15 years, productivity growth in primary agriculture has consistently decreased, and is consistently lower when compared with Canada's lead competitors, the United States and Australia.[19] Conversely, the productivity growth of the remainder of the agriculture and agri-food sector over the same period of time has consistently improved and has been superior to its competitors (U.S. and Australia).[20] Government expenditures in support of the agriculture and agri-food sector have increased, presenting a significant burden at both provincial and federal levels. In fact, program payments now surpass market income, with a yearly cost estimate of CAD $5 billion (Figure 4).[21] Investments in improving productivity in this sector have a strong potential to contribute to the country's economic performance and competitiveness on the world markets.

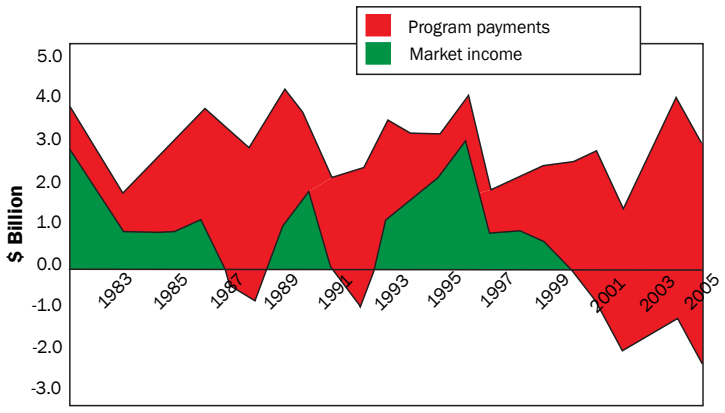


Figure 4. Net farm income and program payments.

Canada remains the world's fourth largest agriculture and agri-food exporter, after the European Union (EU), the U.S. and Brazil (2007 data).[22] Canada accounts for 5.6% of total world agriculture and agri-food exports. Canada is also the sixth-largest agriculture and agri-food importer, after the EU, the U.S., Japan, China and Russia. Canada accounts for 2.5% of the world agriculture and agri-food imports.[23] Over the past two decades, the composition of exports has shifted significantly. Canada's share of bulk commodities and value-added products remained stable, while consumer-oriented products rose to 30.4% for exports and accounted for 74% of the total imports in 2007.[24]

This shift presents an opportunity for innovation in the Canadian agriculture and agri-food sector. Innovation requires public and private investments in research and development (R&D) and in both primary production and food processing. Canadian public investment in R&D has been lower in the 2000s compared to the 1980s and 1990s.[25] Private investments in R&D have been greater in food processing than in primary agriculture, possibly contributing to the former's sustained productivity growth.[26] However, the share of the R&D expenditure as a share of GDP by private industries in either of the primary agriculture or food processing sectors is significantly smaller than that of the total manufacturing sector. Since the early 1990s, Canada's business has lagged behind its competitors (U.S. and Japan) in terms of the R&D expenditures as a share of value-added investments in the food processing industry.[27]

III. NUTRITION AND HEALTH AS DRIVERS OF FOOD SUPPLY AND CONSUMER DEMAND IN CANADA

In order to identify suitable lever points for intervention, it is essential to understand current and emerging trends in the types of food that consumers purchase, the types of food they are interested in purchasing, and where they make these purchases. Furthermore, consumer demand for new products drives business decisions about where R&D resources should be invested. Therefore, in order to motivate businesses to invest in the R&D of healthier agriculture and agri-food products, it is also necessary to drive consumer demand for these products. The following section reviews some of the key trends in food supply and consumer demand. For more detailed information, see Appendix 2.

Meal Type	% of Meals
In-Home–From Retail	67
At a Restaurant	8
Skipped Meals	8
Carried From Home	8
All Other Away-From-Home	7
In-Home–From Restaurants	2

Figure 5. Where Canadians eat their meals, 2007. Source: Canadian Restaurant and Foodservices Association, from *National Eating Trends Canada, NPD Group Canada Inc.*

Canadian consumers eat the majority of their meals at home. Almost 70% of all Canadian meals are purchased from retail stores and prepared and eaten at home (Figure 5).[28] While commercial food services account for around 10% of all meals, the average Canadian family visits a restaurant for a meal or snack approximately 520 times per year and spendsaboutone-fifthofitstotalhousehold food expenditures on these meals and snacks.[29]

Consumers are highly aware of the connection between food and good health. Whether the consumer is purchasing food in retail stores or away from home, both nutrition and quality (including taste) are the two top criteria, with price being far less important. As a result, consumer demand for, and industry supply of, foods with "real" or "perceived" healthfulness continues to be a strong area of growth for the agriculture and agri-food sector. A particular growth area is the increase in new processed food products that make functional claims. This rising trend is reflected in the increasing market value of functional foods in Canada, the U.S. and other industrialized countries. This market is projected to experience strong growth in future years.

Companies are also reformulating products to respond to consumer interest in and demand for healthier nutrient profiles, such as foods claiming to be "trans fat free" or "low sodium." A report by ACNielsen[30] that annually tracks nearly 500 agriculture and agri-food product categories reported that approximately one in five active manufacturers' listings in retail grocery stores in 2003 were considered "better for you products."
The number of "better for you" product listings had more than doubled in three years, while

the market share of these foods increased by 1% annually. In fact, on a global scale, ACNielsen reported that six of the seven retail grocery categories that experienced double digit growth in 2003 were "better for you" products.

Canadians also continue to show a strong interest in organic food. Canada's organic fruit and vegetable industry is slowly expanding, with sales still representing a niche market in most parts of Canada. In 2006, 3,555 farms reported growing certified organic products, an increase of nearly 60% from 2,230 in 2001.[31]

In spite of these advances, Canada has experienced limited growth in the consumption of fruits and vegetables (Figure 6),[32] even though the link between fruits and vegetables consumption and the risk of obesity and chronic diseases is well-established. It is estimated that reducing the rate of diseases through the consumption of 5 to 10 servings of fruits and vegetables per day would save the health care system significant amounts in direct and indirect costs.[33]

In summary, Canadian consumers still eat the majority of their meals at home or away from home, using food brought from home, with only about 10%[34] of meals consumed in restaurants. Consumers have shown a strong interest in foods that are considered "better for you" and the market for niche products, such as organic and functional foods, has continued to grow. The opportunity clearly exists to continue to drive consumer demand toward healthier foods through education and industry supply.

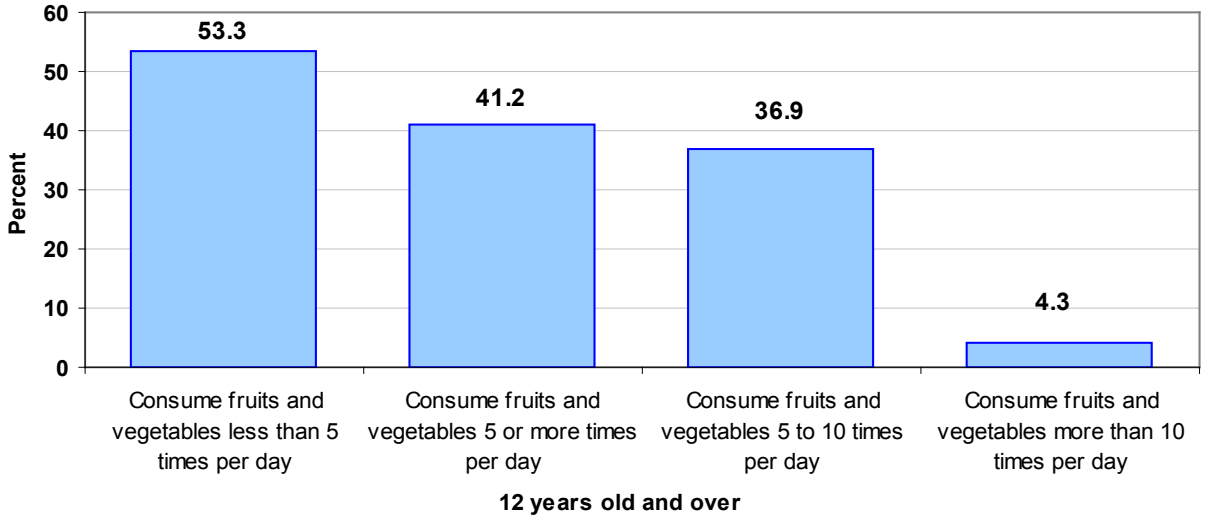


Figure 6. Fruit and vegetable consumption, population aged 12 and over, Canada, 2005.
Source: Statistics Canada.

IV. POLICY TOOLS AT THE INTERFACE OF HEALTH, AGRICULTURE AND AGRI-FOOD

A broad spectrum of government instruments exists for advancing public policies at the interface of health, agriculture and agri-food that promote healthy eating and sustainability in these sectors (Figure 7). Some common instruments are laws (statutes and regulations), economic instruments (including taxes, subsidies, and public expenditure), forms of self-regulation, standards, voluntary initiatives, information and education, and collaborative or consensual approaches (including formalized partnerships and less formalized networks). The complexity of addressing agriculture, agri-food, business, and diet-related considerations with a reasonable degree of convergence between health and economic issues clearly transcend government departments and jurisdictions. It also calls for the involvement of the private sector, non-governmental organizations, and communities and consumers.

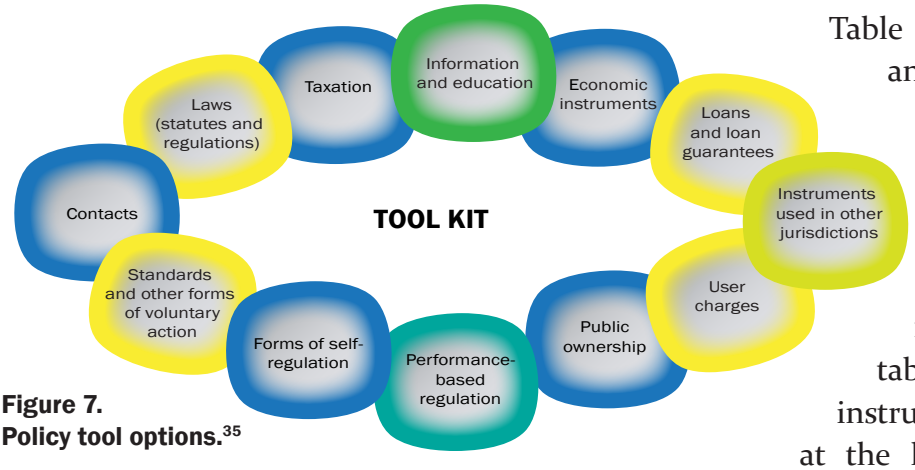


Figure 7.
Policy tool options.[35]

Table 1 (Appendix 3) provides an overview of the most common policy instruments that have been used at the interface between health, agriculture and agri-food. A review of this table shows that many instruments are already in use at the health, agriculture and agri-food interface. Furthermore, these instruments represent the diversity of tools available to decision-makers. In terms of regulatory instruments, a recent CAPI report[36] provides an overview of the legislative and regulatory landscape of the agriculture and agri-food sector in Canada. The report provides detailed information about the complexity of this legislative and regulatory landscape, and provides recommendations for a more effective regulatory policy framework for the agriculture and agri-food sector. The CAPI report outlines measures that could improve the regulation of the agriculture and agri-food sector and these include: "developing over-arching objectives for regulation; encouraging greater collaboration between departments and agencies; seeking industry input on the choice of regulatory instruments; and designing legislation that provides for more regulatory flexibility."

Beyond legislative and regulatory instruments, the policy tools reviewed in Table 1 (Appendix 3) offer a rich diversity: economic instruments, such as taxation, subsidies, trade tariffs and public investment in research and development; mandatory and voluntary standards; information and education; as well as novel collaborative and consensual approaches that

involve government working with a diversity of stakeholders. A broad conceptual framework used by the government of Canada in assessing, selecting, and implementing the best portfolio of instruments by which to pursue policy objectives is available at www.regulation.gc.ca/documents/gl-ld/asses-eval/asses-eval00-eng.asp.

At the interfaces of health, agriculture and agri-food, various policies can shape food supply and consumer demand in different ways (Table 2, Appendix 4). For example, policies may affect farm and agri-food input and technology costs, and thereby shape agriculture and agri-food products and services, by making some ingredients and/or methods cheaper or more easily accessible than others. Such policies include farm income and commodity-price support programs, trade policies such as quotas and tariffs, and public investment in R&D. Policies using taxation may affect consumer demand through similar economic mechanisms. Information policies affect consumer demand at the same time as they change the competition dynamics in markets. These policies include mandatory nutrition labelling, the *Canada's Food Guide*, front-of-package labelling schemes such as the Heart and Stroke Foundation of Canada's *Health Check* program, and the education campaign called *5 to 10 a day-For better health!* Finally, policies that influence business practices have the power to shape both food supply and consumer demand. These include policies such as industry self-regulation and mandatory restrictions or bans on ingredients in processing or on advertising to children.

In the past decade, some progress has been made in developing an empirical basis on the health and economic impacts of the diverse policy options available. But much more analysis is needed of policies with the potential to support the development of an integrated health and agri-food strategy. It is beyond the scope of this discussion paper to conduct a systematic review of the impacts of these policy options. But this paper does review and discuss the current state of evidence between agriculture and food economic policy tools, vis-à-vis their impact on obesity and food consumption, with a special focus on evidence supporting the use of "fat" taxes to reduce the consumption of unhealthy foods.

The Impact of Agriculture and Agri-Food Economic Policies on Obesity

The impact of changes in agriculture and food economic policies on obesity or eating patterns is predicated on the power of economic motivation to drive individual and organizational choices and shape market forces (including consumer demand, production costs, relative prices, and new technologies). Economic policies in the agriculture and agri-food domains are typically designed to alter the structure of incentives and disincentives in order to shift the drivers of food supply and/or consumer demand in a targeted direction. These policies include subsidies, production and consumption taxes, supply-managed or tiered pricing,

research and development tax credits, and import tariffs. In various countries, provinces/states, and municipalities (e.g. New York and Seattle), economic policies are emerging that include changes in taxation and agricultural subsidies that would not have been conceivable less than a decade ago (apart from the well-known exception of the *North Karelia Project*[37] and its nation-wide extension).

Economists have modeled, projected and more or less validated the economic impact of such policies for prices and production. Less evidence exists to support the thesis that these economic policies negatively impact dietary patterns or lead to obesity. Nevertheless, public opinion and a number of argument-based non-peer and peer-reviewed publications – in the U.S., Europe, Canada and many other countries – have suggested that agricultural economic policies, such as farm subsidies, have contributed significantly to the "obesity epidemic" by making high-caloric, nutrient-poor foods relatively cheap and ubiquitous. The need for changes in agricultural policy has gained popularity in the general public, with champions like Michael Pollan[38] and others making this issue popular and frequently discussed in the media.

Cash et al.[39] argued that current commodity price policies in Canada may have had unintended adverse dietary outcomes. But the authors did not directly test the hypothesized effects. Conversely, recent analyses of historical and cross-sectional agricultural, sales and food consumption country-level data from around the world provide little evidence of a direct relationship between farm policies such as price and income support and obesity. Alston et al.[40] examined historical data in the U.S. and other food prices to assess the impact of such policies in the U.S. They found that these policies have generally small and mixed effects on farm commodity prices, which in turn have smaller and still mixed effects on the relative price of low- vs. high-obesity prone food. However, this same study found that – in contrast to agricultural subsidies – variations in economic policies tied to investments in agricultural and agri-food R&D for low- vs. high-obesity prone food had a direct and significant impact on the relative prices of these foods. Beghin and Jensen[41] found a similar superior impact of R&D investments compared to income support on relative price, examining sugar and corn as sweetener crops.

Schmidhuber moved beyond the relationship between agriculture and food policy and the relative pricing of food categories of different nutritional content and quality. He performed an economic and econometric longitudinal analysis of the relationship of these policies with food sales and the nutritional quality of diets in the European Union (EU).[42] The results of an analysis of the European diet over the past 40 years show that the degree to which the EU's Common Agricultural Policy (CAP) impacts diet patterns – and whether the impact is positive or negative – depends on the pricing and cost structure along the farm-to-plate value

chain (see Figure 8). The author shows that corn subsidies have had little impact on the sugar and caloric content of diets. He suggests that this result came about because corn subsidies contribute little to the share of the final price of processed food that contain a high sugar content, due to the fact that these food products go through many steps along the food chain, where each intermediary adds and gains value. He did suggest, however, that a similar policy may have a more powerful impact on fresh fruits and vegetables, because for these foods the value chain between farmer and consumer is short. Indeed, the European Union has recently announced the creation of subsidy programs for fruits and vegetables.[43]

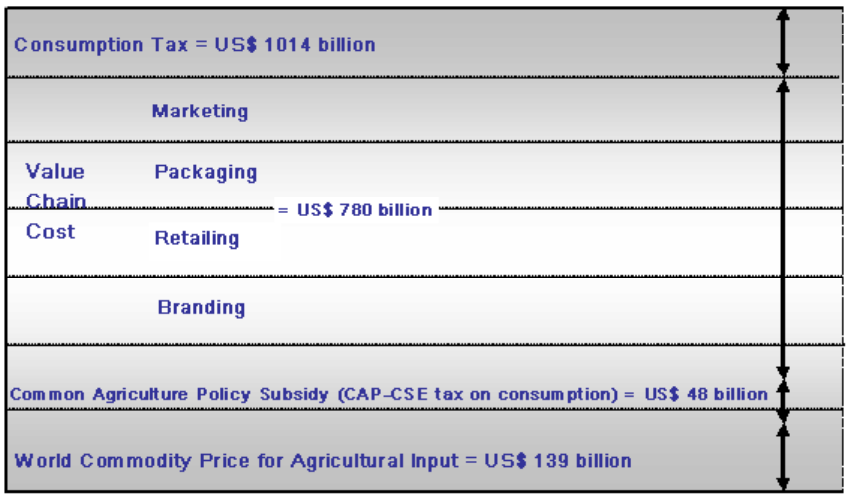


Figure 8. Vertical price transmission in the EU 15. Data based on OECD and World Bank figures.

In sum, in embarking upon the development of the Integrated Health and Agri-Food Strategy for Canada, policy-makers and business strategies in all sectors may want to combine forces to gather more scientific evidence on the health and economic impacts of past and present economic policies that may have encouraged obesity. They may also want to undertake small scale field experiments using policy options that could propel society in a healthier direction, accumulating evidence as innovative changes are brought to the field.

The Use of Economic Policies to Alter Food Consumption

A sustained interest exists in understanding how economic instruments, such as taxes or subsidies, could be used to better promote healthy eating in a sustainable manner for all sectors. The table below provides a brief synopsis of the range of agriculture and agri-food economic tools that have been used or proposed in Canada or other jurisdictions to alter diet or food consumption based on a review of "keystone" articles. Some of the nutritional outcomes are based on "real life" situations, while some outcomes are based on theoretical models.

A specific and sustained interest has been maintained in the media and in policy circles in Canada and abroad concerning "fat" taxes for unhealthy foods. A lower profile interest exists in the use of subsides to encourage healthy foods. There are reasons why a "fat" tax is an alluring concept to many stakeholders.

Examples of Economic Approaches Used to Influence Diet or Food Consumption

INSTRUMENTS OR APPROACHES USED TO ALTER SUPPLY OR DEMAND	DIET AND FOOD CONSUMPTION
Taxation of unhealthy behaviour (tax disincentive)	Tax on a category (e.g., soft drinks, snack food) or on a nutrient (sugar, fat)[44]
Removing taxes on health (tax incentive)	Removing tax on healthy foods
Subsidizing healthy food or healthy activity ("thin subsidy")	Fruits and vegetables[45] and fibers[46]
Other subsidies (transportation, etc.)	Northern Food Mail program[47]
Agricultural subsidy	Agricultural subsidy[48]
Pricing policies	Lowering prices to improve sale of fruits and vegetables[49]
Agricultural programs that affect pricing	- Supply Management - Marketing boards that set prices - Import tariffs[50]
Research and Development Tax Credits	R&D Tax Credits for new food products, food technology, breeding and biotech[51]
Local pricing policies in schools, workplaces, and vending machines	- Vending machines[52] - Tax on junk food in Maine[53] - Store coupons on purchasing of healthy foods[54]
Local subsidy policies in schools, workplaces, etc.	Community subsidies of healthy food choices in schools, workplaces, restaurants[55]
Targeted subsidies for participants of government programs	Additional vouchers for fruits and vegetables for women enrolled in Special Supplemental Nutrition Program for Women (U.S.)[56]

A "fat" tax is an example of a Pigovian tax that is designed to take into account the social costs of externalities. It is used when private costs do not take into account social costs in the production process and thus result in a market failure. The tax incorporates the social costs into the private costs of the firm so that efficient decision-making can occur.[57] The advantage of a Pigovian tax is that it provides a socially efficient solution if the tax is set appropriately. This type of tax is similar to the "sin" tax that has been levied on such products as tobacco and alcohol. Several studies have indicated that the tax on alcohol and tobacco has had an impact on the consumption of these products. Moreover, some stakeholders suggest that the revenue that is generated from a "fat" tax can be used to promote healthy eating and lifestyles.[58]

A disadvantage of using a tax is that certain information (such as the definition of "healthy food," "unhealthy food," or cut-offs for "healthy levels" of specific nutrients) is required to appropriately set the tax. Another disadvantage is that the transaction costs, such as monitoring and enforcement, associated with taxes must also be taken into account when evaluating the policy choice. For example, the transaction costs associated with taxes that target nutrient content directly are much higher than taxes that are levelled indirectly from

food categories (i.e., snack food).[59] These transaction costs can play an important role in the cost effectiveness and the distribution of benefits and burdens on different segments of the population. Another disadvantage of a tax on food is that it would have to be adapted as the marginal damage and marginal benefit curves change over time.[60]

Other disadvantages of a tax relate to costs to the consumer and to firms. A tax on unhealthy food is often considered a regressive tax because it affects low-income people more than high-income individuals. Low-income individuals spend a higher percentage of their income on food purchases. Typically, small to moderate taxes on unhealthy foods will not significantly impact the consumption of these foods.[61] If a tax is applied to a specific nutrient (e.g. trans fat), it can increase the input costs to the firm unless healthier substitutes are equally priced. The cost of the tax on a particular nutrient will be transmitted through the price system and will result in higher end prices for that food product. While this higher price will provide an incentive for consumers to ration their consumption of that food product, a "targeted" approach will arguably be more cost-effective. Simulated results of taxes by Jensen and Smed[62] indicate that a tax that targets particular nutrients is 10-30% more effective than one that targets them indirectly (e.g., a general tax on sugar). In their simulations, Jensen and Smed[63] found that targeting total fats versus only saturated fats had different effects on the consumption of food categories (e.g., milk, butter, cheese). Notably, a tax on a particular nutrient or food item may show cross-elasticity, with its impact on the quantity demanded of another good resulting in unexpected outcomes.

A tax can also be applied on a food category at the point of purchase, as with snack foods. A point of purchase tax creates an incentive for consumers to consume less of the food product because of its higher cost. Applying the tax at the point of purchase provides a different set of incentives than applying the tax on a particular nutrient. These different sets of incentives will have different impacts on the supply and demand of unhealthy food.[64]

Subsidies are also thought to provide an incentive to generate a social benefit by decreasing the price of healthy food choices. This is the so-called "thin subsidy".[65] As with taxes, how the subsidy is applied, either on the nutrient or food category, will have an impact on the incentives that are generated and on food consumption patterns. A subsidy on a particular nutrient decreases the relative price of that nutrient and creates an incentive for firms to utilize that nutrient in their food formulation. The input subsidy can be transmitted to the consumer in terms of lower food prices, thus creating an incentive to consume more of this food. How much of the subsidy is transmitted to the consumer will depend on a number of factors, but the level of competition in the food category is of particular importance.

Cash and colleagues[66] used a health risk production function to estimate the impact of providing a subsidy for the consumption of fruits and vegetables. They found that the cost

per life saved from the use of subsidies to enhance consumption of fruits and vegetables compared favourably to other policies used to promote fruit and vegetable consumption. Jensen and Smed[67] used a simulation approach to estimate the impact of different subsidy scenarios. As with taxes, they found that targeted subsidies on nutrient content, such as fibre content, were more effective than targeting food categories (i.e., fruits and vegetables). How the policy instrument was designed – whether it was a subsidy on the nutrient content or food category – had an impact on the consumption of various food categories.

Other types of subsidy programs focused on particular healthy foods, within particular segments of society, seem to have encouraged healthy eating. For example, the *Norwegian School Fruit Program*,[68] which supplied free fruits and vegetables to students, found that they ate significantly more fruit and vegetables than students in schools that did not have these programs. The Canadian *Food Mail Program*,[69] which subsidizes the cost of transporting nutritious perishable foods to isolated communities, found a significant increase in the consumption of fruits, vegetables, and dairy products when the subsidy for transportation increased from 30 to 80 cents per kilogram.[70]

In conclusion, sustained interest exists in the health and agriculture and agri-food sectors in understanding the effectiveness of taxes and subsidies on food sold at retail, as the means of affecting positive health outcomes. Additional research is warranted to better reveal the effects of these instruments on food consumption patterns, and consequently their role in reducing diet-related chronic diseases and the trend toward obesity and overweight individuals.

V. LOCAL, NATIONAL, AND GLOBAL POLICY FRAMEWORKS AT THE AGRICULTURE, AGRI-FOOD AND HEALTH INTERFACES

In recent years, agriculture and agri-food issues have increasingly been taken into account in the development of health policies and frameworks. Similarly, health issues have been taken into account in the development of agriculture and agri-food policies and frameworks. Table 4 (Appendix 6) analyses the relevance of current agriculture, agri-food, and health policies and frameworks at local, provincial, national and global levels to the potential vision and goals of an Integrated Health and Agri-food Strategy for Canada.

The development of an integrated strategy must be guided by efforts to include building synergistically on current policies, recognizing the need to address gaps, and fostering the ability to resolve conflicts between policies. The policies listed in Table 4 (Appendix 6) indicate that much opportunity exists for synergy and for greater involvement not only of a "whole-of-government" but a Whole-of-Society approach to developing and implementing such policies.

The challenges of developing integrated, multi-level, multi-stakeholder policies are also revealed by examining gaps. Sometimes, the obvious gaps are related not to the absence of a goal but rather a failure of implementation. For example, consumption of fruits and vegetables is clearly linked to good health and can increase the productivity of the horticulture sector. However, in many countries, including Canada, it has been difficult to achieve these outcomes. A recent review from Europe indicates positive outcomes from projects where industry and multiple levels of government worked together. This required changes to the European Union's CAP in regards to fruits and vegetables, which previously stipulated that fruit and vegetable surpluses be destroyed to avoid prices falling below certain levels.[71]

During the past decade, significant shifts have occurred in agriculture and agri-food policies in Canada. The *Agricultural Policy Framework (APF)*[72] of 2002 is viewed as the first genuine attempt to create a comprehensive, overarching plan for agriculture and agri-food policy. The APF advocated securing the long-term profitability of the sector by making Canada the world leader in food safety, innovation, and environmentally responsible agricultural production. It focused not only on the agriculture and agri-food sector but also on the role of the value-chain and post-farm gate activities.

The *Growing Forward Framework*[73] (July 2008), recently endorsed by Canada's federal, provincial and territorial Ministers of agriculture, articulates further the importance of links between agriculture, agri-food and health. Though only a limited number of health-

related initiatives exist, this recognition of health within the federal agricultural and agri-food policies presents an opportunity to further build and solidify health considerations in current and future agricultural and agri-food policies.

In the private sector, food industry coalitions are seeking a better understanding of the synergy between their own sector-specific strategies and the broader health, agriculture, and agri-food policies at both national and international levels. Indeed, globalization has led to new dynamics as global value chains work to build their own system of standards (private standards) to govern aspects of food safety, food quality, and environmental sustainability. A good example is the *Canadian Children's Food and Beverage Advertising Initiative (Children's Advertising Initiative)*,[74] where food and beverage companies came together and voluntarily set limits on advertisement aimed at children.

Clearly, current health policies focus predominantly on health care delivery. But the prevention of disease through population health approaches is also vital to improving overall health status. The *Integrated Pan-Canadian Healthy Living Strategy*[75] and its related provincial policies emphasize the importance of healthy eating, physical activity and the relationship of these priorities to healthy weights. This approach is consistent with the *World Health Organization (WHO) Global Strategy on Diet, Physical Activity and Health*[76] (2004), which states that the responsibilities for action to bring about changes in dietary habits and patterns of physical activity rest with stakeholders from public, private and civil society. Many disease-specific strategies (*Canadian Diabetes Strategy,*[77] *Canadian Strategy for Cancer Control*,[78] and the new *Canadian Heart Health Strategy and Action Plan*[79]) specifically highlight the role that food can play in reducing chronic diseases and the importance of multi-stakeholder action.

In the early 1990s in Canada, *Nutrition Recommendations: A Call for Action*[80] was published, followed by the 1992 publication of the *Canada's Food Guide to Healthy Eating*[81] (updated again in 2007). In 1996, as a result of a multi-sector, Canada-wide process, the Joint Steering Committee created *Nutrition for Health: An Agenda for Action*,[82] a national nutrition strategy for Canada. It stated that food availability and choices are greatly influenced by the combination of powerful economic and social forces and individual tendencies and capacities. The policy statement advocated the integration of nutrition into social and economic policies and programs, and into programs related to health, agriculture, agri-food, and education.

At the provincial level, numerous policies related to healthy living, nutrition, and food exist. In the province of British Columbia, for instance, *The British Columbia Agriculture Plan: Growing a Healthy Future for B.C. Families*[83] is the first policy to link health, agriculture, and agri-food outcomes in an extensive manner. Furthermore, *ActNow BC*[84] provides a

coordinated, cross-governmental, multi-sector platform to promote, support, and encourage food industry initiatives and activities that proactively "make the healthy choice the easy choice" for British Columbians. It provides a platform for providing as many B.C. products as possible which meet their healthy food choice standard (e.g. the *School Fruit and Vegetable Snack Program*[85] and the B.C. Dairy Foundation's *Elementary School Milk Program*[86]).

Canada's Action Plan for Food Security[87] (1998) describes an extensive portfolio of action both at the domestic and international levels to address food security. *Canada's Fourth Progress Report on Food Security*[88] recognizes that new programming on sustainable agriculture, as well as initiatives related to trade, can positively impact domestic and global food security. Recently, the Government of Canada published the *Food and Consumer Safety Action Plan*,[89] which sets a forward path to ensure that the food safety system in Canada remains modern and responsive to new and emerging challenges, both domestically and globally. Furthermore, the Bill & Melinda Gates Foundation, through a convergence-building workshop[90] hosted by the MWP and organized in collaboration with the WHO, began to examine how to link agricultural development outcomes with food safety, food security, and nutrition outcomes. Experience from these integrative policy exercises can also guide the development of a Canadian integrative framework.

In Canada, the development of both health policies and agricultural and agri-food policies is complicated by the issue of shared jurisdiction between the federal and provincial governments in both of these domains. Numerous policies exist in this area at both the provincial and federal levels. This jurisdictional issue becomes further complicated when one looks at the shifting role of private organizations engaged in developing policies in the area of health, agriculture, and agri-food. For example, the Bill and Melinda Gates Foundation currently has more funding than the entire WHO and is exercising an influential role in the development of policies. Other private foundations, such as the *Safe Supply of Affordable Food Everywhere (SSAFE)*,[91] which aims to improve food safety systems in developing countries, are now working to build formal partnerships with governmental bodies in order to deliver these programs.

In Canada, a strong, long-standing desire exists to achieve greater integration between health and agriculture and agri-food policies. Furthermore, several reports have been produced calling for an "all-of-government approach" to areas where food, health, and environment intersect. Increasingly, authorities in these areas recognize that engaging the full range of public policies and creating effective partnerships across all sectors is necessary to create the convergence required to achieve the desired health and economic outcomes (Dieticians of Canada,[92] Heart and Stroke Foundation,[93] Health Council of Canada 2007 reports on chronic health conditions,[94] Canadian Agri-Food Policy Institute,[95] McGill Health Challenge Think Tank reports[96]).

In developing an integrated health and agri-food strategy, the impact of agricultural and agri-food policies on health must be better understood. While the evidence basis pertaining to these issues is under-developed, actions to bring about better convergence should not be delayed. Canadian society is now at a crossroad; it may be possible to galvanize action in the health, agriculture and agri-food systems, such that all actors would be willing to revolutionize their respective paradigms in order to work individually and jointly to shift the drivers of food supply and consumer demand toward safe and nutritious food that supports healthy diets for all. This revolution would fulfill the dual objective of containing health care costs and opening new avenues for market and economic growth and sustainability for the agriculture and agri-food sector.

The context for health and nutrition policy is being influenced by several factors, including the powerful global value chains, the rise of private standards and agreements, the growing importance of private-public partnerships, and the role of private foundations. This influence is in addition to the impact of the increasingly sound understanding among policy-makers of the need to balance the roles of government as a regulator, a catalyst or as a partner in a Whole-of-Society approach. Moreover, health, agriculture and agri-food systems do not operate in isolation from other systems (e.g. transportation, urban planning, etc.) and the behaviour of the individual is influenced by complicated cultural and social influences. The next sections of this discussion paper introduce the concept of a systems approach within which a future Integrated Health and Agri-Food Strategy for Canada would need to operate.

VI. A WHOLE-OF-SOCIETY SYSTEMS APPROACH TO THE INTEGRATED HEALTH AND AGRI-FOOD STRATEGY FOR CANADA

Current policies and frameworks suggest that the health, agriculture and agri-food sectors in Canada recognize that better linkages must be created between these fields, bolstered by multi-level, multi-stakeholder partnerships.

In recent years, a growing recognition has emerged among nutrition, public health, and medical communities that the food industry is not necessarily the evil to avoid, but rather can be a powerful ally in achieving the changes needed to combat obesity, chronic disease, and other challenges related to food and diet. The industry can be a particularly strong ally if its power of innovation, technology, and logistics is harnessed. The agri-food industry has also recognized the economic opportunity of partnering with the health sector, in terms of enhancing its ability to understand and meet consumer demands for health and wellness products. Consequently, the private and public sectors in both the health, and the agriculture and agri-food realms have undertaken a significant effort to entice producers, processors, marketers, retailers and restaurants to shift the drivers of food supply in a healthier direction. At the same time, the health community has made efforts to educate consumers about healthy eating. Despite these efforts, and even though policy-makers in both sectors are aware that supply and demand are completely intertwined, no complete and systematic approach has been developed to move supply and demand toward health and nutrition in a convergent and sustainable manner.

In order to shift the food supply and consumer demand towards the desired outcomes, society must be engaged beyond the nutrition, health, and agriculture and agri-food sectors. A Whole-of-Society Systems approach (Figure 9)[97] will be required. This system will influence the local and global culture and media, communities, education and other systems such as transportation and civil engineering. It will also address the environmental aspects of food production.

Above all, these changes must place the consumer at the center of the focus. Consumers, far from being generic entities, vary along numerous dimensions and hold a variety of behavioural motivations, which impact their food choices in different manners and to different degrees.

Varying cultures and norms must also be taken into account in developing an integrated health and agri-food strategy. Cultures vary in the values they attach to food and its relationship to health. For example, some cultures rationally emphasize health and nutrition, while others

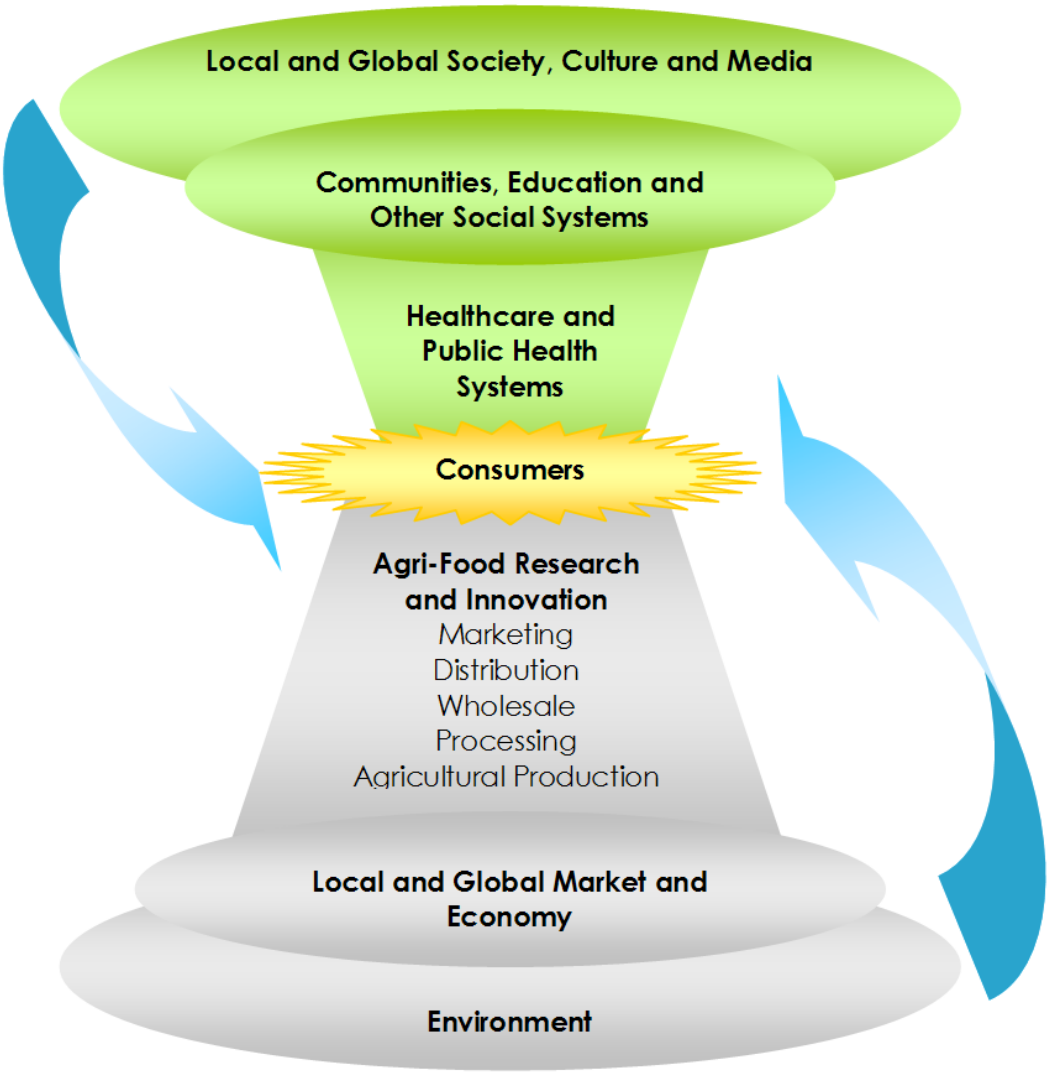


Figure 9. The whole-of-society systems driving food supply and consumer demand. Modified from the report *Food: an analysis of the issues,* by the Strategy Unit, UK Cabinet Office, 2008.

focus on hedonism or guilt. Many cultures view food as a core social engine. Cultural values and social norms also shape the activities, interactions, and transactions within and between health, agriculture and agri-food systems. For instance, viewpoints vary between cultures about: the relative moral value attached to profit-making motives; the degree of nurturance and protection given to children or to the concept of family; the relative dominance of the individual vis-à-vis the society; or the degree of guidance the state can appropriately have over individuals.

In recent decades, industrialization, urbanization, and globalization have significantly changed the agriculture and agri-food system. These changes have had global consequences for food safety, nutritional quality, and food access. Globalization has resulted in increasingly

complex cross-national and cross-continental supply chains of agriculture and agri-food products. It connects daily grocery shoppers in Canada and the United States to small farmers in developing countries, with transnational agri-food corporations as the bridge between them. For example, Canada imports almost 80% of its fruits and vegetables, with 80% of these imports coming from the U. S. and the remainder from over 100 other countries.[98] Understanding the complex processes of agri-food, industrial and commercial development at the national level – and in the context of global markets – is critical to developing appropriate strategies and policies at the interfaces of health, agriculture and agri-food. As illustrated in Figure 10[99] in terms of fast food, local value chains in both developed and developing countries and global value chains interact in complex ways.

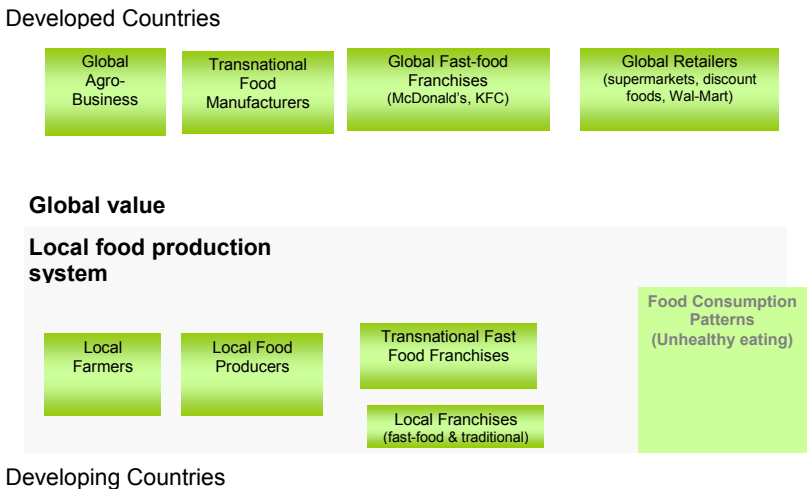


Figure 10. Interaction of global and local food value chains.

Rapid changes have been occurring in global food trade patterns. As a result, current policies do not fully account for the fact that – particularly for the agriculture and agri-food system – developing and developed countries are now part of the same local and global systems. This phenomenon presents both challenges and opportunities for Canada's domestic and international agenda, in matters of nutrition and health promotion, innovation, competitiveness, and economic performance in the food industry. Several factors urgently signal that simply producing enough calories to feed the world is not sufficient, such as recent food security and safety crises, the persistent progression of obesity and chronic diseases, and the economic challenges facing all systems worldwide. It is also critical to ensure that these calories are of appropriate nutritional quality, and made accessible wherever they are needed through safe and efficient production and distribution.

In conclusion, a whole-of-society systems approach is required that engages both individuals and actors in health, agriculture and agri-food, and other social and economic systems. This system must account for the broader cultural and environmental context at local and global levels, and must have the ability to achieve change at the scale required to attain the health and economic outcomes envisioned by an integrated health and agri-food strategy.

VII. A VISION FOR AN INTEGRATED HEALTH AND AGRI-FOOD STRATEGY FOR CANADA

Previous chapters of this discussion paper have reviewed the various issues to consider when developing an integrated health and agri-food strategy: (1) the current context of the health and agriculture and agri-food sectors; (2) the current policy frameworks and strategies at the health, agriculture and agri-food interface; (3) the range of instruments that are being used, or could be used, to advance health and agri-food outcomes; and (4) the importance of using a systems perspective, including the important and increasing role of local and global value chains. Based on this analysis, this discussion paper proposes a vision for an integrated health and agri-food strategy for Canada.

A Vision for an Integrated Health and Agri-food Strategy for Canada

The vision proposed is of "improving the well-being of Canadians by providing safe, nutritious and accessible food that supports healthy eating, contains health care costs, and is promoted by innovative and sustainable agricultural, food and health sectors" (Figure 11). Under this vision, Canadians benefit from producing and consuming food that makes them healthier, while Canadian businesses in the agriculture and agri-food sector are better able to compete in local, national and global markets.

Figure 11. A vision for an integrated health and agri-food strategy for Canada.

The vision is supported by six pillars: safe food, nutritious food, accessible food, healthy eating, innovation, and sustainability. These six pillars were chosen because they represent the areas in which policies and initiatives currently exist of relevance to an integrated health and agri-food strategy. The key policies, initiatives, and considerations for each of the six pillars are briefly described in the following sections. It must be noted that these six pillars do not operate independently from each other.

This discussion paper proposes a set of "lever points for change" that run within and across these six pillars, in order to direct thinking and discussions with regards to the subsequent development of a strategy by leaders in the field. These lever points combine a selection of short- and long-term changes that can potentially lead to significant improvements at the interface of health, agriculture and agri-food. It must be noted that, thus far, neither the selection nor the suggested initiatives in each of the proposed lever points for change have been the object of a consensus-building process.

It is expected that these lever points for change would create a structure around which engagement and action by consumers, the private sector, civil society, public health, and agriculture and agri-food agencies at the local, provincial/territorial, national and global levels could be galvanized. This whole-of-society mobilization would translate the levers into a set of concrete and focused initiatives, leading to a more comprehensive and efficient innovation system. This innovation system would range from laboratory activities to the commercialization of products. It would include interventions at the farm level through to the retail level, and among health professionals and consumers. It would result in the development and promotion of foods that are safe, nutritious, economically and physically accessible, and consumed by all to ensure healthy eating. It is expected that concrete action around a limited set of levers will contribute to economic, social, and environmental sustainability in Canada and worldwide, and will translate into measurable health and economic outcomes. In the long term, these measures will reduce health care costs and improve economic performance for the agriculture and agri-food sector.

Food Safety

The Canadian context

Recent events have heightened consumer awareness of food safety as a health issue, and have increased the level of attention and discussion about the performance of the food safety system. Examples include recent high profile food recalls in North America, and the contamination of infant formula with melamine in China that caused kidney stones and illness for more than 53,000 children.[100] The public is now more aware that food safety depends on the reliability of the entire local and global agriculture and agri-food system, from inputs, production, and distribution to consumption, both domestically and globally.

In Canada, the *Food and Consumer Safety Action Plan* and the *Growing Forward Framework* provide the opportunity for governments, industry and consumers to work together to enhance food safety. A focus of the *Food and Consumer Safety Action Plan* is preventing issues over food safety from even arising. Government, industry, and consumers must therefore each understand the opportunities they have to ensure food safety and be prepared to act using the appropriate mix of mandatory and non-mandatory approaches. This also requires that the highest risks be addressed by all three actors along the value chain, whether that be on the farm, in processing plants, at distribution, retail, food services, or home. The *Growing Forward Framework* further commits Canada to: supporting food safety through improvements in on-farm food safety; enhancing safety of the food system to ensure greater market confidence in Canadian agricultural products; and, supporting scientific research to improve food safety systems.

The balance between government and industry action on food safety is changing over time. While food safety approaches are most often based on the use of legislation, regulations, and standards, industry is increasingly enhancing the government food safety programs through a variety of voluntary programs and use of private standards. Indeed, with the rise of powerful global value chains, the tremendous increase in the import and export of food and ingredients, and the increasing concentration in the distribution and retail sector, it is questionable whether government can remain the sole stakeholder in setting food safety policies and standards.

Two multi-stakeholder food safety coalitions are in place. First, the Canadian Supply Chain Food Safety Coalition[101] was established in December 2000 with a mission "to facilitate the development and implementation of a national, coordinated approach to food safety." Its members include national, provincial and local associations representing input from suppliers, farmers, processors, transporters, retailers and food service. Over the past year, this Coalition has been meeting to review progress in building food safety along the value chain and to develop a forward-looking strategy that articulates priorities for action in the next five years, as well as to define the roles of each stakeholder. Second, the Canadian Partnership for Consumer Food Safety Education[102] was established in December 1997 by industry, consumer and government organizations "to coordinate and deliver food safety awareness programs aimed at the Consumer." It includes more than 50 trade associations and government bodies.

Canada in the global context

All countries have a vested interest in ensuring that exporting countries have well functioning food safety systems. In many parts of the world, food safety systems of legislation, standards, and inspection are less well developed; the pace of development in the global agriculture and agri-food sector greatly exceeds the capacity of some countries to develop their food safety

systems. The Codex Alimentarius Commission (CODEX)[103] works to develop international standards related to food safety. Furthermore, the *WHO Global Strategy for Food Safety: Safer food for better health*[104] sets out a framework for strengthening the food safety systems in all countries. The WHO, along with the Food and Agriculture Organization (FAO), work to provide capacity and programs to assist countries in developing strong food safety systems. While many countries and United Nations (UN) bodies provide capacity-building programming, private foundations such as Safe Supply of Affordable Food Everywhere are also now working to ensure food safety along the supply chain, and are formally exploring how to link these private initiatives to governmental efforts.

Given the increasingly complex nature of the value chains, effective food safety requires coordinated efforts by a variety of interdependent actors, encompassing the entire global value chain "from farm to fork." It requires integrating multiple institutional spheres and actors – global, regional, national and local, and public and private – while cutting across the three key domains of primary agriculture, agri-food, and health. This process of creating effective food safety entails an important paradigm shift, since it forces the contemporary food safety system to evolve from a simple collection of risk-reducing guidelines, standards, and regulations to a complex web of public and private standards with multiple objectives.

The food safety system now encompasses multiple institutional spheres: regional, national, and international. It is also a mix of public (mandatory, voluntary) and private (collective, individual) standards. The EUREPGAP standards for fresh fruits and vegetables, for example, were initiated by 13 European retailers responding to the demands of Great Britain's *Food Safety Act*.[105] Later, this program was expanded to GLOBALGAP, a private sector body that sets voluntary standards for the certification of agriculture and agri-food products around the globe. The GLOBALGAP standard, which is intended to serve as a practical manual for 'good agricultural practice' anywhere in the world, is primarily designed to inform consumers about proper food production on the farm. It involves minimizing detrimental environmental impacts of farming operations, reducing the use of chemical inputs, and ensuring a responsible approach to worker health and safety and animal welfare. A recent joint study by the Canadian Horticultural Council,[106] the Canadian Produce Marketing Association,[107] the Canadian Council of Grocery Distributors,[108] and the Canadian Federation of Independent Grocers[109] found that dozens of private and national standards are in place in many countries from which Canada imports fruits and vegetables. Further work to understand the variations between these emerging standards might improve the economic viability of this sector by achieving greater equivalence between the myriad of different national and private standards.

Nutritious Food

The Canadian Context

Canada has one of the highest consumption rates of trans fat in the world.[110] It was found that if trans fat free vegetable oil was used in 80% of the shortening oil market in Canada and 50% of the salad oil market, it would reduce trans fat by almost 2g per person per day and result in potential health care savings of $1 billion per year, causing a 3% to 9% reduction in cardiovascular disease deaths (1,200 to 7,700 deaths).[111]

In 2005, the multi-stakeholder Trans Fat Force[112] was created to provide the Minister of Health with recommendations on how to reduce trans fat in the Canadian food supply. The Task Force delivered these recommendations in June 2006. The federal government responded by implementing a program under which industry will continue to voluntarily reduce trans fat in its products. The government would report publicly on this progress for two years, after which it would evaluate whether significant progress had been made or whether regulations would be required. The Canadian agri-food sector (food processing) is well positioned to take action on trans fat (being world leaders in the development of new variants of oil seeds).

Strong multi-stakeholder support existed in Canada to take action to reduce trans fat because: (i) there was wide-spread knowledge about the negative health effects of over-consumption of trans fat, (ii) consumers were empowered through nutrition labelling to make choices about products based on levels of trans fat, and (iii) it provided industry with a consumer "demand" for more healthful, low in trans fat products, resulting in increased sales of such products.

Conversely, recent U.S. surveys by the Center for Science in the Public Interest (CSPI) indicate that little progress has occurred in reducing salt in processed foods in the United States, despite evidence of the negative health impact that salt has on health.[113] Results from the 2004 Canadian Community Health Survey on Nutrition indicate that among people aged 19 to 70, over 85% of men and 60% of women had sodium intakes exceeding the recommended upper intake level.[114] Furthermore, the recently released *Canadian Heart Health Strategy and Action Plan* as well as other healthy living strategies in Canada propose reducing salt as a key component in these strategies to reduce heart disease. There has been a call for government to act on this "market failure" through regulation. In 2007, the Minister of Health established a multi-stakeholder expert Sodium Working Group to work on developing a strategy to reduce salt in the Canadian food supply. The working group was tasked with providing its recommendations in 2009.[115]

Canada in the Global Context

Canada is committed to implementing the recommendations of the *WHO Global Strategy on Diet, Physical Activity and Health*. The Strategy recommends that populations and individuals:

- achieve energy balance and a healthy weight;
- limit dietary intake of free sugars;
- limit energy intake from total fats and shift consumption away from saturated fats to unsaturated fats and toward the elimination of trans fatty acids;
- increase consumption of fruits, vegetables and legumes, whole grains; nuts; and,
- limit salt (sodium) consumption from all sources.

Canada continues to implement these global recommendations, through the federal and provincial initiatives under the *Integrated Pan-Canadian Healthy Living Strategy* in combination with the initiatives to reduce trans fat in the food supply and the actions being initiated to similarly reduce salt in the Canadian food supply.

Healthy Eating

The Canadian Context

Government is responsible for developing nutrition policy and regulations related to labelling and the composition of foods. Nutrition labelling on foods was voluntary until 2003 when regulations on nutrition labelling made it mandatory for most foods in Canada to display standardized information about 13 core nutrients and calories. This has provided Canadians with the opportunity to obtain information about key nutrients, such as trans fat, salt, sugar and fibre. Most countries have yet to implement mandatory nutrition labelling, although it is under consideration in the EU.

In 2003, the first "diet-related disease risk reduction claims" were allowed in Canada. These types of claims provide Canadians for the first time with messages that some foods can reduce the risk of disease (e.g. "a diet rich in fruits and vegetables is linked to a lower rate of some cancer"). However, the process for approving these claims can be lengthy due to the current regulatory framework.[116] In 2007, Health Canada held a cross-country consultation to discuss a "modernized approach to health claims."[117] Viewpoints are polarized between industry, which wishes to market a wider range of foods with health claims, and health organizations who wish to promote healthy diets generally rather than claims on specific products (especially on products considered by some to be "unhealthy"). Regardless of the outcome of this consultation, the approval process and its role in allowing innovative products onto the market remains an important issue.

In 2007, Canada released *Eating Well with Canada's Food Guide*,[118] which provides nutrition guidance to Canadians. The *Food Guide*, in combination with mandatory nutrition labelling on most foods, represents the cornerstone of nutrition information systems. There continues to be a need to invest in efforts to support Canadians in using the *Nutrition Facts Panel* and the *Food Guide*, as many Canadians are still not acting on this advice. The evidence is in the underconsumption of fruits and vegetables,[119] and overconsumption of certain nutrients such as fats and salt.[120] The federal and provincial governments, as well as health organizations and industry, all have developed educational resources to assist in communicating nutrition information.

Some stakeholders believe government should limit "harmful" nutrients through regulations, whereas industry is a proponent of non-mandatory approaches and has already taken some action through health and wellness strategies. Consumers play an important role in driving market demand through their choice of food products. Nutrition labelling provides consumers with the ability to exercise this "choice," although many consumers may not be well enough informed to exercise a true choice.

Canada in the Global Context

In Canada, the federal government has increasingly been urged to supplement current nutrition advice and education with new policies in the areas of restaurant labelling, advertising to children, and front-of-package labelling schemes (these schemes are in place in some other jurisdictions). Advertising to children is currently under discussion at the World Health Assembly, which will consider in 2010 whether to put global guidelines or other instruments in place.[121] In Canada, through the *Children's Advertising Initiative*,[122] 17 food and beverage companies pledged to devote at least 50% of their television, radio, print and Internet advertising aimed to children under 12 years of age to the promotion of products that represent healthy dietary choices and/or include healthy lifestyle messages. Furthermore, the self-regulatory organization for advertising, the Advertising Standards of Canada (ASC), added an *Interpretation Guideline*[123] in 2004 to both of its codes related to food product advertising. The guideline was developed to help evaluate the appropriateness of food advertisements in the process of pre-clearance and in responding to complaints. In 2006, the ASC produced a Reference Guide[124] for advertising to children in Canada. Though led by industry, this is a private-public venture: the Government of Canada has delegated monitoring responsibility of the Broadcast Code to the ASC.

Another area under discussion at the global level is the use of "front of package" schemes. But it must be noted that countries supporting increased use of these schemes are countries that do not have mandatory nutrition labelling. In conclusion, Canada needs to carefully evaluate the evidence supporting the need for additional nutrition programs and policies, both domestically and at the global level.

Food Security

The Canadian context

Canada's Action Plan for Food Security (1998) recognizes that food security exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and provides for an active and healthy life. Regular and consistent access to safe and nutritious food is essential for healthy eating. Some populations experience income-related challenges in accessing food, while others may have limited physical access to nutritious and culturally appropriate food (e.g., those living in remote communities).

Numerous Canadian studies have shown undeniable links between low/inadequate household income and food insecurity or insufficiency. As a household expense, food is a flexible budget item, whereas the costs of other basic necessities (e.g. housing, heat, electricity, etc.) are fixed or less negotiable. In 2004, more than 1.1 million households (9.2%) in Canada were food insecure at some point in the previous year as a result of financial challenges they faced in accessing adequate food.[125] Policy levers that change the social and economic environments (e.g. income supports, adequate employment, cost and availability of food) will have a significant impact on food access for many Canadians. Similarly, innovation in the agriculture and agri-food sectors may help reduce the cost and price differential between food of high nutritional quality and density and energy-dense, nutrient-poor food.

An analysis of food and nutrient intakes revealed that food insecurity is a marker of dietary compromises among adults and adolescents, and in some cases these compromises are strong enough to increase the risk of inadequate nutrient intakes.[126]

Canada in the global context

Global food prices have eased from their record high in the first part of 2008 (Figure 12).[127] Nevertheless, the World Bank estimates that higher food prices have increased the number of undernourished people by as many as 100 million from the 850 million considered undernourished prior to the 2008 food crisis.[128] The FAO estimates there are 820 million undernourished people in the developing countries alone.[129] In addition, many people in developing countries suffer from micronutrient malnutrition – also known as "hidden hunger" – which is

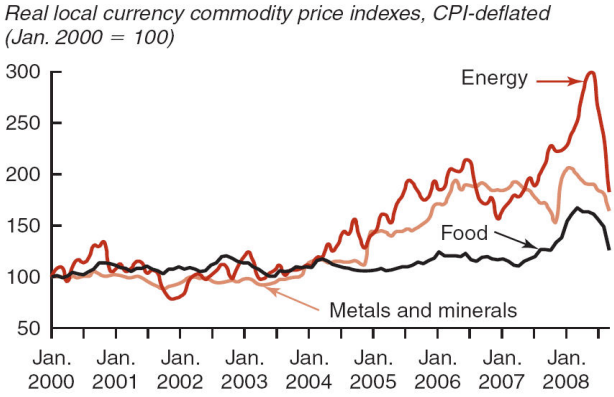


Figure 12. Real commodity prices in local currency units. Reprinted with permission from *Global Economic Prospects 2009*, by The International Bank for Reconstruction and Development/The World Bank, 2009. Copyright 2008 by World Bank.

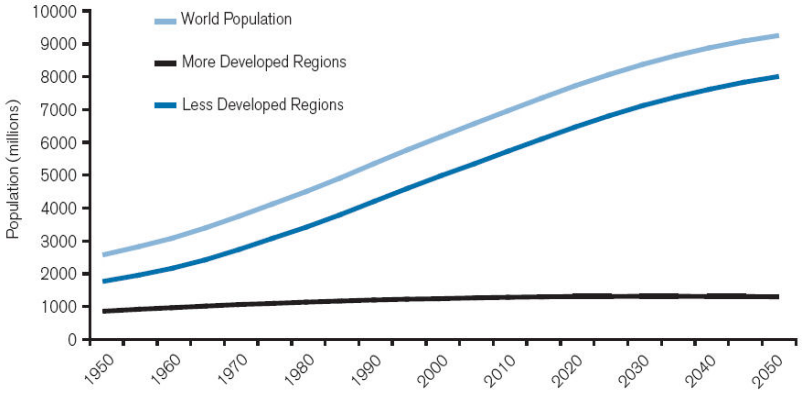


Figure 13. World population (medium variant), 1950–2050. From the report *Food Futures: Rethinking UK strategy*, by Chatham House, 2009, pg 11. Copyright 2009 by Chatham House. Reprinted with Permission.

caused by lack of sufficient micronutrients in the diet. These include vitamins and minerals such as vitamin A, zinc, and iron. Diets deficient in micronutrients are characterized by high intakes of staple food crops (such as maize, wheat and rice), but low consumption of foods rich in bioavailable micronutrients such as fruits, vegetables, and animal and fish products.

A report by the Chatham House[130] predicts that the demand for food will rise over the coming decades as the world population increases. By 2050, the world population is expected to reach 9.2 billion, with growth occurring primarily in the developing world (Figure 13).[131] Growing affluence in developing countries has thus far increased the consumption of resource-intensive food. As a result, the World Bank projects that by 2030 the worldwide demand for food will rise by 50% and for meat by 85%.[132] This increase in demand, in conjunction with climate change, energy security, water scarcity and competition for land, has led experts to speculate that food security will remain a challenge for decades to come.

Weaving Innovation across All Aspects of Healthy Eating

Canada has a strong base in R&D. Consequently, Canada could become established as a leader in the development and promotion of a large range of innovative agriculture and agri-food products, services, processing techniques, and new breeds of plants and animals, leading to better nutrition, safety, and accessibility of food. The *Agricultural Policy Framework* and the proposed *Growing Forward Framework* both have a strong emphasis on supporting innovation. Moreover, one of the seven priorities of the *Agriculture and Agri-Food Canada (AAFC) Science and Innovation Strategy*[133] is "enhancing human health and wellness through food, nutrition, and innovative products," with a particular focus on functional foods (a key segment driving product and market development in the food industry). The number of new food and beverage products introduced each year in North America is over 20,000, with a total of over 120,000 introduced globally in 2008 (Figure 14).[134] This number reflects both consumer interests in new products as well as the ingenuity of the agriculture and agri-food sector in developing new products. An opportunity also exists to develop innovative products to meet changing consumer demands for a number of other food categories. For example,

the number of organic and natural products introduced globally increased from about 3,000 to 8,000 between 2005 and 2008.[135]

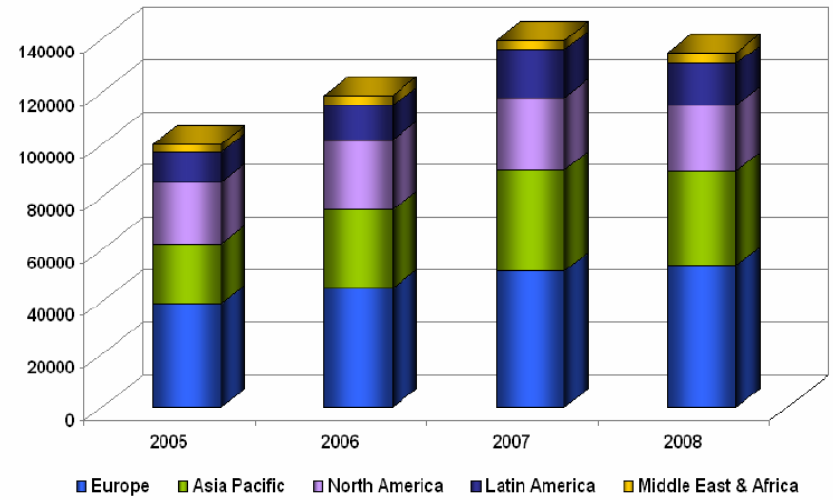


Figure 14. New food and beverage introductions, by region: 2005-2008. From the presentation "Exploring Global Trends in Food," by Mintel International Group, 2009, Slide 4. Copyright 2008 by Mintel International Group. Reprinted with permission.

The key government policy tool for driving food innovation in Canada has been the use of R&D funding and tax credits. Canada's Networks of Centres of Excellence are nationwide partnerships among universities, industry, government and non-profit organizations. The Advanced Foods and Materials Network (AFMNet), one of Canada's Networks of Centres of Excellence, is an example of a nationwide partnership between universities, industry, government and non-profit organizations. AFMNet is composed of 39 universities, 35 industries, and 29 government departments. Governments also facilitate research, with Agriculture and Agri-Food Canada operating 19 research centers. Research clusters focusing on developing leading-edge products and technologies are found in almost every province. Furthermore, FOODTECH Canada is a network of leading food commercialization centers located coast-to-coast. Its primary goal is assisting industry in commercializing foods and bioactive ingredients.

The integrated health and agri-food strategy could be designed to augment these efforts in important ways, and help address the most critical challenges facing this industry. In a survey on such challenges, companies ranked the following issues as having a high or medium impact on innovation: lack of internally generated cash flow (42.2%); long gestation period of innovation (37.4%); insufficient flexibility in regulations or standards (37.3%); shortages of skilled workers (37.1%); and lack of marketing capacity (36.3%).[136]

A Socially, Economically and Environmentally Sustainable Approach

Beyond agriculture and agri-food innovation, the integrated health and agri-food strategy would foster other business, social, and health innovations. The aim would be to ensure that the food supply and consumer demand for safe, nutritious, and accessible food translates into healthy eating for all, in a manner that is socially, economically, and environmentally

sustainable. In Canada, "improving the environment and health of Canadians" is a key priority of the 2007 Speech from the Throne.[137] The link between health and environment in the area of food production is particularly acute vis-à-vis climate change, biofuels, and so on. *Environment Canada's Sustainable Development Strategy 2007-2009*[138] includes goals that focus both on environmental quality (clean air, clean water, and reduced greenhouse gas emissions) and sustainable development (sustainable communities, sustainable development and use of natural resources, and governance for sustainable development). These three core components of sustainable development would guide the selection and operational form of all the lever points for change that will form the integrated health and agri-food strategy. The strategy would also reinforce the well-entrenched values and perceptions of Canadians concerning the linkages between health, agriculture, agri-food, and the environment.

Food For Thought: Lever Points for Change

Scaling up Traceability Systems for Food Safety Risk Management and Market Development

Canada, like many other countries, continues to improve the food safety system in response to new and emerging food safety issues. The *Growing Forward Framework* and the *Food and Consumer Safety Action Plan* contain a series of programs related to food safety. These new programs are being designed with considerable engagement of industry, civil society and of governments at all levels.

Many countries are working to improve various elements of their food safety systems. The Canadian industry must innovate in order to keep pace and maintain its ability to export to these countries. Traceability is one such element. In Canada, work has begun to develop a national traceability system, but currently Quebec is the only province with a system. Federal and provincial ministers of agriculture recently announced their renewed commitment to developing a national traceability system for poultry and livestock.[139] The produce sector has also recently announced the development of an industry-led voluntary program for traceability of produce. Abroad, the EU has implemented mandatory traceability (Track and Trace)[140] for some high risk food products. In the *Growing Forward Framework*, Canada made a commitment to ensure rapid "return to business" following food safety incidents. Continued enhancement of traceability for meat and poultry is an important program element of this commitment. Such enhancement will also reassure trading partners that Canadian products meet export requirements.

Additional consideration could be made to supporting research, technology, and process developments in order to extend the traceability beyond its current Canadian focus on livestock. "Whole value chain traceability" is currently used to meet not only food safety requirements, but also to ensure consumer confidence in the labelling of other attributes, such as those saying a product is "hormone-free," "antibiotic-free," "grown local," or a product

of "fair trade." This traceability represents a global trend that can provide niche markets for Canadian products. But this success depends on Canada's ability to demonstrate that Canadian food products meet the desired attributes, whether they are organic, labelled "grown sustainably", or labelled "antibiotic free." Furthermore, based on our demonstrated strength in innovation with regards to livestock, dairy food products, and other food products, Canada has the opportunity to compete successfully in developing food ingredients and products that support specific consumer preferences in other jurisdictions.

In conclusion, Canada – with a strong infrastructure for information management – could have access to these emerging or niche markets through a combination of innovation and investment in whole value chain traceability.

A Whole-of-Society Systems Approach to Increasing the Supply and Demand of Fruit and Vegetables

Reducing the rates of obesity and micronutrient deficiencies and their health consequences through the consumption of 5 to 10 servings of fruits and vegetables per day would save the health care system significant amounts in direct and indirect costs. This lever point therefore calls for a whole-of-society effort to encourage the consumption of sufficient fruits and vegetables in order to support better health.

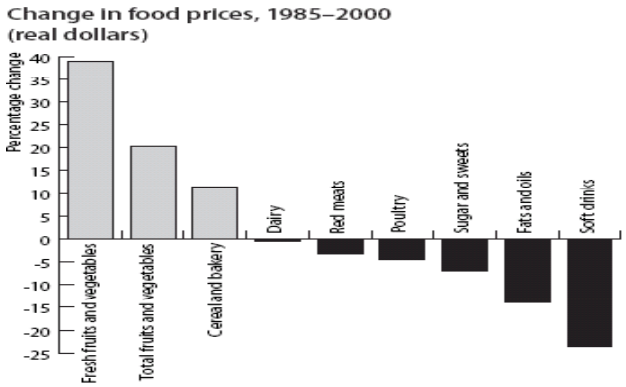


Figure 15. Fruit and vegetable: Retail. Source: *USDA ERS FoodReviews* Vol. 25, Issue 3. Converted to real dollars.

In Canada, efforts to increase consumer demand for fruits and vegetables must also work in concert with the horticultural sector, which has the ability to supply fruits and vegetables that meet consumer demand for price, quality, and convenience. Thus far, the core initiative to promote fruits and vegetables has been the *5 to 10 a day-For better health!* campaign, a social marketing and school education program in place around the world that has been shown to effectively change individual behaviour in regards to fruit and vegetable consumption.[141] In Canada, the program is lead by the Canadian Produce Marketing Association and is supported by the Heart and Stroke Foundation of Canada and the Canadian Cancer Society. A first component of this lever point for change would be to find novel ways to raise the financial resources needed to extend the program's reach, particularly to the most vulnerable segment of the population.

While the supply of fruits and vegetables has remained relatively stable in recent decades, their relative price has increased (Figure 15).[142] The integrated strategy would have to alleviate a good number of barriers in this regard, starting with the relative prices of fruits and vegetables in relation to snack and meal alternatives.

Canadian horticultural products are of high quality. Yet the Canadian horticulture industry is facing significant competition and other pressures compared to other growing economies, particularly the United States, its main market and competitor. These pressures are mainly due to the following factors: the rising costs of production, increased competition, a highly regulated marketplace (in food safety, environmental standards, tax policy, etc.), difficulties in storage and transportation, small-scale operations, a fragmented sector, a weak operating value chain, and limited product advertising.

Innovation in products and technologies can provide an additional competitive advantage, while meeting consumer demands for new, convenient products (e.g., salad in a bag, or pre-washed and pre-cut products, etc.). Other technological innovations could also include: investing in cooling equipment; new technologies for controlled atmospheric storage; the expanded use of irrigation to increase product consistency; and innovation that extends the marketing season through investments in proper pre-storage cooling, storage and varieties, etc. Innovation also has to occur at the strategic and organizational level of horticultural businesses in order to further support and promote R&D.

Clearly, innovations are needed at individual points along the fruits and vegetables value chain. In addition, the need exists for further systemic innovation if Canada hopes to reach the scale and speed of changes needed. The European Commission has recently set new benchmarks for a whole-system approach in the promotion of fruits and vegetables. It has recently revamped the Common Market Organization (CMO) to synergize with the Common Agricultural Policy measures and actions. This synergy, while not directly linked to the horticultural sector (such as rural development, trade and environment) may influence its development. The aim was to promote the supply and demand of fruits and vegetables by contributing to better economic and power distribution along the value chain. This reform introduced decoupled payments, which encourage the market-orientation of farmers while guaranteeing them a minimum income. It helps producers deal with short-term crises and encourages cooperation with non-EU country producers, while supporting inter-professional relations (thereby critically reshaping the potential for success of the initiative).[143] This novel policy compellingly illustrates the potential of how an integrated health and agri-food strategy could inspire the Canadian agenda.

Improving the Nutrient and Caloric Profile of the Supply and Demand for Processed Food

Even small changes in the nutrient and/or caloric profile of the supply and demand of processed foods can have a significant impact on the prevalence of chronic diseases. A recent simulation has shown that reducing salt by 400 mg/day, fat by 5 g/day, and caloric intake by 100 calories/day could save the United States health care system $2.3 billion, $2 billion, and $58 billion annually, respectively.[144]

As mentioned earlier in this paper, recently the Canadian federal Minister of Health established a multi-stakeholder working group to develop a strategy to reduce salt in the Canadian food supply. Similarly, the European Union has recently set the reduction of salt in the food supply as a priority for action under its High Level Group on Nutrition and Physical Activity.[145] However, the United States government has not yet made salt reduction a priority; and while the U.S. Institute of Medicine is currently working on a set of recommendations for reducing salt in the food supply, they will not be binding on government or industry.[146]

The agri-food sector (food processing) has invested considerable time and effort to find healthier oils, as a response to the need to reduce trans fat in the Canadian food supply. There are considerable lessons to be learned from this process, particularly in the context of reducing salt content. Reducing salt in the food supply will likely require a longer transition period as complex issues involving shelf life and food safety need to be addressed and consumer preferences for salt need to be gradually shifted. It will also require changing the food palate of the consumer. Research and development is required to develop new lower salt additives that maintain taste while ensuring food safety. Furthermore, the research and development challenge of the new reduced-salt additives will not be easily met by a country such as Canada, requiring a strategy to engage other countries to share in this technological exercise.

Other areas of the food supply could also benefit from shifts towards healthier nutrient profiles. Two areas of note are reducing sugar and increasing fibre, particularly whole grains. Recent studies[147] show that American consumers have increased their consumption of whole grains. This increase, however, is not due to an increased awareness, but due to the greater availability of processed foods containing whole grains. Companies are reformulating products as part of health and wellness strategies, and to meet the U.S. *MyPyramid*[148] recommendations for increased consumption of whole grains.

A variety of policy tools can be considered to stimulate demand for healthier foods. Building on the success of the anti-tobacco campaign, cities and countries around the world are increasingly considering imposing a tax on foods with poor nutritional profiles or a rebate/subsidy to promote foods with a healthy nutritional profile. These measures are targeting either categories of food or the nutrient profile of foods directly. For example, the New York Health Commissioner recently submitted a proposal for nutrient-profile based taxes,[149] after the previous attempt for food-category-based tax had been rejected at the State level. Regulations that control various business practices, such as shelf positioning, have also been adopted. Whether such moves will translate into significant health improvements has yet to be demonstrated. To date, the available evidence is based on hypothetical simulations, whose scientific value, in absence of actual data, is as good as the model's assumptions. The careful empirical assessment of the health and economic impact of these new policy tools and approaches could be a first lever point for change, if this avenue is to be examined by leaders in the field.

Improving Nutrition and Streamlining Regulation in Functional, Nutraceuticals and Natural Health Foods

Many conventional foods are natural sources of functional ingredients that confer health benefits. These same functional ingredients can be added to other foods to enhance their nutrient profile, used in natural health supplements, or added as ingredients in animal feed. A compelling example is the addition of algae-, fish- or plant-derived omega-3 DHA and EPA to a range of food products (e.g. infant formula, eggs and meats). The addition of omega-3 DHA and EPA aids in the proper brain and eye development in babies and children (Table 3, Appendix 5).

Canada is well positioned to be a world leader in the area of functional foods, nutraceuticals, and natural health products. A recent study indicated that without gaining a greater market share, based on global growth, this sector had the potential to exceed market revenues from the $2.9 billion (2004 estimates) to $6 billion by 2010 and could contribute up to $12 billion annually.[150] However, challenges remain in achieving this market growth.

The government is responsible for ensuring that consumers are protected against unsafe functional foods and natural health products (FFNHP), and exercises this role through regulation. However, the government also plays an important role in ensuring that the regulatory environment supports strategic directions for the functional food and nutraceutical industry sector. Many reports[151] have indicated that the absence of a modern and responsive regulatory environment in Canada impedes the growth of this sector. CAPI has undertaken a study on the development of a regulatory policy framework for the agriculture and agri-food sector. The study examined whether Canada has a modern and responsive integrated framework for the agri-food regulation, and proposes a path forward. One area of priority that the study addresses is the regulatory framework for health claims.

The agriculture and agri-food sector has recognized that new and innovative products may deliver opportunities to improve health while creating new markets. Yet, there are still many opportunities not being seized in the area of functional foods. For example, in Quebec, only 10% of products processed are "differentiated" products (products that have been transformed to provide added value).[152] Yet, Quebec, as the centre of dairy production in Canada, has the potential to produce differentiated dairy products that could include added functionality. This is also true of other types of products, such as livestock and grain, for which the opportunity exists to develop new "niche markets." Food processors should provide signals to researchers about trends in consumer attitudes and in food processing requirements for new functionality or ingredients. This assistance will enhance the translation of research into readily "marketable" products.

An integrated health and agri-food strategy would need to address broader issues, such as access to capital markets and human resources. The strategy for the FFNHP sector proposed

by the Nutri-Net Canada reviews the opportunities and challenges of the sector as it builds a strategic plan to ensure sustainability and growth.[153]

Fostering the Consumption of Canadian Foods through the Development and Promotion of a Canadian Diet

Many foods grown or produced in Canada contain functional ingredients that may have both a positive impact on health as well as benefits for the agriculture and agri-food sector were they consumed in larger amounts. However, most Canadians are generally not aware of the positive health benefits of these "Canadian" foods, beyond being aware of the overall healthfulness of some categories of foods such as fruits and vegetables and grains. Table 2 (Appendix 4) provides some examples of foods that are produced in abundance in Canada, such as flax, oats, barley, and lentils.

This lever point proposes to develop a Canadian diet that could reach the same prominence as other regional diets, such as the Mediterranean Diet, and contribute to positive health, sensorial, and socio-cultural outcomes from a uniquely Canadian perspective. The Canadian agriculture and agri-food sector has or is developing sector strategies (*Soy 20/20*,[154] *Flax Canada 2015*,[155] *Canadian FFNHP Strategy* proposed by the Nutri-Net Canada, *Pulse Innovation Project: Growing Pulse Markets*[156]) which include initiatives to promote and enhance consumption of these Canadian agri-food products within the diet of Canadians.

This lever point builds on a similar initiative recently launched by the Nordea Bank in Scandinavia, a five-year study to develop a Nordic Diet and promote it in Denmark among families as well as in restaurants.[157] The *New Nordic Diet (NND)*[158] is inspired by the popularity of the new Nordic cuisine movement and the internationally recognized achievements of Nordic chefs. The diet will be built around local ingredients (such as cabbage, fish, wild native berries, oats and rye) and will be based on high intakes of inexpensive fish, such as herring, mackerel, salmon and trout. The NND will take a year and a half to develop, and includes a process whereby experts from nutrition, gastronomy, consumer organizations, sociology, and economics will meet to decide its fundamental elements. One hundred of the top Nordic chefs are being invited to contribute recipe ideas, which will then be tested on 1,000 families in the home. In addition, it is anticipated that the diet will be introduced through a school-based program.

The challenge of increasing consumption of Canadian foods lie in two areas: first, research must be conducted to substantiate the health benefits according to regulatory requirements in order to be able to make health claims; second, consumers need to be educated about these foods. For example, while the health claim "a healthy diet rich in a variety of vegetables and fruit and may reduce the risk of some types of cancer" has been permitted in Canada for five years, Canadians still do not consume enough of these foods.

Strategies are needed that will translate significant investments in research, development, and clinical research about health claims into marketing messages to Canadians that will lead them to demand, choose, and consume these Canadian food products. For example, research is ongoing to substantiate claims that oats and barley provide a source of beta glucans (a soluble fibre), which can contribute to diabetes prevention by lowering blood sugar levels. Increasing consumption of beta glucans, as with consumption of fruits and vegetables, will require a multi-stakeholder approach that includes education, marketing of products, and broadening health professional awareness of the potential benefits for patients with diabetes.

Promoting Technology, Business and Social Innovation and Entrepreneurship for Better Links between Small Farms and Local Food Businesses and Communities

In this discussion paper, Chapter 2 reveals that more than 60% of Canadian farms are small (under 400 acres) and more than 20% of them have a yearly farm income of less than $10,000. Small farms are one of the most challenging areas in the agriculture sector for productivity growth and profitability. A better balance between rural and urban development is also among the most critical agriculture, transportation, and consumption-related sustainability challenges facing Canada and the rest of the world.

A growing interest exists in "local food" initiatives, because they can simultaneously promote health and nutrition, economic prosperity of the local agriculture and agri-food sector, as well as local food security. Several cities have implemented Local Food Policies (e.g. Seattle,[159] Toronto,[160] etc.) and several provinces, most notably British Columbia, are weaving local food approaches into their agricultural strategies. A first step would be to conduct a systematic inventory of existing local food programs in terms of their health and economic outcomes, and to examine their transferability and scalability.

Most of the existing local food policies provide an opportunity for small local farmers to sell their goods in a variety of settings: at local food markets, through purchasing plans for local governmental institutions such as hospitals and schools, or through other public health programs (such as providing fruits and vegetables to local school children). In the context of the integrated health and agri-food strategy, in 2006 75% of farm incomes derived from fruits and vegetables were from farms with less than $100,000 income (compared to 10% for dairy farms) (Table A, Appendix 1). These local food initiatives could enhance the livelihood of small farmers who produce fruits and vegetables, while helping to address an important public health goal.

Furthermore, the promotion of local specialty products to restaurants provides an opportunity to drive local consumer demand of regional products, while increasing demand for these products in other parts of the world. Notably, the promotion of "local foods" can have

benefits that go beyond direct health or economic impacts, particularly when the location of markets is carefully chosen to fill gaps in "food deserts" or when the local market schemes are linked to purchases by institutions (hospitals, schools, etc.) and to provide sustainable purchase arrangements.

The *British Columbia Agriculture Plan: Growing a Healthy Future for B.C. Families* includes strategies that provide additional ideas for an integrated health and agri-food strategy. The BC Plan aims to: to strengthen community food systems – from an infrastructure, logistic and education perspective – with farmer markets; support direct farm marketing, consumer- and community-supported farming, etc.; better link farm, school, and communities in joint efforts to improve childhood health; build capacity for small-farm and community-friendly food safety; assist farmers with human resources, entrepreneurships, and other business functions; preserve agricultural land; and, engage in the promotion of agriculture and agri-food products at the local and provincial levels. The Alberta food and health innovation framework[161] proposes linking not only local farmers to local food companies, but also attracting local companies that could commercialize food ingredients and products with differentiated nutritional qualities.

Finally, this lever point could create linkages between developed and developing countries to share innovative approaches that will enhance the ability of small producers to participate in local and global value chains. For example, in India the Amul dairy cooperative of 2.2 million farmers (from 10,755 villages, with 3,000 collection centers all over India) built an innovative logistical infrastructure that allows women to come every day, morning and evening, to drop off a total of 6.4 million kg of milk.[162] This cooperative now has revenues of $840 million with $30 million in annual exports. Similar value chain and market innovations could clearly benefit Canada's small farms, and help contribute to health outcomes, not only in local communities but also at national and global levels.

Innovation and Access to Bottom-of-Pyramid Markets for Safe, Low-Carbon Footprint, Affordable Agricultural and Processed Foods

As noted earlier, the world population is expected to increase to 9.2 billion by 2050, with this growth occurring primarily in the developing world (Figure 16).[163] The resulting increase in food demand, in conjunction with climate change, energy security, water scarcity, and competition for land suggests that food security will remain a challenge for decades to come. As a result of this issue, there has been increased interest in incorporating considerations of food affordability, food safety and nutritional quality – as well as low-carbon footprint food – into trade, food aid, and agricultural development goals. Three MWP global workshops[164] have been held on the topics of trade and diet and the need to incorporate healthy eating (food safety, nutritious food and food security) and environmental sustainability into agricultural and economic development programs. Most Canadian exports are destined for the United States. However, opportunities may exist to increase the global market share of Canadian

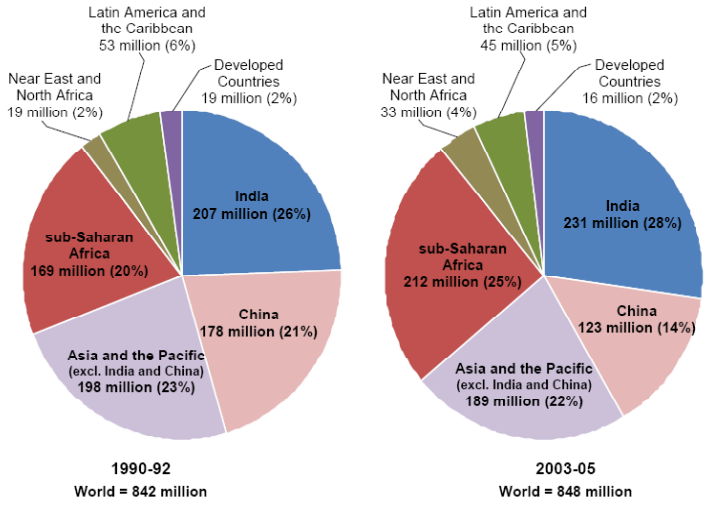


Figure 16. Trends in global undernourishment. From the presentation "Committee on world food security," October 2008, at the Assessment Of The World Food Security And Nutrition Situation, 34th session. Pg 2. Copyright 2008 by Food and Agriculture Organization of the United Nations. Reprinted with permission.

agriculture and agri-food products that meet these criteria. These opportunities can be realized by promoting agriculture, agri-food, technological, and market innovations targeted to export or foreign direct investment in developing countries. C.K. Prahalad,[165] for instance, argues that the five billion people who are at the bottom of the pyramid present market opportunities that have yet to be tapped. Doing business in this sector, however, involves accounting for different value chain structures and dynamics. It also entails additional intermediaries whose motives, processes, and expectations must be understood and reconciled. As indicated in Figure 17,[166] these include, among others, philanthropy, civil society, multilateral societies, and aid agencies. Beyond product and process innovation, this lever point for change would also require significant market intelligence, business development, and capacity-building and training.

For example, due to trends on global food needs, the Canadian pulse industry has captured market opportunities. Since the early 1990s, Canadian pulse production has grown from less than one million tonnes in 1991 to over 4.8 million tonnes in 2008, a four-fold increase, while exports have increased five-fold over the same time period, to 3.5 million tonnes. This increase has made Canada a global leader in the production of pulses, producing approximately 10% of the global pulse crop and accounting for nearly 40% of the global pulse trade.[167] The Canadian industry has been successful in capturing a dominant share of pulse markets around the world. For instance, Canada is the largest supplier of pulses in India, the world's largest pulse market, providing

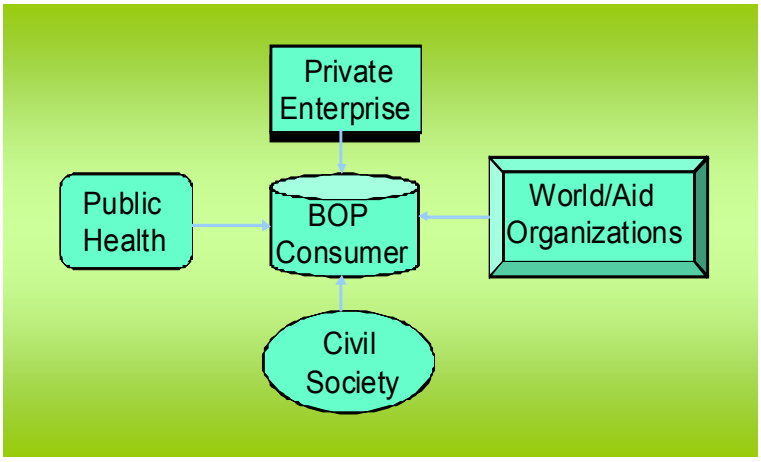


Figure 17. Market development at the bottom of the pyramid in developing countries. From a presentation of C.K. Prahalad, 2008, at Global Convergence Building Workshop Commissioned by The Bill and Melinda Gates Foundation in Montreal. Adapted with permission.

nearly 50% of India's total pulse import demand. Undernourishment remains a persistent issue in India, China, other Asian countries, and Africa (Figure 16). Canada can play a leading role in addressing these food security issues by building capacity to capture what has been called 'bottom of pyramid' markets in a profitable manner, promoting innovation to capture a larger share of this market.

Supporting Healthy Consumer Choices by Streamlining Nutrition and Health Information at Points of Purchase and Consumption

In developing and implementing *Canada's Food Guide*, as well as mandatory nutrition labelling, the government has taken great steps to provide consumers with core information about nutrition. Health, and nutrition in particular, may be the domain where consumers most often seek out and are provided with information. As a case in point, the *Food Guide* is widely used by Canadians, being the second most requested federal government document after the tax forms. The most recent version of the *Food Guide* has been translated into 10 different languages in addition to being produced in English and French.

Given that consumers often give little thought to their food purchasing habits,[168] placing salient information at points of purchase and consumption is likely to be highly influential. Beyond nutrition labelling, front-of-package (FOP) labelling approaches and shelf-level regimes have been put in place in Canada and in other jurisdictions. Based on variably defined nutritional and caloric criteria, manufacturers and supermarkets have developed numerous "better for you" programs (*Smart Choices Program*,[169] General Mills and Coca-Cola, Unilever USA; President's Choice *Blue Menu* programs,[170] Loblaws; *Guiding Stars Nutrition Program*,[171] Hannaford Brothers Company). Few formal evaluations have been conducted on the impact of such practices on consumer choices and sales performance. However, a measurable and significant shift does seem to have occurred in the nutritional and caloric value of products offered for sale and, maybe most critically, in the strategic focus given to R&D, product innovation, and market development.

Other countries have also established such systems. The U.K. has adopted a traffic light system that helps consumers make healthier food choices; it is used by a variety of manufacturers and retailers. The EU has been examining various approaches for nutrient profiling and front-of-package labelling. In the U.S., the Keystone Center recently led a group of leading food manufacturers and retailers through a process to develop a consensus on a unified FOP scheme, with corresponding simple logo identification across the country.[172] It is too early to determine whether the Keystone logo will be adopted by industry, and whether it will have positive health outcomes. But it does appear that such a streamlining and simplifying approach is reducing consumer confusion.

In developing this lever point, consideration should first be given to launching a consensus-building process among organizations that have developed nutrition and health information

systems in Canada. Unlike many other countries, Canada has both mandatory nutrition labelling and national nutrition guidelines. Therefore, it would be essential to evaluate whether an emerging FOP scheme could be adapted at the national level in order to generate significant health outcomes over and above those currently conferred by nutrition labelling and guidelines.

For restaurants and other food services, on-menu nutritional and caloric labelling has become a subject of considerable discussion. In the U.S., a few cities and states have implemented mandatory labelling of foods in restaurants. The cities include Portland, Philadelphia and New York, while California and Maine are at the proposal stage. Some early evaluation work from New York City indicates that consumers do act on the basis of the information. In a small survey of 270 New Yorkers, 86% of study participants said they were surprised by the caloric information, and 82% said it would induce them to change their consumption habits and choose lower-calorie alternatives.173 However, the scale of these restaurant labelling initiatives is small, and so far only limited impact studies have been conducted. Broadening such initiatives – whether by mandatory or voluntary means – will require that employees of restaurants receive training in matters of nutritional and caloric information.

Fostering Policy and Practice Innovation in Education at Home, School and in Health Care Settings

The information-based strategies addressed under the preceding lever point are critical to an integrated strategy. Another essential area is education of young people. Education is a very powerful driver of eating behaviour, be it derived from parents, the school setting, or health professionals. Education acts not only through the information content it conveys but also, and possibly more potently, through the mindsets and social norms youth form and the emotional bonds they create to food, eating, and/or body weight. This lever point could focus on policy and practice innovation in a variety of educational settings to complement the current informational approaches, in particular for the most vulnerable segments of the population.

The effect of educational strategies on children can be immediate, and can have a lifelong impact on behaviour. It is generally acknowledged that parents and schools play an important role in moulding a child's behaviour. These influences are essential to creating an environment that supports the development in children of a deep and long-lasting preference for nutritious food. Despite widespread awareness of the importance of parental and school-based influences, more innovative approaches are needed in both policies and practices.

Under this lever point, one particularly influential practice could be to increase the share of health resources devoted to education and persuasive communication, in order to promote healthy eating in health care settings. In fact, the Milken report, cited earlier in this paper,

recommends the development of incentives and practice innovations to increase the share of health professional time devoted to these activities. It was reported earlier that the share of health care costs that is devoted to public health as a whole – which includes education and social marketing programs – is only 6%. Therefore, the health sector's contribution to developing consumer demand for nutritious food could be greatly improved.

Fostering Policy and Practice Innovation in Social and Commercial Marketing

Turning to social and commercial marketing, the issue of marketing to children is occupying a central place in the public health arena of Canada as well as in other developed countries. This issue becomes more pressing as childhood obesity and the prevalence of overweight youths reaches epidemic proportion. Food advertisements make up the largest share of television marketing; typically, the food advertised is nutrient-poor and calorie-rich. The *WHO Global Strategy on Diet, Physical Activity and Health* states that messages that encourage unhealthy dietary practices should be discouraged, and positive, healthy messages encouraged.[174]

A general consensus exists that limitations need to be placed on advertising to children. Yet there is no agreement on the level and modalities of such a restriction, or whether it should be through mandatory means or by self-regulation.

This lever point could augment existing initiatives, in order to better assess the single and combined effectiveness of various mandatory and non-mandatory policy tools related to advertising.Adopting additional measures needs to be carefully evaluated in Canada, where the portfolio of mandatory tools is already equipped with mandatory nutrition labelling and voluntary industry programs related to advertising. These policy and practice innovations also need to take into account the shared federal, provincial and municipal jurisdictions in this area.

Policy and practice innovation would also be a benefit in the area of social marketing (i.e., the use of carefully targeted persuasion practices that define marketing for public service purposes). It could be used to scale up various initiatives, such as *Long Live Kids (LLK)*.[175] LLK was developed and is managed by the Concerned Children's Advertisers (CCA), an organization of business leaders in food and media industry, and is in partnership with the civil society and public agencies in health and education (such as Boys and Girls Clubs of Canada, Dietitians of Canada, YMCA Canada, etc.). *LLK* developed commercial quality scientific and child-directed public service messages. These messages were aired across Canada in electronic and print media. *LLK* also developed an education program delivered to educators, parents, and community leaders to equip them with specific tools to combat obesity. Even though actual behavioural and health outcomes of this initiative have not been measured, advertisement effectiveness measures of this campaign, year-to-year, are many

times superior to that of a standard social marketing campaign.[176] In addition, the educative material prepared has been integrated for some time now into provincial school curricula across Canada.

In conclusion, it is worth considering scaling up practice initiatives – through policy levers – that give stakeholders incentives to commit a larger share of their resources to this issue. Doing so could significantly improve the pool of resources devoted to promoting healthy eating.

VIII. A WHOLE-OF-SOCIETY APPROACH TO POLICY DEVELOPMENT AND IMPLEMENTATION: BUILDING CONVERGENCE AND DRIVING CHANGE ON THE GROUND

The changes that need to occur to shift the food supply and demand toward better health and economic outcomes are woven into everyday life of Canada: in the way individuals, families, and communities live, work, and consume, invest and take care of children; in the way in which educational, health, media, and business organizations produce, promote, trade, and provide goods and services to individuals, families, and communities; in the way that trade institutions, investment markets, and governments maintain the present health and economic divide that shapes the arena where individuals, families, communities, and organizations evolve.[177] This means that driving changes on the ground involves engaging a wide variety of stakeholders throughout the agriculture and agri-food value chain and, indeed, at all levels of society (Figure 18).[178]

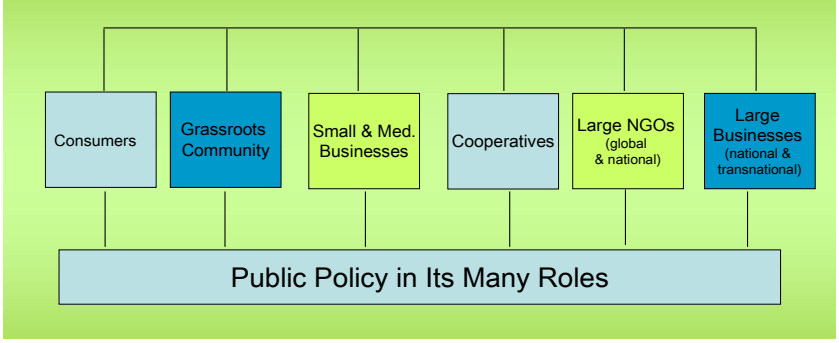


Figure 18. Consumers and stakeholders involved in whole-of-society policy development and implementation. From a presentation of C.K. Prahalad, 2008, at Global Convergence Building Workshop Commissioned by The Bill and Melinda Gates Foundation in Montreal. Adapted with permission.

The Many Roles of Policy Development

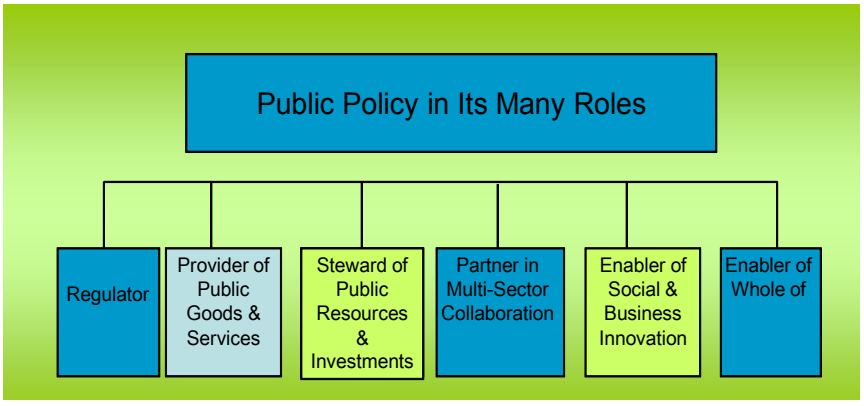


Figure 19: A WoS Approach to Policy Development. From a presentation of C.K. Prahalad, 2008, at Global Convergence Building Workshop Commissioned by The Bill and Melinda Gates Foundation in Montreal. Adapted with permission.

A whole-of-society approach to the development and implementation of an integrated health and agri-food strategy will require that governments, like never before, take on a diversity of roles. Government needs to be the "commander in chief," imposing mandatory regulations

that define boundaries and rules for consumers and all stakeholders. Government must be the provider of public goods and services, the steward of public resources, and a partner in various collaborative undertakings with other jurisdictions, businesses, and civil society organizations (Figure 19).[179]

A WoS approach to policy development begins with the use of whole-of-government – or join-up – approaches that place potentially conflicting or synergistic domains of policy development (health, agriculture and agri-food in the present case) on the same decision plate in order to foster integration in policy development and implementation. These whole-of-government approaches must account for the need for governments to engage at multiple levels when jurisdiction is shared, which is the case for health, agriculture and agri-food matters. Government coordination is required for overall governance and monitoring, and can be achieved through the use of a strategy unit or other mechanisms such as multi-level government councils.

Clearly, to address the complexity at the health, agriculture and agri-food interface, a whole-of-government, principled-based approach to policy development and implementation will not suffice. The success of an integrated health and agri-food strategy critically depends on action being taken at all levels of decision-making, and requires action by consumers and a rich diversity of stakeholders. All of these parties need to invest resources and competencies into the strategy. This presents both challenges and possibilities. The challenges lie in judiciously matching role, context and measure (e.g., determining when mandatory rules and regulations are needed for public good and consumer protection versus when participation- and trust-based approaches are more appropriate). The possibilities lie at the heart of the creative power and determination of all actors; if the status quo does not work, or a disciplinary break occurs at the sectoral or within-level silos, a fresh analysis will be stimulated and effective dialogue and new partnerships will emerge, resulting in unforeseen horizons that are worth the investment.

The McGill World Platform Concept for Whole-of-Society Compacts for Convergence-Building and Action on the Ground

The McGill World Platform for Health and Economic Convergence (MWP) has been developing a process and approach to a Whole-of-Society policy development, using a WoS Compact. This Whole-of-Society Compact:

- Focuses tightly around results for a set of lever points for change that together form a strategy;
- Assembles around each lever point a network of the key public agencies, business, and civil society stakeholders that together become the strategic units for innovation and action on the ground. Invited participant organizations must be willing to invest not only time and expertise, but also core competencies and financial and/or substantive resources to shape and bring to culmination the action plan needed to achieve the goal set by the Compacts for each lever point; and
- Loosely couples all the networks into a WoS Compact, supported by a platform to share information and research and to build capacity.

The concept of the MWP's WoS Compact shares many of the features of the strategic alliances that have become common practice across business organizations within and across value chains. These strategic business alliances have been established as complements to respective business activities and strategies, and join competencies and resources on specific initiatives that support the goals and mission of each partner organizations and the alliance as a whole. For example, pledges by groups of companies to reduce advertising to children would constitute one such alliance. The MWP's WoS Compact also presents similarities with the broad, multi-stakeholder expert groups that were given mandates to lead the development of integrated strategies. For instance, the *Canadian Strategy for Cancer Control* and the *Canadian Heart Health Strategy and Action Plan* are multi-stakeholder initiatives that recruited participants at provincial, national, or international levels to create broad integrative strategies and long-term action plans.

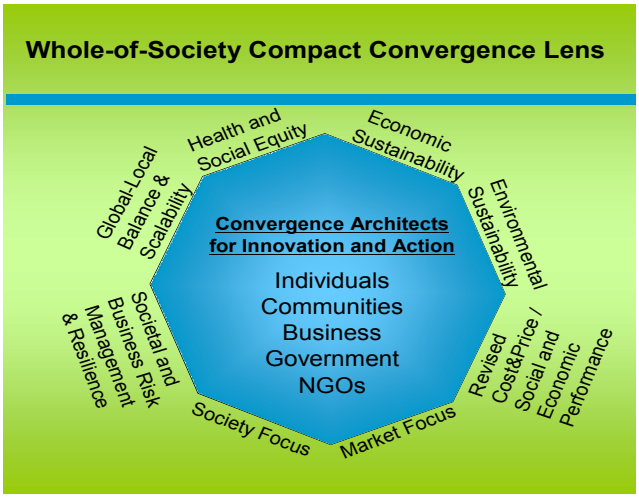


Figure 20. MWP WoS Compact Convergence. From a presentation of C.K. Prahalad, 2008, at Global Convergence Building Workshop Commissioned by The Bill and Melinda Gates Foundation in Montreal. Adapted with permission.

The MWP vision of the Compact differs from other approaches in the degree to which it embraces the principles of corporate social responsibility and creative and inclusive capitalism. Under this approach, altruism and economics address health and economic issues in a holistic, organic way, maximizing efficiency and prioritizing quality of life without losing sight of profit motivations. The MWP's Compact builds on a model introduced by leading business strategist C.K. Prahalad at the 2008 Gates Foundation MWP workshop "From crisis to convergence: Green Revolution 2.5." The MWP's Compact is guided by a series of convergence principles, including health and social equity, societal and market focus, societal and business risk management and resilience, economic and environmental sustainability, and caloric balance and scalability (Figure 20).[180]

To lead change on the ground, the local, national and global convergence networks may use different business models, including:

1. Grassroots Collective Action in Communities: networks formed for advocacy, policy changes, and/or collective innovation and action, supported by shared information and collaborative platforms.

2. Social Businesses: an innovation conceived by Nobel Peace Laureate Muhammad Yunus, social businesses are designed and managed as a business enterprise. They have products, services and technology that support health and wealth for all, with customers, markets, expenses, and revenues. But the business-profit-maximization principle is replaced by the social-benefit-maximization principle.

3. For-Profit, Creative and Inclusive Ventures: initiatives that adopt health-promoting, pro-poor practices in various strategic business functions with the objective of creating value for society at the same time as they create value for business. These may include leapfrogging product, service and technology innovation, social-cause and social marketing, human resources and supply chain management. These may be achieved by single for-profit enterprises or by alliances with for-profit, social or governmental partners.

Moving Forward on Developing an Integrated Health and Agri-Food Strategy for Canada using the Whole-of-Society Compact to Build Convergence and Action on the Ground

In conclusion, each of the lever points for change proposed in this discussion paper builds upon current regulatory and economic frameworks, population health approaches, education approaches, and research and innovation ongoing in Canada. The MWP concept of Whole-of-Society Compact is proposed as a process that can be used by stakeholders representing the Whole-of-Society approach to further refine these levers through innovative business models by:

- **assembling** around each lever point **a network of the key public agencies, businesses, and civil society stakeholders** which are the strategic units for innovation and action that will drive action on the ground;
- developing **target results that can later be monitored for each of the lever points for change** that will form the integrated strategy.

Taken together, action on these levers can form the basis of an Integrated Health and Agri-Food Strategy for Canada that has the potential to yield both health and economic gains for Canadians.

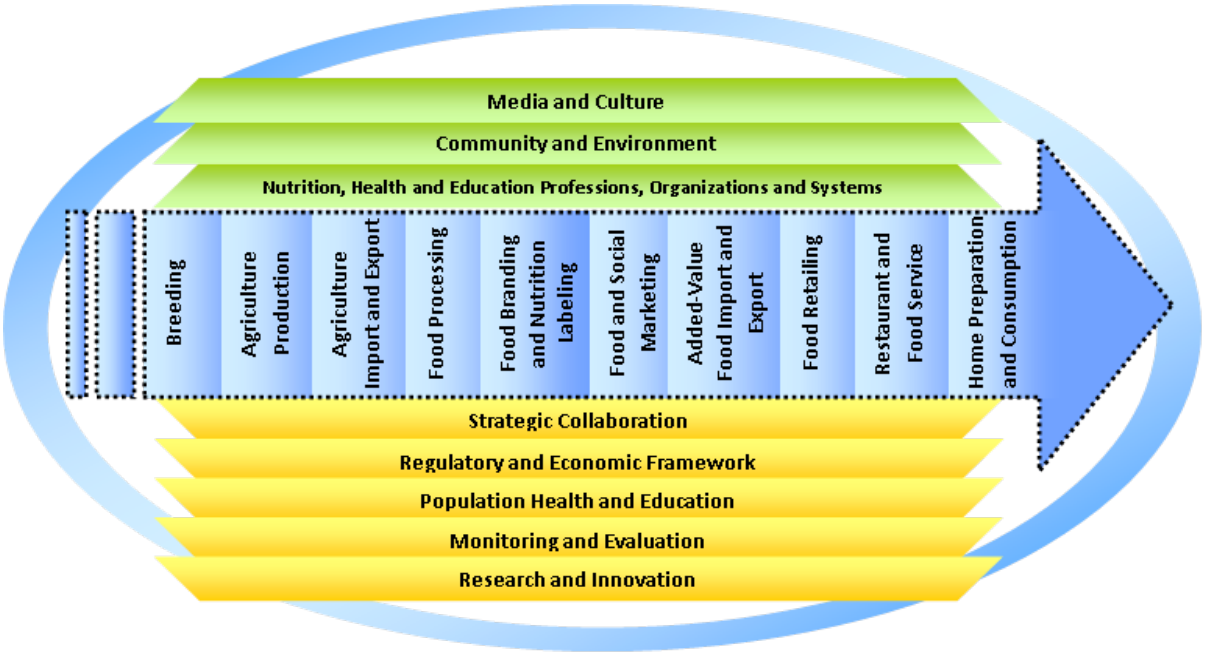


Figure 21. Moving towards an integrated health and agri-food strategy for Canada.

IX. THE PATH FORWARD

This discussion paper was designed to act as a "springboard" for discussion and convergence-building. Significant changes need to occur to reduce the increasing health care costs and improve the health and economic well-being of the population. As well, nutrition and health need to become drivers of economic performance in the agriculture and agri-food sector, which is critical to Canada's economic competitiveness. It is time to create and shape a portfolio of initiatives that act effectively upon these issues. Each initiative must be selected within the context of the current and emerging industry structure and the circumstances confronting these sectors. They must be selected within the context of the value chain and the competitive dynamics of industry segments within each sector. For each industry segment, the initiatives must take into account the individual businesses operating within that segment, including their size, their markets, their business strategies, and their technological and management competencies. The time is ripe for leaders in business, civil society, and government in the health, agriculture and agri-food sectors to engage in strategic actions and investments that will translate into significant, scalable and sustainable projects that can be incorporated into each participant's agenda in a timely and meaningful manner. The time is ripe for the leaders in government and public agencies to engage the policy levers needed to not only enable such movement but serve as catalysts. The time is ripe to make Canada a world leader in the emerging, coinciding global movement toward the promotion of health and wealth. Ideally, this discussion paper will inspire groundbreaking innovation and sustainable action.

Appendix 1

CONTEXT SETTING FOR CANADIAN HEALTH, AGRICULTURE AND AGRI-FOOD SYSTEMS

Health System

In 2007, Canada's spending on its health system outpaced inflation and population growth for the 11th consecutive year to reach an estimated annual cost of $160 billion. However, the rate of increase of health care costs is now slowing and is estimated to only rise from 10.4% in 2006 to an estimated 10.6% in 2007.[181] As seen in Figure A,[182] more than half of health care resources go to hospitals, retail drug sales, and physician services.[183] Diet-related chronic diseases such as cancer, cardiovascular diseases, diabetes, and stroke take up two-thirds of direct costs of the health system.[184] The direct cost of diabetes alone to the health care system is estimated to be over $9 billion per year, affecting 1.9 million Canadians.[185]

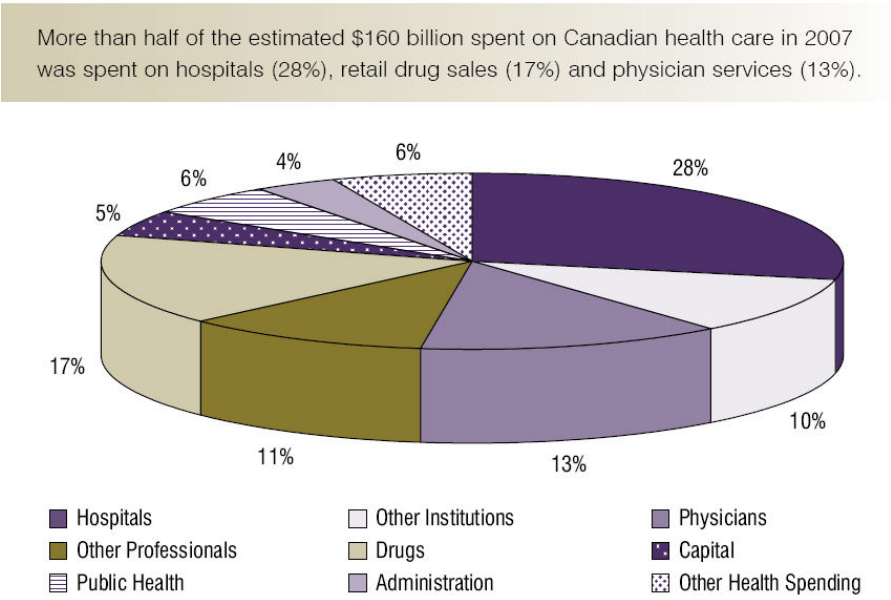


Figure A. Distribution Health Spending Canada, 2007. From the report *Health Care in Canada 2008*, by the Institute for Health Information, 2008, Pg. 5. Copyright 1996-2007 by Canadian Institute for Health Information (CIHI). Reprinted with permission.

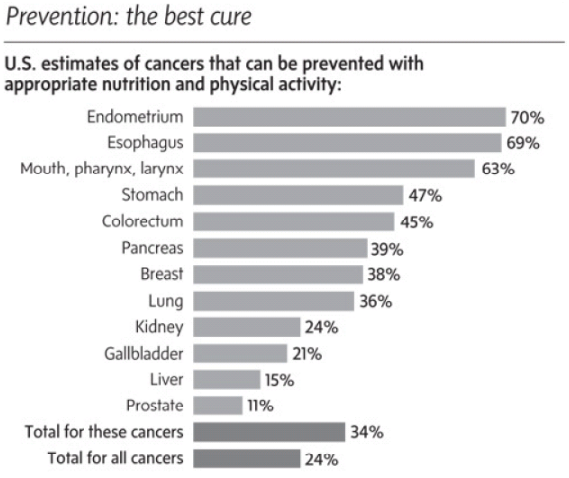


Figure B. Proportion of different types of cancer that can be prevented. Source: Trish McAlister, *Globe and Mail*/World Cancer Research Fund

Shaping an Alternative Path for Chronic Diseases

It is now well-established that changes in four individual lifestyle behaviours, namely diet, physical activity, smoking, and alcohol consumption, can significantly reduce the prevalence of chronic diseases. Recently published U.S. data provides estimates of the prevalence of different types of cancers that could be prevented with appropriate nutrition and physical activity (Figure B).[186]

For example, appropriate nutrition and physical activity could reduce the prevalence of cancer

by 24%[187] with similarly dramatic reductions in cardiovascular disease.[188] Similar numbers have been published recently using Canadian data for cardiovascular diseases, which cost Canada over $22 billion a year in health care and lost productivity.[189] The *WHO Global Strategy on Diet, Physical Activity, and Health* provides a set of recommendations related to nutrition and diet at both the population and individual level and ultimately concludes that unhealthy diets and physical inactivity are two of the main risk factors for chronic illness. Targets and approaches for reducing these chronic diseases are set out in the *Canadian Heart Health Strategy and Action Plan*, the *Canadian Strategy for Cancer Control*, and the *Canadian Diabetes Strategy*. Each of these strategies outlines multi-level, multi-stakeholder partnerships that are required to achieve lifestyle behaviour changes. Each strategy describes the important role of the agriculture and agri-food sector in driving the necessary changes to the food supply and in participating in the creation of a healthy demand.

A recent modeling exercise conducted by the Milken Institute[190] indicates that, with optimistic scenarios of reductions in risk factors, the number of cases of chronic disease can be slowed from a potential increase of 43% to 17% in the U.S. by 2023 (Figure C).[191] The study compares a "business-as-usual" baseline scenario, which assumes that current trends continue into

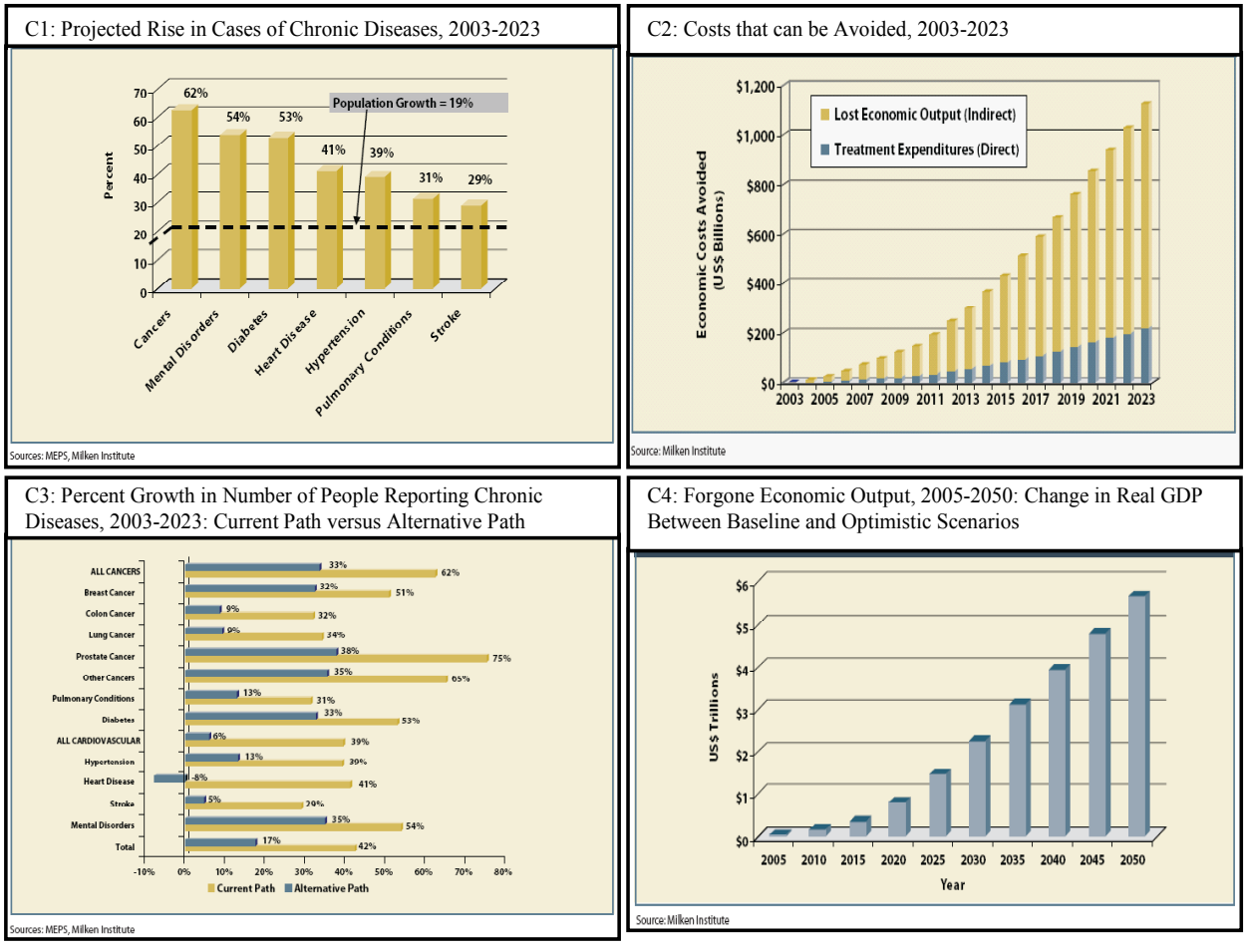


Figure C. Health and chronic disease: Prevalence and economic cost.

the future, against an optimistic scenario that assumes reasonable improvements in health due to more comprehensive prevention and lifestyle changes.

For all chronic diseases modeled, the difference between the two scenarios in 2023 is remarkable. To estimate the potential gains associated with better prevention and treatment of chronic diseases, the study projects rates of disease and associated costs. The results show that in 2023, compared with the baseline scenario, under an optimistic scenario society could: avoid 40 million cases of chronic disease; reduce the economic impact of disease by 27%, or $1.1 trillion annually; increase the nation's GDP by $905 billion linked to productivity gains; decrease treatment costs by $218 billion per year; produce productivity gains of $254 billion with lower obesity rates alone; and, avoid $60 billion in treatment expenditures per year.

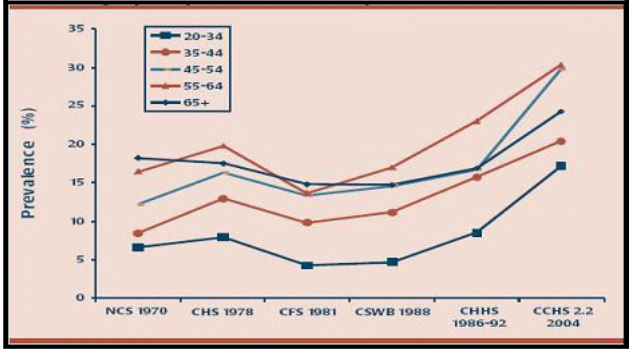
To develop the optimistic scenario, the study assumes a range of reasonable improvements in prevention, behavioural patterns, and treatments that will require a focused, society-wide effort to be realized and achieved. The optimistic scenario assumes:

- That overweight issues and obesity will be the focus of a national health initiative resulting in a reduction in the number of obese individuals (in the same way as smoking cessation was a health priority in the 1970s, 1980s, and 1990s);
- That an increase in physical activity will occur, with the share of the population engaged in physical activity to be up to 83.3% by 2023;
- That there will be a modest improvement in early intervention and treatment, with a more uniform use of best practices in early detection and screening; and,
- That there will be moderate improvements in disease management practices.

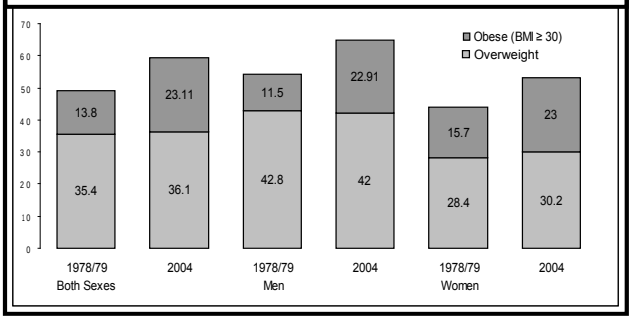
The study offers two recommendations for change that are also of relevance to Canada:

- Health care system incentives should promote prevention and early intervention. Employers, insurers, governments, and communities need to work together to develop strong incentives for patients and health care providers to prevent and treat chronic disease effectively; and,
- Society needs to renew its commitment to achieving a "healthy body weight." There needs to be a strong, long-term, national commitment to promote health, wellness, and healthy body weight.

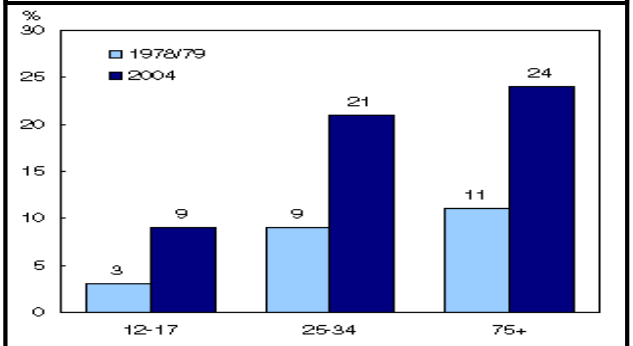
D1: Age-Specific prevalence (%) of obesity in Canada, 1970-2004



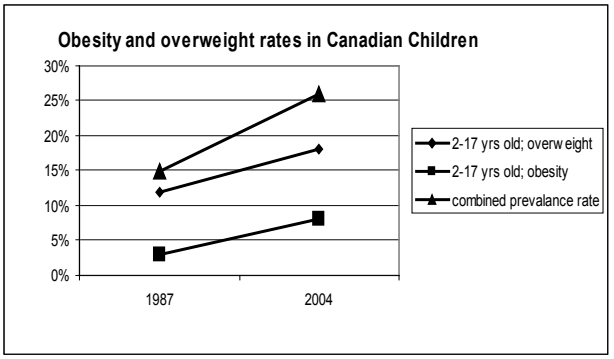
D2: Percentage distribution of body mass index (BMI), by sex, household population aged 18 or older, Canada Excluding territories, 1987/79 & 2004



D3: Obesity Rate more than doubled for some age groups



D4: Obesity and Overweight Rates in Canadian Children



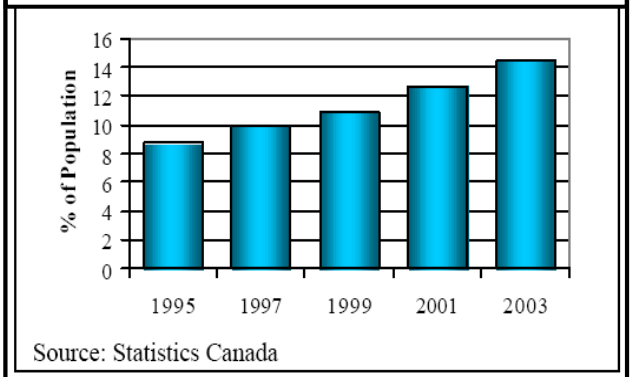
D5: Odd Ratios for Selected Health Characteristics Linked to Obesity and Overweight

Population aged 20-64 years. Compared with normal weight population

	Overweight	Obese
Diabetes	1.73*	3.97*
High Blood Pressure	1.86*	3.26*
Arthritis	1.30*	2.01*
Thyroid Disorders	1.39*	1.75*
Asthma	1.21*	1.59*
Heart Disease	1.08	1.56*
Back Problems	1.13*	1.36*

*Statistically Significant at p<0.05
[1] Based on 1996/97 data
Source: Health Report, 1999, Statistics Canada Catalogue 82-003-XIE

D6: Increase in the Incidence of High Blood Pressure in Canada Age 12 plus



Source: Statistics Canada

Figure D. Obesity and overweight.

Overweight, Obesity and Relation to Chronic Diseases

Rapidly rising rates of overweight individuals and obesity have reached epidemic proportions in Canada and other countries, with more than half the adult population being overweight or obese and weight issues becoming steadily more prevalent in children and youth. The International Obesity Task Force's estimates suggest that, at the current rate of progress of

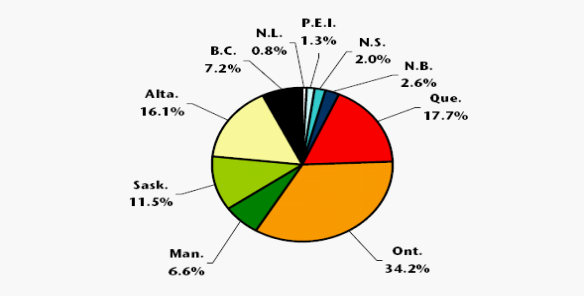
the global childhood obesity "pandemic," nearly 287 million children worldwide could be overweight or obese by 2010, which is 85% more than a decade ago.[192] By 2015, this number could rise to 700 million, with the poorest segments of the population being the most affected, in both developed and developing countries.[193]

Figure D assembles key statistics on the increase in prevalence of overweight and obese people across all segments of the population from the late 1970s to 2004. Three age groups have seen overweight/obesity double in less than three decades, namely the 12-17, 25-34 and 75+ categories. Statistics show that being overweight is associated with a 73% (odd ratio of 1.73) increased likelihood of having diabetes; this proportion rises close to 400% (odd ratio of 3.97) for obese individuals. Similar numbers are shown for high blood pressure, which also has steadily increased over time.[194]

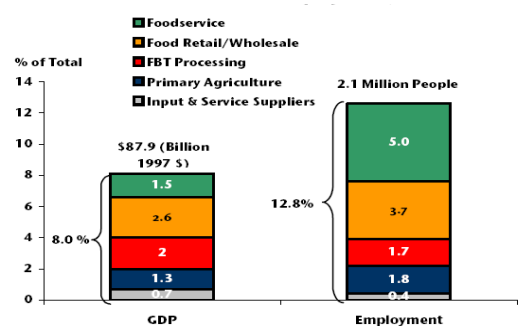
The Canadian Agriculture and Agri-Food System

The agriculture and agri-food system contributed $87.9 billion dollars (1997$) to the Canadian economy in 2006, representing 8% of the GDP.[195] It employs 2.1 million individuals, the equivalent of 12.8% of Canadian active manpower.[196] The agriculture and agri-food system combines primary agriculture, processing, retailing/wholesale, and food services with Ontario, Quebec, and Alberta being the most significant contributors to the sector's contribution to the GDP (Figure E1).[197] While continuing to play a critical role in the economy, the relative contribution of these sectors to the overall economy, particularly for primary agriculture, has been declining. Primary agriculture is on par with food services in its contribution to the GDP (1.3% and 1.5% respectively), but employs a smaller proportion (1.8% versus 5.0%) of total manpower (Figure E2).[198] At the provincial level, primary agriculture has maintained a stronger prominence in comparison with other segments of the agriculture and agri-food sector in P.E.I, Manitoba and Saskatchewan (Figure E3).[199]

E1: Provincial Contribution to Canadian Agriculture and Food Processing GDP, 2006



E2: The Agriculture and Agri-Food System's Contribution to GDP and Employment, 2006



E3: Primary Agriculture and Food Processing's Contribution to Provincial GDP, 2006

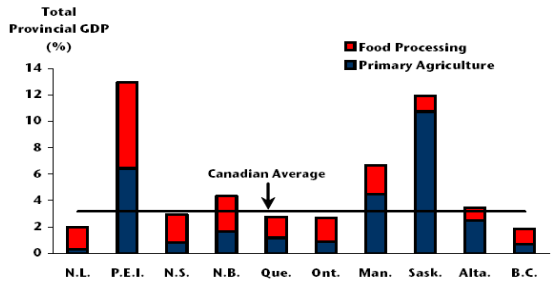


Figure E. Agriculture and agri-food: Contribution to GDP and expenditures. Sources: Statistics Canada and AAFC.

As seen in the Table A,[200] the nature of production for small farms versus large farms differs significantly. The nature of the business varies significantly by size of farm. Small farms are often hobby or leisure enterprises, whose owners are employed in other occupations or retired. Canadian large farms are business-focused farms and are more likely to be incorporated operations. Therefore, the challenges and opportunities vary significantly for primary producers depending on size, business focus, and the type of food produced.

Table A: Proportion of farms by receipts class by farm type, Canada, 2006

Farm type	Number of farms	Less than $25,000	$25,000 to $99,999	$100,000 to $249,999	$250,000 to $999,999	$1 million and over	Total
Dairy	14,651	3.4%	6.7%	32.6%	52.8%	4.5%	100%
Beef	60,947	38.3%	36.3%	17.0%	6.9%	1.4%	100%
Hog and pig	6,040	7.7%	13.4%	21.8%	39.4%	17.8%	100%
Poultry and egg	4,578	27.8%	6.3%	9.3%	41.1%	15.4%	100%
All other animal	30,594	65.1%	22.0%	7.9%	4.2%	0.9%	100%
Field crops	91,277	35.3%	28.9%	19.8%	14.5%	1.5%	100%
Fruit and vegetable	12,532	51.8%	23.3%	12.6%	9.8%	2.6%	100%
Greenhouse, nursery and floriculture	8,754	47.7%	20.4%	12.0%	12.3%	7.5%	100%
All farms	229,373	38.5%	27.0%	17.4%	14.4%	2.6%	100%

Source: Statistics Canada

Productivity and profitability of agriculture and agri-food system

As the relative contribution of Canadian agriculture to the overall economy has declined, government expenditures to support the agriculture and agri-food sector have increased, presenting a significant burden at both provincial and federal levels (Figure F).[201] In fact, program payments now surpass market income, with a yearly cost estimate of $5 billion.

Indeed, productivity growth in primary agriculture has consistently decreased over the last 15 years and is consistently lower when compared with Canada's lead competitor, the U.S. (Figure G1).[202] Conversely, productivity

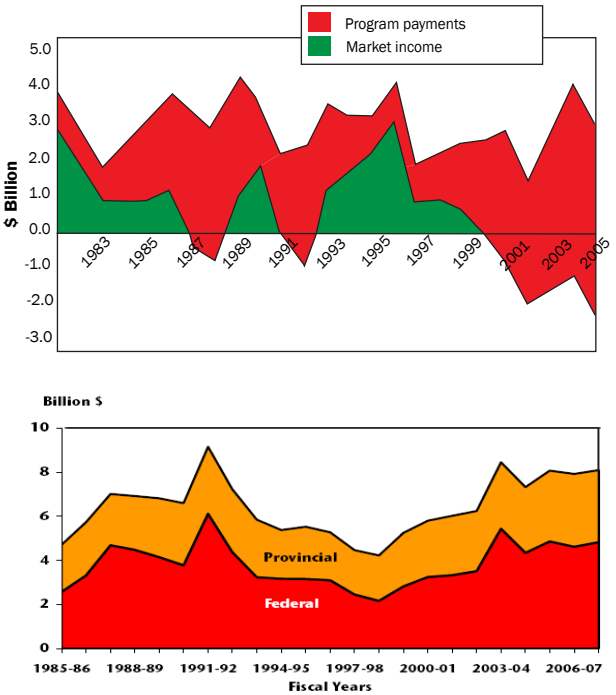
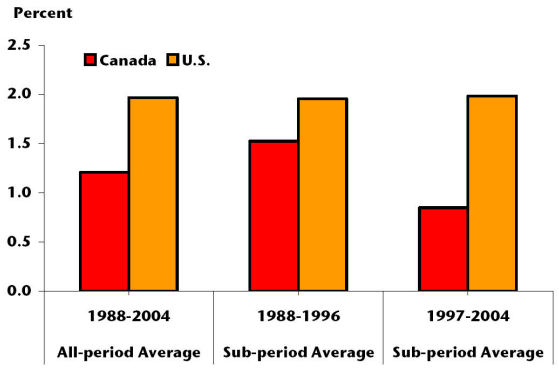
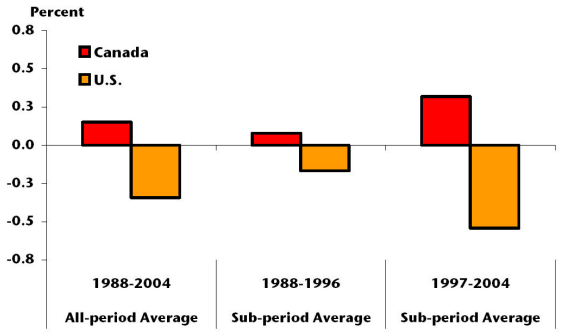


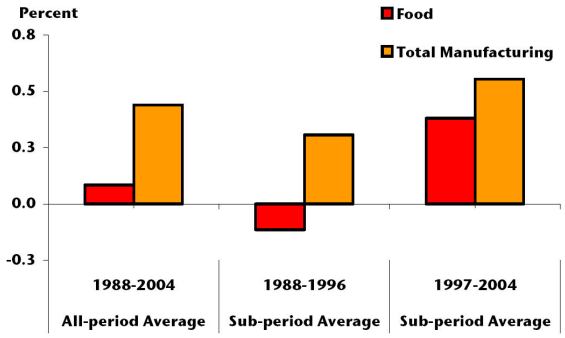
Figure F. Agriculture and agri-food: Contribution to GDP and expenditures. Source: AAFC.



G1: Comparison ofTotal Factor Productivity Growth in Primary Agriculture: Canada vs. the U.S., 1988-2004



G2: Productivity Growth in the FBT Industries, Canada and the U.S., 1988-2004



G3: Productivity Growth in Canadian Food Processing and Total Manufacturing, 1988-2004

G4: Economy Multipliers for the Agriculture and Agri-

For every $1 of GDP created in:	Impacts on GDP and Employment	
Industry/Commodity	Ratio of Total-To-Direct GDP	Ratio of Total-To-Direct Employment
Primary Agriculture	2.80	1.91
Total Food Processing	2.81	3.55
- Sausages	2.80	3.24
- Pork (fresh or chilled)	2.17	2.01
- Potatoes (fresh or chilled)	1.69	1.40

Source: Statistics Canada Input/Output Model, 2003.

Figure G. Production and profitability.

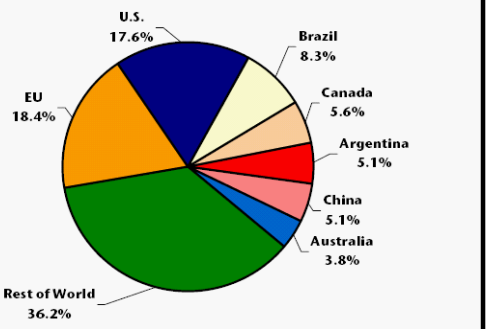
growth of the remainder of the agriculture and agri-food sector over the same period of time has consistently improved and been superior to its competitor, the U.S. (Figure G2).[203]

In past years, the productivity growth in the food processing sector has been low relative to total manufacturing; however, it increased in recent years (Figure G3).[204] It is noteworthy that an increase in productivity of primary agriculture and of the agri-food sector has the same power to contribute to Canada's economy. For every $1 of GDP created in either primary agriculture or the food processing industry, approximately $2.80 is created for the country's GDP (Figure G4).[205] Thus, investing to improve the productivity of both sectors has significant potential to contribute to the country's overall economic performance and competitiveness on the world markets.

Trade and global development

Figure H highlights the key features of Canada's performance in trade and global development. Canada is the world's fourth largest agriculture and agri-food exporter, after the E.U., the U.S. and Brazil (2006 data).[206] It accounts for 5.6% of the world's total agriculture and agri-food export (Figure H1).[207] Canada is also the sixth largest agriculture and agri-food importer, after the E.U., the U.S., Japan, China and Russia (Figure H2).[208] It accounts for 2.8% of the world's total agriculture and agri-food imports. Figures H3[209] and H4[210] indicate that over the last two decades, the composition of export and import has changed significantly, with the share of bulk commodities remaining stable and that of value-added, consumer-oriented products rising to 30.4% for export and accounting for 74% of the total imports in 2007.[211]

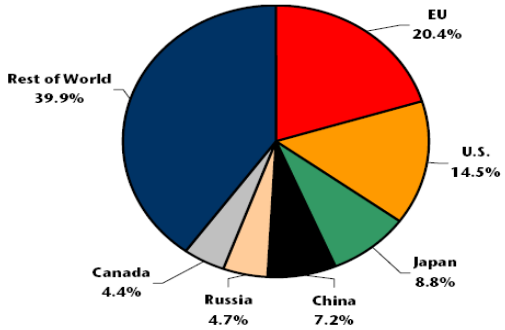
H1: World Agricultural and Agri-Food Export Share by Country of Origin, 2007



Source: Global Trade Atlas and AAFC calculations.

*Notes: 1) Excludes intra-EU trade.
2) Excludes fresh seafood.

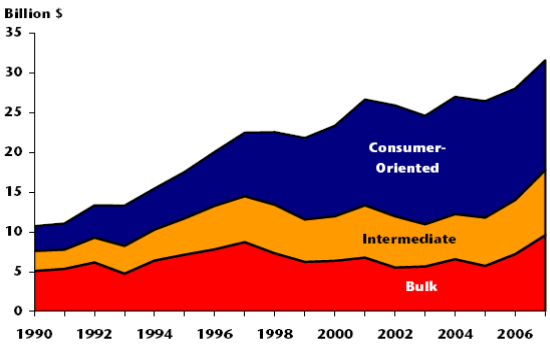
H2: World Agricultural and Agri-Food Import by Country of Origin, 2007



Source: Global Trade Atlas and AAFC calculations.

*Notes: 1) Excludes intra-EU trade.
2) Excludes fresh seafood.

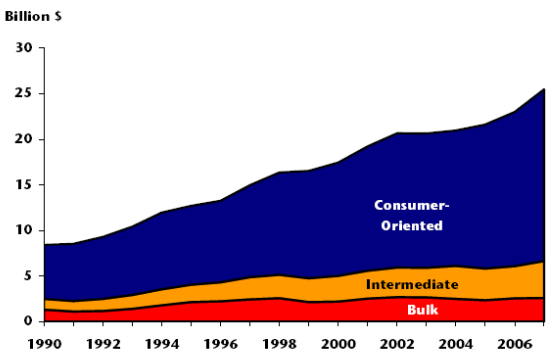
H3: Canadian Agriculture and Agri-Food Exports (BICO)*, 1990-2007



Source: Statistics Canada and AAFC calculations.

*BICO: Bulk, Intermediate, and Consumer-Oriented.

H4: Canadian Agriculture and Agri-Food Imports (BICO)*, 1990-2007



Source: Statistics Canada and AAFC calculations.

*BICO: Bulk, Intermediate, and Consumer-Oriented.

Figure H: Agriculture and agri-food trade.

These value-added, consumer-oriented products represent the largest growing share of imports. Over the last 8 years, the majority of outward investments (in the agri-food industry) have targeted the U.S., but in terms of global markets an increase in outward investments has occurred in the rest of the world (Figure I).[212]

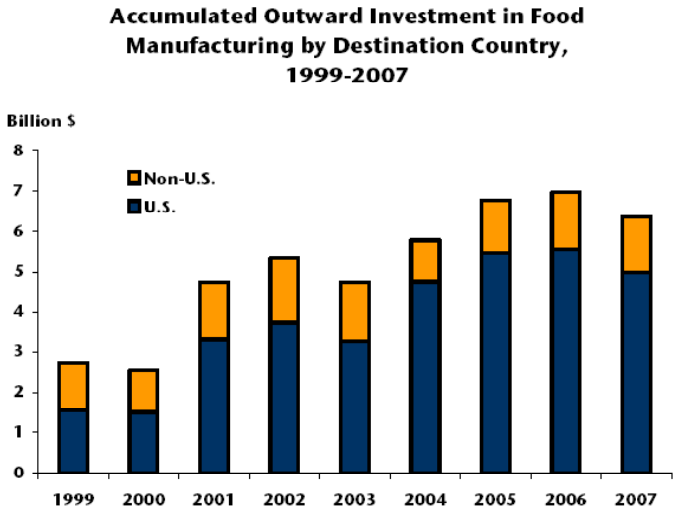


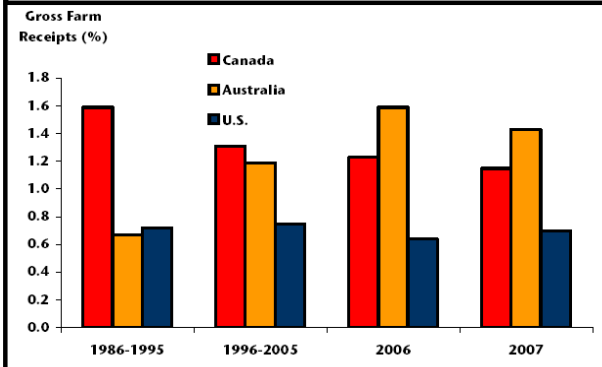
Figure I. Accumulated outward investment in food Manufacturing by Destination Country, 1999-2007. Sources: Statistics Canada and AAFC.

Investments in research and development

Figure J features selective parameters concerning public and private investments in R&D in the agriculture and agri-food sector. Canadian public investment in R&D has been lower in the 2000s compared to the 1980s and 1990s (Figure J1).[213] For private sector investment, the numbers indicate that private investment has been larger in food processing than in primary agriculture, possibly contributing to the sustained productivity growth in the former (Figure J2).[214] However, it is noteworthy that R&D expenditure as a share of GDP by private industries of the primary agriculture or food processing sector is significantly smaller than that of the total manufacturing sector (Figure J3).[215] Furthermore, as Figure J4[216] shows, since the early 1990s, Canada's businesses have consistently lagged behind their competitors (the U.S. and Japan) in regard to the share invested in R&D within the food processing sector.

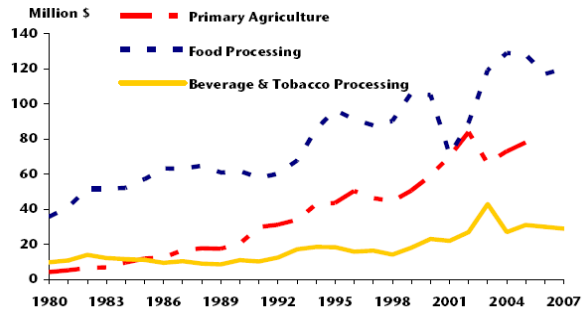
The analysis above suggests there is a pressing need and opportunity for productivity growth in both primary agriculture and food processing sectors. From an extensive analysis of the evolution of farm and agri-food income in Canada (http://capi-icpa.ca/pdfs/CAPISynthesisReportFeb.pdf), CAPI concluded that a strategic shift is needed to provide the Canadian agriculture and agri-food system with new opportunities, not only to satisfy the changing food habits of Canadians, but also to take advantage of climate change, our Nordic climate, and water availability. By translating and applying life sciences research from other fields (including nutriogenomics, proteomics, biotechnology) to developing new innovative plants, animals, and food products, Canada can develop new niches in the global market, while making a contribution to improve food security and worldwide nutritional quality. Taken together, these form the key strategic components of the future of our agricultural economy. An Integrated Health and Agri-Food Strategy for Canada is, more urgently than ever, a critical step in this strategic shift.

J1: Public R&D Support to the Agriculture and Agri-Food Sector, 1986-2007



Source: OECD, Agricultural Policies in OECD Countries: At a Glance, 2008.

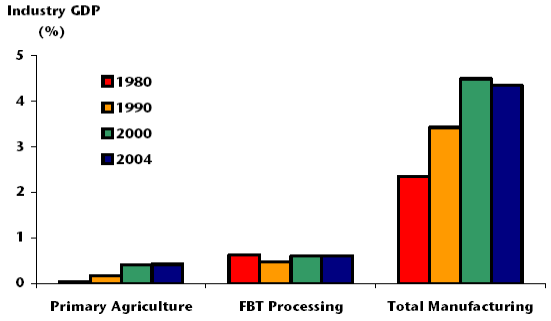
J2: Private Sector R&D Expenditures in the Agriculture and Agri-Food Sector, 1980-2007



Source: Statistics Canada.

Notes: 1) 2005, 2006 and 2007 figures are preliminary.
2) This includes all R&D expenditures made by private industry regardless of whether the sources of funds were self-financed, government grants/contracts or from other companies.

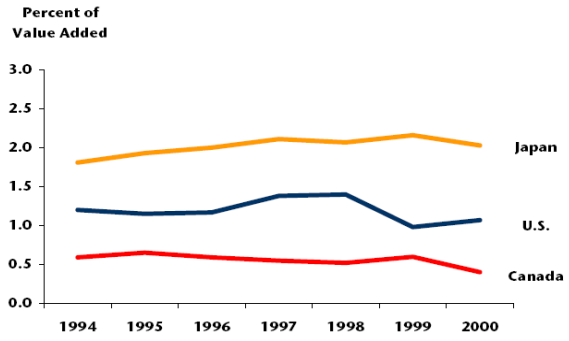
J3: Private Sector R&D Expenditures as a Share of GDP by Industry, 1980-2004



Source: Statistics Canada.

Note: This includes all R&D expenditures made by private industry regardless of whether the sources of funds were self-financed, government grants/contracts or from other companies.

J4: Business R&D Expenditures as a Share of Value Added in Food, Beverage and Tobacco, 1994-2000



Source: OECD, DSTI, STAN Indicators, 2004.

Figure J. Private and public R&D investment.

Appendix 2
NUTRITION AND HEALTH AS DRIVERS OF FOOD SUPPLY AND CONSUMER DEMAND IN CANADA

Retail and Food Services in Canada: Supply, Sales, Prices and Demand Drivers

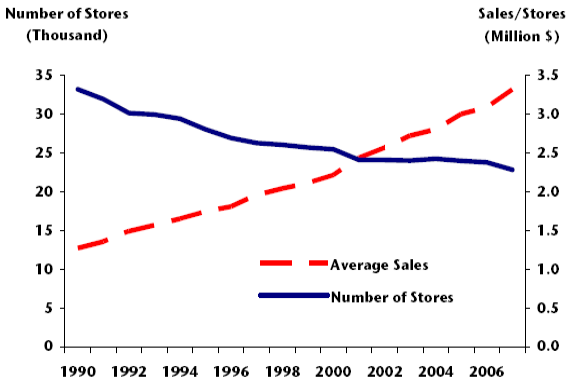
Until the recent economic downturn, Canadian consumer demand for food seemed to be on a generally increasing trajectory, in particular for food bought for home consumption. Almost 75% of all Canadian meals are purchased from retail stores, to then be prepared and eaten at home (Figure K1).[217] Reflecting the progressive concentration of the food retail industry in Canada and worldwide, Figure K2[218] shows that the constant increase in food retail sales has been accompanied by a significant decrease in the number of stores in Canada.

K1: Where Canadians Eat their Meals, 2007

Meal Type	% of Meals
In-Home–From Retail	67
At a Restaurant	8
Skipped Meals	8
Carried From Home	8
All Other Away-From-Home	7
In-Home–From Restaurants	2

Source: Canadian Restaurant and Foodservices Association. (Sourced from National Eating Trends Canada, NPD Group Canada Inc.)

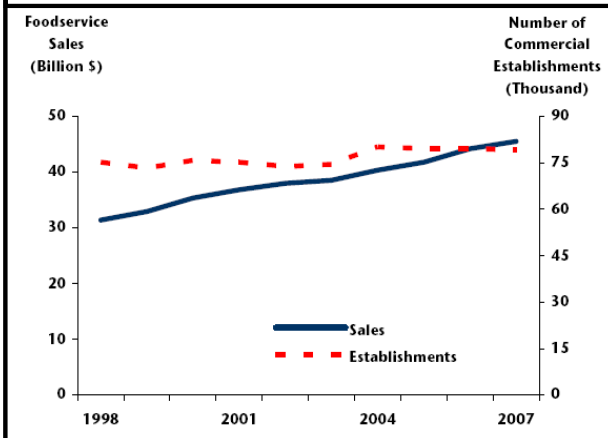
K2: Number of Canadian Food Stores and Average Sales, 1990-2007



Source: Canadian Grocer, Statistics Canada, and AAFC calculations.

Note: 2007 figures are estimates.

K3: Commercial Foodservice Sales and Number of Establishments, 1998-2007



Source: Statistics Canada.

K4: Market Share by Foodservice Category, 2007

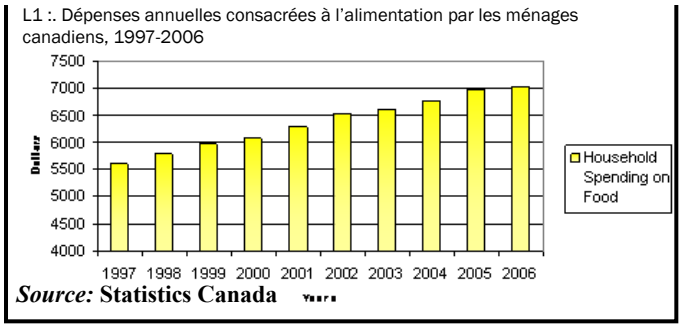
Foodservice Category	%
Commercial Foodservice	**79**
Full-Service Restaurants	36
Limited-Service Restaurants	32
Contract and Social Caterers	7
Pubs, Taverns and Nightclubs	4
Total Non-Commercial Foodservice	**21**
Accommodation Foodservice	9
Institutional Foodservice	6
Retail Foodservice	2
Other Foodservice	4

Source: Canadian Restaurant and Foodservices Association and AAFC calculations.

Note: 2007 figures are preliminary.

Figure K. Trends in retail and food service sales and supply.

In 2007, the market share of the commercial food service accounted for almost 80% of the whole foodservice category and sales of this segment have increased by 45% during the last decade but at a slower pace than that of the non-commercial sector (Figures K3, K4).[219] Between August 2001 and August 2008, an increase of 5.7% occurred in the percentage of total household expenditures on food and drinks out of the home.[220] The average Canadian family visits a restaurant for a meal or snack approximately 520 times per year and spends about one-fifth of total household food expenditures at restaurants.[221] Interestingly, the number of establishments in the food service sector has remained stable since the late 1990s, without showing an intense concentration, as in the retail sector.



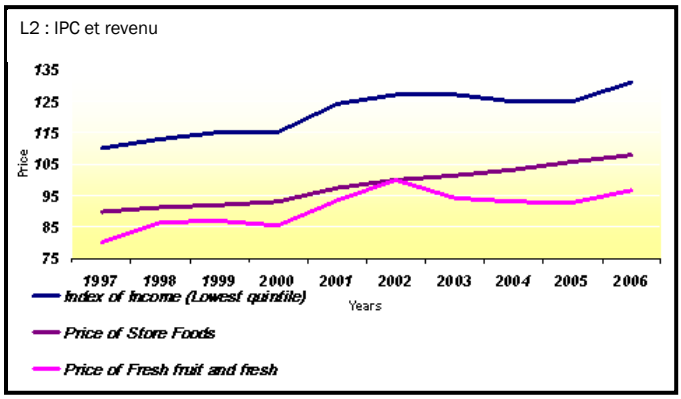


Figure L. The evolution of food prices.

Food prices have also evolved over time. Between 1997 and 2006, the amount of household money spent on food has increased (Figure L1).[222] However, these increases have more or less followed the increase of income, even when looking at the lowest quintile of the income distribution (Figure L2).[223] Trends started to change in 2007, and this reversal may be intensified with the recent food prices and financial crises: in 2007, the consumer price index for food increased by 2.7% above that of 2006. This increase was larger than the average consumer price index increase (2.2%) and, in turn, food was ranked as the third largest item increase in the Statistics Canada index.

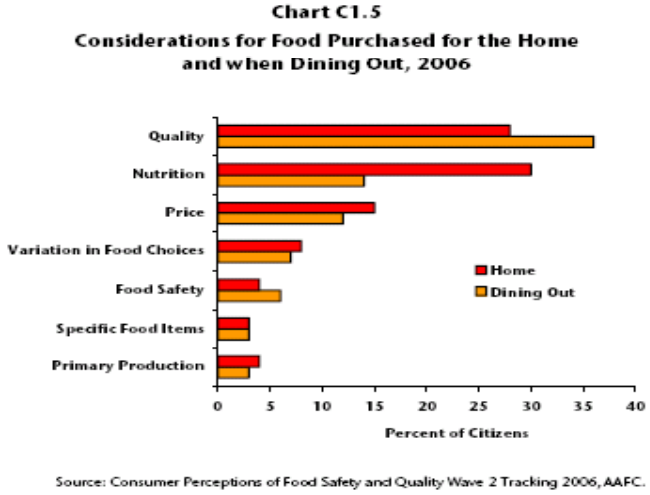


Figure M. The evolution of food prices. Source: *Consumer Perceptions of Food Safety and Quality Wave 2 Tracking 2006,* AAFC

The drivers of consumer demand, food quality (in particular taste), and nutrition have long been the top two "top of mind" criteria for consumers when purchasing food, be it when eating at home or when dining out (Figure M).[224] Notably, the relative

power of these two criteria shifts according to the context; quality becomes the primary criteria when dining out and nutrition prevails when buying food for home.

Nutrition and Health as Supply and Demand Drivers

Consumer awareness of the importance of food and nutrition for health – be it to control one's weight, to prevent cancer and other chronic diseases, or simply to ensure quality of life with aging – has never been so high. As this increased awareness is progressively translating into changing behaviours and consumption patterns, it becomes more natural for consumers to limit the intake of certain foods or ingredients in their diet, thereby galvanizing the power that nutrition and health has to drive both supply and demand in many segments of the agriculture, food and food service industries. Selected segments are reviewed next.

Fruits and vegetables

While it is well-established that consuming a diet rich in fruits and vegetables reduces one's risk of obesity and chronic diseases, most Canadians still do not eat the recommended 5 to 10 servings per day, as illustrated in Figure O1. The supply has remained relatively stable over the last few decades and the consumption prediction for the next 20 years remains almost flat (Figure N2, N3).[225]

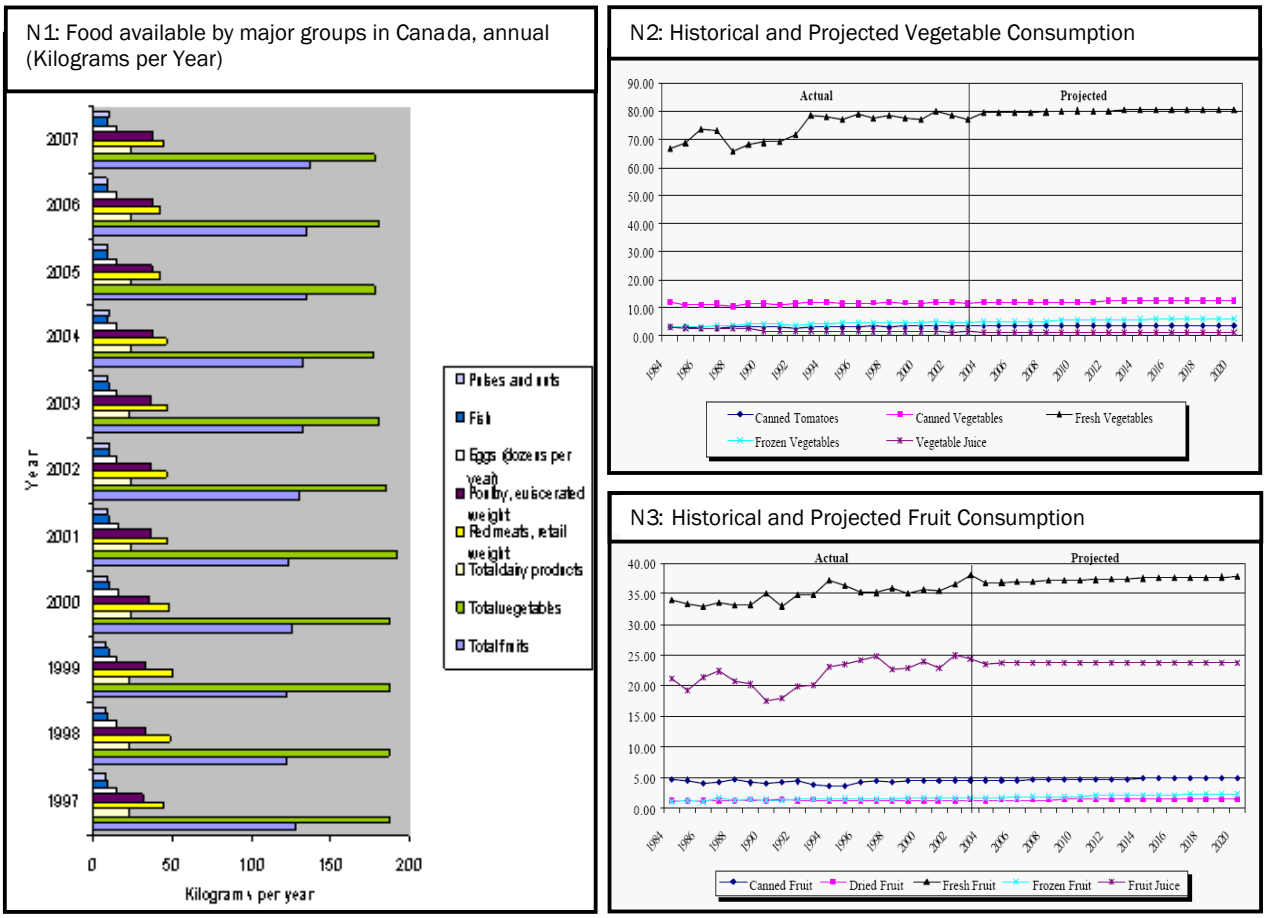


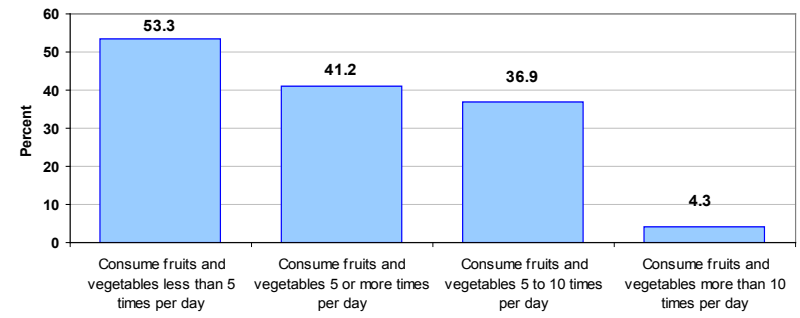
Figure N. Fruit and vegetable: Supply and demand.

Yet, there are important financial and health costs associated with a low consumption of fruits and vegetables. According to Lock and colleagues (2004),[226] the global burden of disease attributed to low fruit and vegetable consumption accounts for approximately 2.7 million deaths and 1.8% of the total worldwide disease burden. A report on Canadian food trends until 2020 shows that the most significant health driver in the next 10 years will be obesity. The Canadian population will adopt a healthier lifestyle but the move will be slow. Adults faced with serious health concerns related to their weight may be motivated to change their diet and activity patterns.[227] In Canada, the cost of cardiovascular diseases and cancer is over $32 billion per year.[228] Reducing the rates of diseases through the consumption of 5 to 10 servings of fruits and vegetables per day would save the health care system approximately $6.4 billion in direct and indirect costs.[229] Figure O2[230] shows an inverse relationship between fruit and vegetable consumption and rates of obesity for both men and women. Despite numerous efforts, the per capita consumption of fruits and vegetables remains sub-standard.

Organic food

Another trend that has shaped both consumer demand and food supply is that of organic food. Canada's organic fruit and vegetable industry is slowly expanding, with sales still representing a niche market in most parts of Canada. Between 2001 and 2006, the number of Canadian farms that claim using organic production methods increased by nearly 60%.[231] In 2006, 3,555 farms reported growing certified organic products compared to 2,230 in 2001.[232] In 2006, as in 2001, "fruit, vegetable, and greenhouse products" were the second most commonly reported certified organic product category, with 41% of

01: Fruit and vegetable consumption, population aged 12 and over, Canada, 2005



Source: Statistics Canada

02: Rates of Obesity, by fruit and vegetable consumption and sex, household population aged 18 or older, Canada excluding territories, 2004

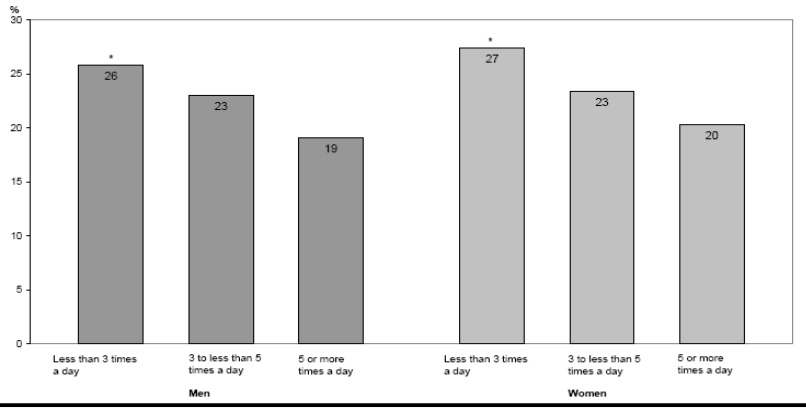
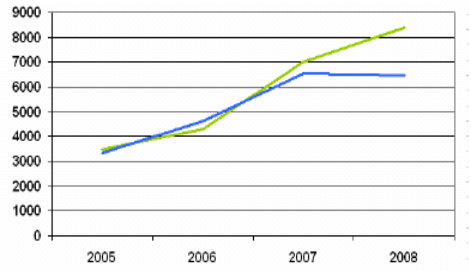
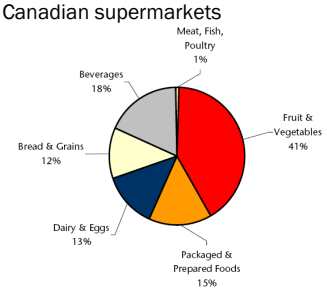


Figure O. Fruit and vegetables: Consumption and health consequences. Sources: Statistics Canada and *2004 Canadian Community Heath Survey: Nutrition*.

P1: Organic and natural food and beverage introductions, global: 2005-2008.



P2: Estimates of organic food sold in Canadian supermarkets



P3: Estimates of Organic Food Sales Retail Market Channels, 2006

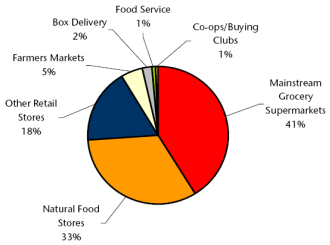


Figure P. Organic food. Sources: P1: Copyright 2008 by Mintel International Group. Reprinted with permission. P2 and P3: *Retail Sales of Certified Organic Food Products in Canada*, Organic Agricultural Centre of Canada.

organic foods sold in supermarkets being in the fruit and vegetable categories. The concept of organic food has penetrated most other product categories sold in supermarkets, including packaged and prepared food, dairy, eggs, bread, and grains (Figure P).[233]

Reformulated processed food

Behaviours such as avoiding trans-fats, salts, or refined carbohydrates, and eating more fruits, vegetables, fibre, and yogurt have become progressively a part of the consumers' more permanent choice set for everyday diet. Accordingly, leaders in the food processing industry have begun adjusting product formulation and strategic product and brand extensions to reflect this health-friendly shift. A Report by ACNielsen, tracking nearly 500 food product categories annually, reported that approximately one in five active manufacturers' listings in retail grocery stores in 2003 were considered "better for you products."[234] The number of "better for you" product listings had more than doubled in three years, while the market share of these foods increased by 1% annually. In fact, six of the seven retail grocery categories experiencing double digit growth in 2003, as tracked by ACNielsen on a global basis, were "better for you" products. However, while there has been significant progress made in reducing trans fat, salt, and saturated fat, reformulation still presents great difficulties, particularly in attempting to maintain taste so that the products remain acceptable to consumers.

Functional foods for nutrition and health

Many of the new products put on the market have been in the area of technology-supported functional food and natural products. This marketing taps into the increased prevalence of chronic diseases and the aging of the population worldwide, as well as the recognition that today's consumers are increasingly making the connection between health and nutrition. Table B[235] indicates the diversity of motives that drive consumer demands for functional food.

Table B: Functional Foods: Key Trends in food, nutrition and health benefits	
Digestive health – a wellness issue and the biggest opportunity	Digestive health offers significant opportunities with low risk. It is an attractive avenue for functional foods because it is correlated to wellness, unlike lowering cholesterol, which is more of a "death and disease" issue.
Fruit and superfruit – the future of food and health	The biggest beneficiaries of consumers' desire for "natural foods" have been fruit drinks. Makers of juices and smoothies have been particularly successful in combining convenience, health, taste and "naturally healthy" ideals in consumers' minds.
The marketing power of "naturally healthy"	The marketing power of the intrinsic health benefits of foods continues to be the most popular functional foods strategy worldwide.
Beauty foods – the newest niche	Danone's Essensis brand was launched in February 2007 and was rated as one of the boldest moves in the nutrition industry in recent years. The product is a 1.5% fat yogurt with an ingredient complex "ProNutris" which contains vitamin E, green tea, probiotics and borage oil.
Mood food feels its way	Powerful links between nutrition, mood and mental health. Mood food is a new idea to Western companies, but researchers are beginning to understand the powerful links between nutrition, mood and mental health.
A tipping point for the "premiumization" of health	Strongly differentiated packaging design helps brands achieve better market positioning and achieve premium prices. One of the most important factors in the success of functional foods is packaging innovation. For example, innovative packaging is one of the main reasons for the success in the European market for sterol-based cholesterol-lowering foods.
Antioxidants – the new probiotics?	Green tea is widely perceived as the healthiest tea and a beneficiary of the rising consumer awareness surrounding antioxidants. Food manufacturers see green tea as offering the healthiest halo when added to products such as yogurt, smoothies, juice drinks and waters.
Other Key Trends:	- Healthy snacking for the "me" generation - Children's nutrition – connecting to multiple trends is crucial - Linking weight management more with maintenance, rather than loss

As Figure Q[236] shows, the number of new processed food products making functional claims has steadily increased worldwide over the last few years. This rising trend is reflected in the market value of functional food in Canada, the U.S., and other industrialized countries (Figure R).[237] In 2008, the functional foods and natural health products (FFNHP) sector in Canada reported significant growth in recent years, both in terms of the size of the domestic market and in terms of export sales. Currently, this sector has an approximate share of 2.6% ($3.2 billion) of the more than $100 billion global market for functional foods and dietary supplements.[238]

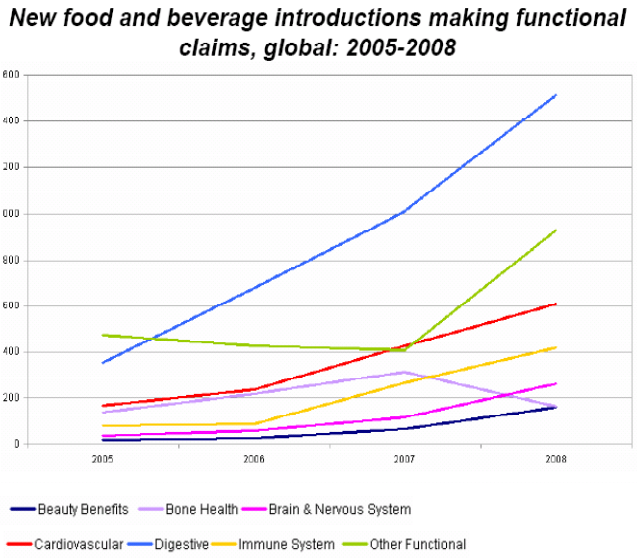


Figure Q. Copyright 2008, Mintel International Group. Reprinted with permission.

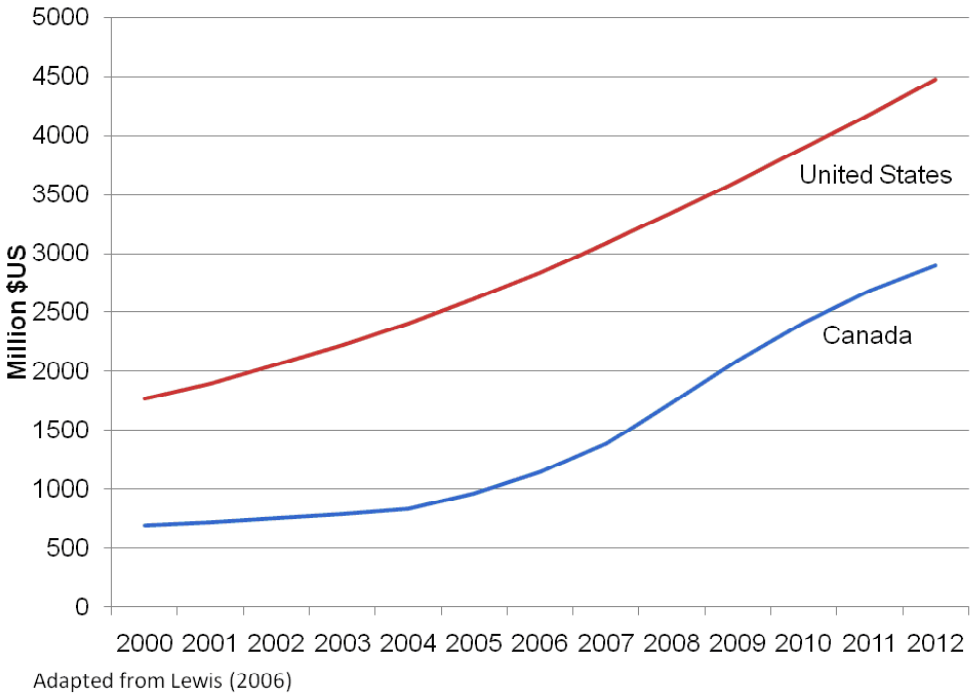


Figure R. Functional food market value for Canada and the U.S., 2000-2012. Source: Nutri-Net Canada and Agriculture and Agri-Food Canada.

Appendix 3

Table 1: Overview of the most common policy instruments at the interface between health, agriculture and agri-food

Policy instruments	Examples of application to agriculture and agri-food
Regulatory instruments (laws, statutes, etc.)	For a full discussion of regulations and legislation related to the agri-food sector, please see the CAPI report[239] Legislation and regulations such as: Food and Drug Act Consumer Labelling Act Canadian Food Inspection Act Meat Inspection Act, Fish Inspection Act Food safety is an area where there is shared federal and provincial jurisdiction. As such there are numerous provincial standards and regulation related to food safety. For a full discussion of food safety instruments used in the provinces, please see CAPI report.[240]
Forms of self-regulation	"On-farm food safety programs," Good Agricultural Practices programs, programs that incorporate control of hazards within the processing environment using Hazard Analysis of Critical Control Points. For high risk agriculture and agri-food products (such as meat), these programs can be mandatory. For lower risk products, industry is voluntarily implementing these programs in order to provide higher levels of food safety assurance to consumers and to mitigate the business risks of food safety incidents. In 2006, the Advertising Standards of Canada (ASC), a self regulatory organization for advertising, produced a Reference Guide for advertising to children in Canada. Though led by industry, this is a joint approach: the Government of Canada has delegated responsibility for monitoring the Broadcast Code, a statutory instrument, to the ASC. ISO Food programs (ISO 22000 global standard for food safety management systems that includes the entire supply chain) Private standards (i.e. GlobalGap)
Standards	Mandatory Standards The number of standards in the agri-food sector is large and includes those related to the composition of foods, pesticide residues, food contaminants, etc. Voluntary Standards and other forms of voluntary action The Canadian "Industry's Integrated Children's Food and Beverage Advertising Initiatives"[241] includes pledges by 17 food and beverage companies to devote at least 50% of their television, radio, print and Internet advertising aimed at children under 12 years of age to promote products that represent healthy dietary choices and/or include healthy lifestyle messages. Trans Fat – industry is voluntarily reducing the levels of trans fat in the food supply. The Federal Government will introduce mandatory regulations on the limits if these are not reached voluntarily within 2 years.

POLICY INSTRUMENTS	EXAMPLES OF APPLICATION TO AGRICULTURE AND AGRI-FOOD
Economic instruments	Taxation Taxation has not yet been applied in Canada. However, examples of taxes could include: removing sales taxes on healthy food, a tax on unhealthy foods categories (also called "fat tax," "snack tax, or "junk food tax") or taxation of particular nutrients.
	Subsidies Subsidies for particular foods are not broadly in place in Canada. Future subsidies could include subsidizing healthy foods (also called "thin subsidy"). There are Canadian programs providing free fruits and vegetables as part of pilot projects and school meal programs: "British Columbia's free fruit and vegetable program," "Northern Ontario Fruits and Vegetables Program," and "Club des petit dejeuners du Quebec." The Canadian Food Mail Program subsidizes the transportation of healthy foods in remote communities.
	Other economic approaches including public expenditure There are numerous Farm Income Support programs and programs to support R&D.
	Trade Tariffs apply additional costs of imported products
Information and education	Some examples of information and education initiatives include: The Canadian Restaurant and Foodservices Association and Canada's largest restaurant chains launched a nutrition information program in 2005 that makes it easier for consumers to obtain dietary information from standard menus. This information makes it easier for consumers to purchase healthier restaurant meals. The Heart & Stroke Foundation "Health Check" program provides additional information to consumers.
Collaborative or consensual approaches (including formalized partnerships and less formalized networks)	A Multi-Stakeholder Sodium Working Group has been established in Canada to develop a long-term national strategy to reduce dietary sodium levels. The Children's Healthy Active Living Program (CHALP) represents a collective partnership that contributes an informed solution on the part of industry, government and issue experts. The 5 to 10 a Day initiative to promote fruits and vegetables in Canada is a social marketing and school education program led by the Canadian Produce Marketing Association and supported by the Heart & Stroke Foundation of Canada and the Canadian Cancer Society.

Appendix 4

Table 2: Agriculture and Agri-Food Product Composition Change and Public Policy

Public Policies	Composition or consumption shift (documented, hypothesized, or targeted)	Possible Canada policy impetus or constraint	International comparison (U.S., Europe, other)
Policies affecting input or technology costs (such farm policies as farm-income support programs and commodity-price supports, and trade policies such as import quotas and tariffs, all of which may alter relative prices of major agriculture and agri-food product ingredients)	Increase in high fructose corn syrup in processed foods and drinks		U.S. sugar and corn price policies over the past two decades Mexico's soft drink industry has greater flexibility of substitution in response to changing relative prices
	Consumption switch from full-fat milk to low-fat milk and from high-fat cheeses to lower-fat cheeses	Canadian-administered prices favor production of butterfat over milk solids Import restrictions on milk, cheese, chickens, eggs, and turkeys decrease competition	Milk marketing in the U.S. order pricing that sets incentives for milk components
	Pork has less fat now than twenty years ago	Government- and producer-supported research to improve breed quality and decrease fat Hog pricing and inspection systems rewards particular characteristics	U.S. producer and government supported research to improve meat quality
	Energy-dense foods are cheaper than fruits and vegetables	Research investment in field crops greater than for fruits and vegetables. Lack of plant breeding research on pulses	U.S. research investments for field crops greater than for fruits and vegetables

Public Policies	Composition or consumption shift (documented, hypothesized, or targeted)	Possible Canada policy impetus or constraint	International comparison (U.S., Europe, other)
Information policy (including mandatory disclosure, regulation of product claims, and nutrition education programs such as: partnership initiatives; the introduction of the mandatory nutrition label to disclose calories, fat, sugars, and salt; and the impact of education campaigns, such as *5 to 10 a Day* to encourage fruit and vegetable consumption).	Reduction of trans fats in processed foods	Mandatory nutrition labelling (including trans fat labelling) has been introduced in Canada for most packaged foods in 2005	In the U.S., trans fat added to mandatory nutrition label in 2006; Danish ban in 2004 led to rapid elimination
	Increase of whole grains in processed foods	Canada's Food Guide emphasizes whole grain product	U.S. Dietary Guidelines in 2005 emphasize whole grains
	Salt content in processed foods	The government announced formation of Expert Working Group to develop a Salt Reduction Strategy	
	Low-fat product introductions increased in the 1990s	Canada's Food Guide highlights moderation in fat, sugar and salt consumption	U.S. Dietary Guidelines emphasize moderation in fat consumption U.S. mandatory nutrition labelling to disclose fat content EU mandates fat content label disclosure in 2008
Policies influencing business practices (food manufacturing and processing; food marketing – establishing advertising restrictions e.g. on "unhealthy" food, or on children's programs)	Food marketing to children	A proposed ban on advertising of food and drinks to children in Canada (in Quebec, advertising to children under 13 is prohibited since 1980)	

Appendix 5

Table 3[243] - Examples of food/agriculture and agri-food products grown/ manufactured in Canada with functional ingredients providing health benefits

Food/food product	Functional Ingredient	Key Health Benefits
Salmon, trout	Omega-3 DHA and EPA	Aids in proper brain and eye development in babies and children; Can reduce high levels of blood fat (triglycerides).
Apples	Anthocyanins Quercetin	May prevent certain forms of cancer. Has the potential to slow the growth of prostate and lung cancers.
Blueberries, strawberries	Anthocyanins Ellagic acid	May enhance the removal of cholesterol from the blood. Lowers risk of death from certain cancers.
Cranberries	Proanthocyanidins Quinic acid	Prevent certain bacteria (such as E.coli) from adhering to the bladder wall. Reduces the risk of kidney stones.
Broccoli, cauliflower and cabbage	Sulphoraphane Indoles	In lab studies, stopped the growth of cancerous tumours of the breast, endometrium, cervix, lung, colon and liver Lowers risk of breast cancer.
Canola oil	Omega-3 ALA* Plant sterols	Reduces heart disease risk by competing with cholesterol for absorption into the small intestine. Lower blood levels of "bad" LDL cholesterol.
Carrots	Carotenoids	Prevents heart disease and the oxidation of LDL cholesterol
Flax	Omega-3 ALA* Phytoestrogen lignans	Lowers risk of heart disease, stroke and diabetes by reducing levels of blood fat (triglycerides). May prevent breast, colon, and lung cancers.
Garlic, onions	Allicin Allyl sulphides Quercetin Prebiotic fibre	Fights bacterial and fungal growth. Helps the body get rid of carcinogens. May reduce risk of heart disease. May improve digestion and regularity.
Oats, barley	D glucan soluble fibre	Contributes to diabetes prevention by lowering blood sugar levels.
Pears	Anthocyanins	May enhance the removal of cholesterol from the blood.
Potatoes	Quercetin	Has potential to slow the growth of prostate and lung cancers.
Pulses (dried beans, lentils)	Saponins Protease inhibitors Phytic acid Inositol PKP	Protect cells from genetic damage that can lead to cancer. Slow the growth of several types of tumours in lab studies. May prevent certain cancers. Has been shown to reduce the risk of breast cancer.
Soy	Isoflavones	Pre-menopausal intake reduces risk of breast cancer later in life; Reduces risk and progression of prostate cancer.
Spinach, kale	Lutein Zeaxanthin	Protects the retina and lens of the eye from oxidative damage; Offers protection against sun-induced oxidative damage on the skin.
Tomatoes	Lycopene	Plays a role in preventing heart attacks in people who have already suffered an infarct.

*ALA (alpha linolenic acid) is an essential fatty acid that must be obtained from the diet as it is not made in the body. When consumed, small amounts of ALA are converted to EPA and DHA omega-3 fatty acids.
Adapted from Newsletter The Satellite Special Edition, 2008, November by MarS Landing, Pg 3

APPENDIX 6

Table 4: National, Provincial and Global Policy Frameworks at the Agriculture, Agri-Food and Health Interface

Name/Vision and Goal of Initiative	Current Status	Related Policies, Programs/ Initiatives	Relevance to the Vision, Goals and Approaches of the Integrated Health and Agri-Food Strategy for Canada - Synergies, Gaps or Conflicts
National Governmental Level Frameworks (Canada)			
AGRICULTURAL POLICY FRAMEWORK (APF) (2003-2008)			
The objective of the Agricultural Policy Framework (APF) is "to secure the long-term profitability of the sector by making Canada a world leader in food safety, innovation, and environmentally responsible agricultural production."	***Agricultural Policy Framework*** has been replaced by the ***Growing Forward*** policy Framework (as of April 1, 2009).	All provinces and territories have signed on to the APF and the Implementation Agreements with the Government of Canada. ***Greencover Canada*** is a five-year, $110-million initiative to promote sustainable land use and expand the land covered by forage and trees. This will provide land conversion incentives to agricultural producers, protect farm-water quality, and reduce greenhouse gas missions. **Flax Canada 2015 Initiative** aims to strengthen Canada's leadership position in flax research, product development and commercialization in the areas of health, wellness and the environment. It is supported by the APF to develop a strategic plan for flax based on establishing linkages between researchers, industry, the health care community and government.	Under the APF, five pillars were established: 1. **Food safety and quality** to make Canada the world leader in producing, processing and distributing safe and reliable food to meet the needs and preferences of consumers. 2. **Environment**: to help producers act as resource stewards, and to respond to consumer demands regarding environmental performance. 3. **Science and Innovation**: to support sustainable development and innovation that generates profit, and to instil confidence in food safety and quality. 4. **Renewal**: to help farm families develop the skills to succeed in the knowledge-based economy. 5. **Business Risk Management**: to encourage producers to be proactive to reduce business risks". *(Source:* Agriculture and Agri-Food Canada. (2003). Agricultural Policy Framework. Retrieved from http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1183127394087&lang=eng)

Name/Vision and Goal of Initiative	Current Status	Related Policies, Programs/ Initiatives	Relevance to the Vision, Goals and Approaches of the Integrated Health and Agri-Food Strategy for Canada - Synergies, Gaps or Conflicts
***GROWING FORWARD*: THE NEW AGRICULTURAL POLICY FRAMEWORK (2008-2012)**			
The vision of the new framework is "for a profitable and innovative agriculture, agri-food and agri-based products industry that seizes opportunities in responding to market demands and contributes to the health and well-being of Canadians." The new framework provides a definite change of direction that aims to address the lessons learned from the previous policy framework with a significant focus on competitiveness and innovation.	APF programs will continue until *Growing Forward* programs are developed and fully implemented (target date is April 1, 2009). The Government of Canada is currently working with the provinces and territories to sign bilateral agreements and finalize program details prior to March 31, 2009.	Governments would provide funding through an ***"On-Farm Innovation Initiative"*** to support the development and adoption of technical innovations to enhance sector competitiveness. Newly formed science networks, created under what would be known as the ***"Integrated Food for Health Research Initiative,"*** would help provide scientific evidence needed to approve priority products with enhanced health-promoting attributes. Governments would continue support of branding efforts, such as the ***"Brand Canada"* Strategy**, to help Canadian businesses position their products better in key international markets. ***"Sustainable Agriculture Environmental Systems Initiative"*** would be a research and technology transfer program which would develop priorities based on sector needs.	The new framework outlines the following strategic outcomes: **1. A Competitive and Innovative Sector:** - Expanding the sector's capacity to innovate - Improving governments' regulatory performance by "improving the approval processes for novel foods and food additives; and help the industry generate approvals for health claims". - Facilitating industry success in global and domestic markets through "support for industry-led marketing strategies; a Canada branding strategy; and action to maintain and improve market access". **2. A Sector that Contributes to Society's Priorities:** - Enhancing post-farm and on-farm food safety; and improving food safety systems through scientific research - Enhancing environmental performance **3. A Sector that is Proactive in Managing Risk** *(Source:* Agriculture and Agri-Food Canada. (2008). *Growing Forward:* The New Agricultural Policy Framework. Retrieved from http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1200339470715&lang=eng)

Name/Vision and Goal of Initiative	Current Status	Related Policies, Programs/ Initiatives	Relevance to the Vision, Goals and Approaches of the Integrated Health and Agri-Food Strategy for Canada - Synergies, Gaps or Conflicts
Agriculture and Agri-Food Canada (AAFC) Science and Innovation strategy			
An essential principle underlying the development of AAFC's Strategy is a focus on supporting a strong Canadian industry. The Strategic goals include: - "Focusing our science and innovation investment; - Addressing the need to catalyze a healthy, vibrant agriculture industry; - Addressing policy objectives in health care, environment, energy, biosecurity, food safety and quality, and international trade"	A number of outcomes were set out to reach the Strategy's seven priorities.		The AAFC Strategy identifies seven priority areas among which the first priority was "enhancing human **health and wellness** through food, nutrition and innovative products" and sets the following end outcomes: **End Outcomes 2015-2030** • Canadians are among the healthiest people in the world due to health promotion and disease prevention attributable to the better understanding of linkages between food and health, access to high-quality nutritious foods, and information about food allowing informed choices. • Significant reductions in Canadian health care costs and increased longevity achieved due to enhanced wellness and well-being of Canadians. • Canadian functional food and nutraceutical standards set world standards. **Intermediate Outcomes 2010-2015** • Information about food, functional foods and nutraceuticals allow Canadians to tailor their diets to suit their personal needs. • Nutritious, high-quality foods are readily available and more appealing than less nutritious alternatives. **Immediate Outcomes 2006-2010** • Health claims for functional foods and nutraceuticals are recognized and endorsed by official standards. • Foods with functional properties are characterized and used in the production of healthy products. **Science Deliverables 2006-2010** • Foods with functional properties are identified and strategies developed to preserve bioactivity. • Understanding of nutritive components of specific foods and their mode of action in disease prevention, and health promotion is available. • Health claims for functional foods and nutraceuticals are substantiated by research. Other priorities include enhancing: the quality of food and the safety of the food system; security and protection of the food supply; economic benefits for all stakeholders; and environmental performance of the agricultural system. (Source: Agriculture and Agri-Food Canada. (2006). Agriculture and Agri-Food Science and Innovation Strategy. Retrieved from http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1175602657035&lang=eng#s7)

Name/Vision and Goal of Initiative	Current Status	Related Policies, Programs/ Initiatives	Relevance to the Vision, Goals and Approaches of the Integrated Health and Agri-Food Strategy for Canada - Synergies, Gaps or Conflicts
The Government of Canada, Food and Consumer Safety Action Plan			
Canada's Food and Consumer Safety Action Plan recognizes the need to better support the collective responsibilities that government, industry and consumers have for food safety, with a renewed focus on prevention, addressing food safety along the food continuum.	The Government of Canada will engage the full range of partners on this Plan.	The Government is considering new initiatives to enhance policies, standards and processes to strengthen the prevention of food safety issues.	The Action Plan addresses safety along the food continuum, from production to consumption; enhances the food safety issues of food imports; strengthens standard setting for the safety and nutritional quality of all food sold in Canada; provides better information to consumers (government will undertake a review of current policies for a voluntary "Product of Canada" and "Made in Canada" claims on product labels). (Source: Government of Canada. (2007) Canada's Proposed Food and Consumer Safety Action Plan – Overview. Retrieved from http://www.healthycanadians.ca/alt_formats/pdf/01-P_440-ActionPlan_Pamphlet_eng_16.PDF)
Canada's Action Plan for Food Security			
The Canada's Action Plan for Food Security is a call for multi-sectoral action and it provides important opportunities to link issues related to food, health and the environment	N/A	N/A	The following priorities and commitments are part of the Action Plan: 1. Access to Food promotion of access to safe and nutritious food reinforcing of the healthy eating practices monitoring systems for food insecurity 2. Sustainable Agriculture and Sustainable Development 3. Trade and Food Security 4. Food Safety 5. Emphasis on environmentally sustainable practices *(Source:* Agriculture and Agri-Food Canada. (1998). Canada's Action Plan for Food Security. Retrieved from http://www.agr.gc.ca/misb/fsec-seca/pdf/action_e.pdf)

Name/Vision and Goal of Initiative	Current Status	Related Policies, Programs/ Initiatives	Relevance to the Vision, Goals and Approaches of the Integrated Health and Agri-Food Strategy for Canada - Synergies, Gaps or Conflicts
NUTRITION FOR HEALTH: AN AGENDA FOR ACTION			
An Agenda for Action "is to ensure integration of nutrition considerations into health, agriculture, education, social and economic policies and programs."	N/A	N/A	The Agenda for Action describes a multilevel, multi-sectoral approach to improving the nutritional health of the population with the following strategic directions: 1. **Reinforce healthy eating practices** through the incorporation of nutrition into curricula for children and youth; the improvement of the usefulness of nutrition labelling; and the provision of responsible public information on healthy eating and physical activity. 2. **Support nutritionally vulnerable populations** 3. **Continue to enhance the availability of foods that support healthy eating** by ensuring that food policies promote the increased availability of foods with compositional characteristics that support healthy eating; working with the food service sector to increase the availability of foods that support healthy eating; implementing policies and incentives in publicly funded organizations (e.g. schools) to promote increased availability of foods that support healthy eating; supporting agriculture and food policies that are consistent with environmentally sustainable practices. 4. **Support nutrition research** *(Source:* Health Canada. (1996). Nutrition for Health: An Agenda for Action. Retrieved from http://www.hc-sc.gc.ca/fn-an/nutrition/pol/nutrition_health_agenda-nutrition_virage_sante-eng.php)

Name/Vision and Goal of Initiative	Current Status	Related Policies, Programs/ Initiatives	Relevance to the Vision, Goals and Approaches of the Integrated Health and Agri-Food Strategy for Canada - Synergies, Gaps or Conflicts
TOWARDS A REGULATORY MODERNIZATION STRATEGY FOR FOOD AND NUTRITION, A KEY FEATURE OF THE ***HPFB BLUEPRINT FOR RENEWAL***			
The main policy goals of the Strategy which focuses on addressing food safety and nutrition challenges are: - "Improving effectiveness and efficiency, in Health Canada's food regulatory system; - Promoting regulatory responsiveness to food innovation and promoting consumer access to foods with assessed health benefits; - Modernizing the regulatory toolkit; - Promoting a sustainable and integrated system for food safety and nutrition in Canada."	Health Canada anticipates engaging a broader range of stakeholders to discuss Health Canada's goals and objectives under the Regulatory Modernization Strategy for Food and Nutrition to further clarifying the scope and scale of the Strategy through public, stakeholder, and inter-agency consultations, the process which will lead to the completion of a *Regulatory Modernization Strategy for Food and Nutrition (the Strategy)*.	Health Canada is reviewing the current framework for the management of health claims for foods as part of the Strategy, a number of specific policy actions have been initiated or planned to help address the call for the development of clear, consistent policies to manage a variety of **health claims on food**. Health Canada is chairing a *Multi-stakeholder Working Group on Dietary Sodium Reduction* tasked with developing and overseeing implementation of a strategy that would result in lowering the sodium content of the diets of Canadians. New guidance has also been published by Health Canada on the principles for using the ***Eating Well with Canada's Food Guide*** in advertising and labelling.	The specific objectives of the Strategy include improving Health Canada's processes for **pre-market regulatory clearances and notifications**; developing a comprehensive framework for the management of food with **health claims**; increasing Health Canada's science and research capacity for health claims and **food innovation** by increasing strategic partnerships; developing strategies to **reduce the presence of trans fatty acids** in Canadian diets to the lowest possible levels, consistent with the reduced levels of trans fats recommended by the Trans Fat Task Force; improving the **alignment of food safety and nutrition priorities** and risk management approaches within Canada's food safety system by strengthening and deepening collaboration between Health Canada, the Canadian Food Inspection Agency, the Public Health Agency of Canada, and the food safety authorities in the Provinces and Territories. *(Source:* Health Canada. (2007). Blueprint for Renewal II: Modernizing Canada's Regulatory System for Health Products and Food. Retrieved from http://www.hc-sc.gc.ca/ahc-asc/alt_formats/hpfb-dgpsa/pdf/hpfb-dgpsa/blueprint-plan_ll-eng.pdf)

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THE INTEGRATED PAN-CANADIAN HEALTHY LIVING STRATEGY			
The Healthy Living Strategy is a conceptual framework for sustained action based on a population health approach. Its **vision** is a "healthy nation in which all Canadians experience the conditions that support the attainment of good health". To achieve this, the **goals** of the Strategy are to: - improve overall health outcomes; and - reduce health disparities.	The Government of Canada is contributing $56.05 million over five years (2005-2010) to the implementation of the federal/provincial/territorial *Integrated Pan-Canadian Healthy Living Strategy*.	**President's Choice Blue Menu**, a new product line launched by *Loblaws* to promote healthy eating, highlights the nutritional benefits of lower fat, lower calorie and high fibre pre-packaged foods.	The Strategy's areas of emphasis are **healthy eating**, **physical activity** and their relationship to **healthy weights**, with 2015 to be considered as a first success marker for the set targets, and with other areas such as mental health and injury prevention identified for potential future action. From a **policy and program** perspective, a number of opportunities for action have been identified to: - improve healthy eating patterns, behaviours and choices among Canadians; - improve access to, and the affordability of healthy food choices; - enhance collaboration and planning across health and "non-health" sectors. This approach is consistent with the *WHO Global Strategy on Diet, Physical Activity and Health*, which states that the "responsibilities for action to bring about changes in dietary habits and patterns of physical activity rest with many stakeholders from public, private and civil society". *(Source:* Public Health Agency of Canada. (2005). The Integrated Pan-Canadian Healthy Living Strategy. Retrieved from http://www.phac-aspc.gc.ca/hl-vs-strat/pdf/hls_e.pdf)

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Provincial Governmental Level Frameworks (Canada)			
THE BRITISH COLUMBIA AGRICULTURE PLAN*: GROWING A HEALTHY FUTURE FOR B.C. FAMILIES*			
The B.C. Agriculture Plan provides a vision for a "continued development and growth of an economically viable and resilient agriculture and food sector which contributes significantly to: - health of British Columbians; - climate change mitigation; - environmental sustainability; - a growing B.C. economy".	There are a number of actions that the Ministry of Agriculture and Lands highlighted in its commitment to implement strategies identified in the Agriculture Plan. While the Ministry of Agriculture and Lands has taken the lead in implementing the Plan and in delivering programs, these action items also involve other provincial agencies, local/ regional governments and community and industry groups with various implementation timelines.	**Eat B.C.!**,is an industry-led marketing program promotes awareness of local B.C. food. This initiative piloted by the B.C. Ministry of Agriculture and Lands in partnership with the B.C. Restaurant and Foodservices Association connects local chefs, growers, distributors & retailers. The new **"Food Miles"** program helps educate and encourage consumers to buy local food by featuring regional branding. **EatSmartB.C. program** developed to provide easy access to information about food safety and healthy eating. **The ActNow! B.C.** provides a coordinated cross-governmental and cross-sectoral platform to promote, support and encourage agri-food industry initiatives and activities that proactively "make the healthy choice the easy choice" for British Columbians, and to provide as many B.C. products as possible to meet their healthy food choices (e.g. *The School Fruit and Vegetable Snack Program* and the B.C. Dairy Foundation's *Elementary School Milk Program*). **Climate Action Project**, initiated to assess: the impact of climate change on agriculture and agri-food, and the sector's challenges and opportunities in responding within an agricultural Climate Change Action Plan.	The B.C. Agriculture Plan highlights the importance of integrating food and agriculture policies in B.C. outlining strategies for sustaining the agriculture industry under five key themes: **1. Producing local food in a changing world** where the province "will enhance its market brand to profile high-quality products" and provide its population with "access to safe, locally produced food". **2. Meeting environmental and climate challenges** through "shifts in farm practices, development of new local markets and the advancement of new technology". **3. Building innovative and profitable family farm businesses** by "shifting its role toward extension, training, research and advisory services and away from direct income for farmers". **4. Building First Nations agriculture capacity** by creating "new opportunities to develop agricultural capacity for healthier communities". **5. Bridging the urban/agriculture divide** to strengthen the future of farming through "new policies targeted to allow generations of farming families to operate viable and integrated farm-related businesses". *(Source:* British Columbia Ministry of Agriculture and Lands. (2006). The B.C. Agriculture Plan: Growing a Healthy Future for B.C. Families. Retrieved from http://www.al.gov.bc.ca/Agriculture_Plan/Agriculture_Plan.pdf)

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MAKING THE FOOD-HEALTH CONNECTION - *AN ALBERTA FRAMEWORK FOR INNOVATION*			
An Alberta Framework for Innovation is an overarching approach to guide future provincial investments leading to food and health innovations that improve health and economic outcomes. Vision: "Albertans benefit from producing and eating food that makes them healthier. Alberta businesses participate in the global market place for healthy food products." The overall goal of the framework is to attract and grow local companies that will provide differentiated health-based food products such as functional foods, natural health products, fresh foods or products with improved nutritional value.	The next steps of this project is to develop a five year action plan involving health, food/agriculture and innovation sectors that will identify the project milestones needed to implement the strategies identified in the framework. The project recognizes that long-term success will require a solid foundation of partnerships among the players in the food and health system.		The Alberta Framework links agriculture, food and health in a cross-ministry strategy with the following desired key outcomes: - "Government policy facilitates the development of new healthy foods and promotes healthy lifestyle choices, including the consumption of healthier foods". - An efficient "lab-to-industry innovation pipeline that results in development of new, Alberta-based healthy food products". - "Healthy food choices are affordable and readily available". - New "commercially competitive healthy food and food products". - Well-informed population "in nutrition and health outcomes". The proposed actions include: - "Respond to consumer demands by developing healthy new products and reformulating existing products. - Facilitate knowledge transfer and partnerships among industry, academia and government. - Advance expansion and availability of fresh locally produced foods. - Invest in new technologies (e.g. genomics) to provide businesses with a competitive advantage. - Increase Albertans' knowledge about healthy food and lifestyle choices. - Develop healthier food environments". *(Source:* Alberta Life Sciences Institute. (July 2008). Making the Food-Health Connection. *An Alberta Framework for Innovation.* Retrieved from http://alsi.alberta.ca/media/39569/making%20the%20food-health%20connection.pdf)

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Food for Health – Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Strategic Research Themes			
Under the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) and University of Guelph (UofG) Agreement of 2008, OMAFRA determined research themes and engaged in a process which outlined the priorities for 2008-2012. One of the research themes – Food For Health – is intended "to help guide the OMAFRA research agenda to address the significant potential to improve health through food". OMAFRA calls for policy research that addresses its policy objectives. The vision behind the policy is most clearly described by the following: "Ontario's agri-food sector will be innovative, sustainable and provide opportunity for profit for all participants. We will be globally competitive and the supplier of choice by responding to consumer needs and contributing to provincial prosperity, the environment and the health of citizens".	The ministry envisions the annual revisiting of theme priorities as is required under the OMAFRA/ UofG Agreement. This is an ongoing process which will incorporate stakeholder input and serve to reconfirm the importance of current priorities, refocus energy toward emerging priorities, and reassess short or medium term direction research themes.	**The Pick Ontario Freshness** marketing strategy focuses on building awareness of and demand for the fresh, high-quality foods grown and produced in Ontario. It encourages consumers to purchase Ontario foods in grocery stores, and restaurants across the province.	**Core components** of the Food for Health theme include societal and environmental drivers for food for health; consumer behaviour; linkages between food and health and how food impacts long-term health and healthcare costs; bioactives and food profiling; food processing and food for health; economic implications for farmers, rural communities, agri-food companies, and employees across Ontario; development of research capacity in Ontario; and barriers to innovation in food for health". **Research Areas and Priorities** include: - "Ontario **agriculture and food industry** can be leaders in producing, promoting and ultimately profiting from products that are **healthier for consumers**. - **Bioactives, functional foods and new healthy food products** - Developing policies and strategies to support **healthier choices by consumers** and to create new health focused societal models of behaviour. - **Understanding linkages between food and health** - Review the effect that **policies, regulations and research funding** have on the development of new niche products and markets". *(Source:* Ontario Ministry of Agriculture, Food and Rural Affairs. (2008). Food for Health. Retrieved from http://www.omafra.gov.on.ca/english/research/priorities/foodforhealth.htm)

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ONTARIO'S ACTION PLAN FOR HEALTHY EATING & ACTIVE LIVING			
Ontario's Action Plan for Healthy Eating & Active Living has created a forum to link cabinet ministers with mandates to support healthy eating and active living, and to improve the coordination of policies and programs. The Action Plan is part of a worldwide response to reduce chronic disease by targeting nutrition and physical activity.	In its consultation report titled "Moving the Healthy Eating and Active Living Strategy Forward in Ontario" the Ontario Chronic Disease Prevention Alliance proposed implementation of the four priorities for action to move the Strategy forward.	**Northern Fruit and Vegetable Program.** The primary mandate of the program is to increase the intake of fruit and vegetables of elementary school age children. The underlying goal is to promote healthy eating and wellness while increasing children's awareness of the benefits of eating fruit and vegetables. **Eat Smart!**, a voluntary program that establishes criteria and recognizes cafeterias and restaurants that provide healthy food choices.	The ministry is committed to the following four key strategies to make healthy eating and active living easier for all Ontarians: - **Grow healthy children and youth** (support Healthy Schools; improve access to healthy food) - **Build healthy communities** - **Champion healthy public policy** - **Promote public awareness and engagement** (*Source:* Ontario Ministry of Health Promotion. (2006). Ontario's Action Plan for Healthy Eating and Active Living. Retrieved from http://www.mhp.gov.on.ca/english/health/HEAL/actionplan-EN.pdf)
***INVESTING FOR THE FUTURE.* 2006–2012 QUEBEC GOVERNMENT ACTION PLAN**			
The Action Plan aims to improve the quality of life of Quebecers by creating environments that foster healthy lifestyles, especially physically active lifestyles and healthy eating.	Following consultations and initiatives coordinated by the Ministère de la Santé et des Services Sociaux, each ministry has determined the course of action it will pursue over the next few years.	In keeping with this Action Plan, several ministries, in conjunction with the Quebec Ministry of Health and the Quebec Ministry of Agriculture, are publishing the ***Framework Policy on Healthy Eating and Active Living***. *The Framework* demonstrates the firm intention of the government to ensure that food supplied in the schools promote the adoption of healthy eating habits with the following priority elements: - To offer a variety of foods with good nutritional value; - To provide a variety of fruits and vegetables; - To reduce the fat content of meats; and, -To eliminate foods of low nutritional value from all school food supplies.	The Action Plan identified four main focuses of intervention. They are: to promote and support the development of environments conducive to the adoption of healthy eating habits and a physically active lifestyle; to promote favourable social standards; to improve services for people with weight-related problems; and to promote research and the transfer of knowledge. (*Source:* Québec Ministère de la Santé et des Services Sociaux. (2006). *Investing for the Future* Quebec Action Plan to promote healthy lifestyles and prevent weight-related problems. Retrieved from http://publications.msss.gouv.qc.ca/acrobat/f/documentation/2006/06-289-01.pdf)

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Municipal Governmental Level Frameworks (Canada)			
TORONTO FOOD STRATEGY			
The goal of the Toronto Food Strategy is to develop an action plan to improve the food system to better support good nutrition, healthy development and disease prevention, a strong local economy, environmental protection and climate change action, and the promotion and celebration of culture and community through food.	The Food Strategy will flow from an analysis of each stage of the food system through a health lens. The structure for developing the strategy will be multi-sectoral and interdisciplinary, with expertise and input from a wide range of food sectors. It is anticipated that a draft Toronto Food Strategy can be completed by winter 2008-2009 with a public consultation process in spring 2009. As a first step in the process, Toronto Public Health office drafted a background paper, entitled "The State of Toronto's Food." The paper highlights current trends related to a broad range of food system activities.	**A Snack Vending Machine Policy** is being proposed to increase the range of healthier food choices. The nutrition standards are organized by food group according to *Eating Well with Canada's Food Guide*. **Community and School Gardens** promote healthy eating, active living and contribute to a healthy environment. **Farmers' Markets** - Toronto has a number of farmers' markets that help connect Torontonians to farmers and offer an opportunity to buy fresh, locally-grown foods.	The strategy is envisaged around the following principles: - locally grown, locally raised and locally processed food; - supports the local economy, especially, Ontario's farmers and their suppliers; - connects farmers and consumers; - an action plan to ensure that Toronto's food system improves health, promotes economic development and protects the environment. *(Source:* Toronto Public Health and the Board of Health. (June 2008). Proposal for Development of a Toronto Food Strategy. Retrieved from http://www.toronto.ca/health/boh_pastreports/061608_boh_pastreports.htm#001)

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Global Governmental Level Frameworks			
WHO Global Strategy on Diet, Physical Activity and Health			
The **overall goal** of the WHO Global Strategy is to promote and protect health through healthy eating and physical activity.	Since adoption of the WHO Global Strategy in 2004, there has been an **acceleration of the development and implementation** of national policies, plans and programs to promote a healthy diet. - The WHO has been working alongside other stakeholders in order to provide technical assistance and support for the Strategy's implementation. - Interactions have taken place with international organizations and bodies to promote the objectives of the Strategy. - The WHO has been working with the FAO and the Codex Alimentarius Commission Secretariat to explore how the Codex Alimentarius, as the system setting food standards and guidelines to protect the health of consumers, can support the implementation of the Strategy. - Informal agreements have been reached between global NGOs and WHO in order to support the implementation of public health objectives identified in the Strategy.	**WHO/FAO Framework for Promoting Fruit and Vegetable Consumption for Health** This framework guides the development of cost-efficient and effective interventions for the promotion of adequate fruit and vegetable production and consumption worldwide.	The WHO Global Strategy sets out recommendations for national governments. Canada has addressed or is in the process of addressing all of the following recommendations: **For diet,** recommendations for populations and individuals: - Achieve energy balance and a healthy weight; - Limit dietary intake of free sugars; - Limit energy intake from total fats and shift fat consumption away from saturated fats to unsaturated fats and towards the elimination of *trans* fatty acids; - Increase consumption of fruits, vegetables and legumes, whole grains; nuts - Limit salt (sodium) consumption from all sources", ensure that salt is iodized. Specific recommendations to the food industry include the following: - "limit the levels of saturated fats, transfatty acids, free sugars and salt in existing products; - Consider introducing new products with better nutritional value; - Practice responsible marketing that supports the Strategy, particularly with regard to the promotion and marketing of foods high in saturated fats, *trans*-fatty acids, free sugars/salt, especially to children". To facilitate the adoption of healthy diet, the Strategy calls attention to national food and nutrition policy which "should cover food safety and sustainable food security". The Strategy also encourages governments "to examine food and agricultural policies for potential health effects on the food supply". *(Source:* World Health Organization. (2004). Global Strategy on Diet, Physical Activity and Health. Retrieved from http://www.who.int/dietphysicalactivity/strategy/eb11344/strategy_english_web.pdf)

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WHO Global Strategy for Food Safety: Safer Food for Better Health			
The primary goal of the WHO Global Strategy for Food Safety is to reduce the health and social burden of foodborne disease through advocating and assisting in the development of risk-based, sustainable, integrated food safety systems; developing science-based measures along the entire food production chain; and assessing, communicating and managing foodborne risks, in cooperation with other sectors and partners.	The WHO is now elaborating a more detailed long-term workplan outlining specific activities and initiatives to ensure the Strategy's success. The Strategy is predicated on a long-term commitment to food safety as a means of improving public health, which will be reflected in medium and long-term workplans.	**Healthy Food Markets Initiative**, an approach for promoting food safety and related environmental health issues which seeks to improve food safety from production to consumption and fosters partnerships among food suppliers, government and consumers.	Canada supports the goals of the WHO Global Strategy for Food Safety. The approaches of the Strategy are: - "Strengthening surveillance systems of foodborne diseases; - Improving risk assessments; - Developing methods for assessing the safety of the products of new technologies; - Enhancing the scientific and public health role of WHO in Codex; - Enhancing risk communication and advocacy; - Improving international and national cooperation; - Strengthening capacity building in developing countries". *(Source:* World Health Organization. (2002). WHO Global Strategy for Food Safety: Safer Food for Better Health. Retrieved from http://www.who.int/foodsafety/publications/general/global_strategy/en/)
Comprehensive Framework for Action (CFA). High-Level Task Force on the Global Food Security Crisis			
The CFA is a framework for setting out the joint position of High-Level Task Force (HLTF) members on proposed actions to: 1) address the current threats and opportunities resulting from food price rises; 2) create policy changes to avoid future food crises; and 3) contribute to country, regional and global food and nutritional security.	It is envisaged that a "Madrid Declaration" will be endorsed by Ministers and then agreed at the conclusion of the HLTF meeting held in Madrid in 2009. This will reaffirm conclusions of the Rome conference and the CFA; indicate policies and actions to address both immediate and longer term challenges to food security; describe the process through which stakeholders will work out a broader partnership on agriculture and food security; identify the potential for increasing and improving the effectiveness of financial contributions.	Current actions by the UN and Bretton Woods Institutions to address the global food crisis: - Improve access to food and nutrition support and take immediate steps to increase food availability (e.g. OCHA: CERF Response to the Effects of Current Food Price Crisis; FAO Initiative on Soaring Food Prices)	Canada continues to be part of the global framework and is taking steps towards helping to address food insecurity and the following priority goals set out in the CFA: - Emergency food assistance, nutrition interventions and safety nets to be enhanced and made more accessible. - Smallholder farmer food production to be boosted by increasing access to costly agricultural inputs and by rapid improvement of agricultural infrastructure. - Trade and tax policies to be adjusted as appropriate. *Source:* United Nations The Secretary-General's High-Level Task Force on the Global Food Security Crisis. (July 2008). Comprehensive Framework for Action. Retrieved from http://www.un.org/issues/food/taskforce/cfa.shtml)

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THE WHO COMMISSION ON SOCIAL DETERMINANTS OF HEALTH			
The Commission fosters a global movement for change with a clear evidence of concern about the scale of inequity emphasizing the lack of food production and food security with its global impact to ensure the availability of and access to healthy diets for children by improving food security.	To address the social determinants of health, the implementation plans are currently in development at global and national levels following the 2008 final report of the WHO Commission on the Social Determinants of Health in its call to close the gap in a generation.	*"Health Equity Through Intersectoral Action: An Analysis of 18 Country Case Studies"* – this synthesis is part of a joint initiative between the World Health Organization and the Public Health Agency of Canada, to increase knowledge and application of effective intersectoral approaches. The report provides an analysis of key learnings about intersectoral action for health and health equity.	Canada plays a key role in advancing the action on social determinants of health and supports the following recommendations of the Commission on health and health equity: - For local government and civil society to "encourage healthy eating through retail planning to manage the availability of and access to food"; - For government "to develop regulatory strategies to address the impact of globalized food production and trade on the nutritional quality of national and local diets. Food-related policy-making and trade agreements need to concentrate on the three key aspects of nutrition and health equity: availability, accessibility, and acceptability"; - For national government to "establish a whole-of-government mechanism" ensuring its "coherent consideration across all policies". *(Source:* World Health Organization. (2005). Commission on Social Determinates of Health, 2005-2008. Retrieved from http://www.who.int/social_determinants/thecommission/en/index.html)

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Other Governmental Level Frameworks (OECD Countries)			
FOOD MATTERS: TOWARDS A STRATEGY FOR THE 21ST CENTURY			
The UK project on food and food policy aims to: 1) review the main trends in food production and consumption in the UK; 2) analyze the implications of those trends for the economy, society and the environment; 3) assess the robustness of the current policy framework for food; and 4) determine what the objectives of future food strategy should be and the measures needed to achieve them.	In July 2008, the UK Cabinet office published the results of a ten-month Strategy Unit project looking at food policy across Government – and concluded that rising demand, climate change, and trade and productivity restrictions must all be addressed. The report commits the UK Government to consulting the public and stakeholders on many of its conclusions. This work will be led by Environment, Food, and Rural Affairs (DEFRA). Annual reports of progress against the report's recommendations will be published in 2009-2010. To put a new food policy framework for the UK in place, the Cabinet Office will set up a Food Strategy Task Force. As a first step, in 2008 DEFRA published a paper entitled "Ensuring the UK's Food Security in a Globalised World". This report sets out the key factors which affect food supply and pricing, and encourages discussion with stakeholders about ensuring long-term food security.	The Department of Health will take forward the development and launch of a new **"Healthier Food Mark"** for public food. The new mark will be awarded to catering companies who serve the public sector if they meet certain criteria. These criteria includes the design of menus, sourcing ingredients that are lower in saturated fat, salt and added sugar, preparation and presentation of food, including portion sizes, and procuring environmentally sustainable food. **5 A DAY Initiative** aimed at increasing fruit and vegetable consumption. The initiative's renewed focus aimed at increasing fruit and vegetable consumption in specific population groups who are least likely to consume fruit and vegetables, and on working with industry to expand the range of products that can count towards the 5 A DAY target.	Canada lacks a comprehensive food policy to deal holistically with food systems and to ensure cross-governmental policies. The UK undertaking of the project on food and food policy is a timely model of setting out a future strategic framework for food policy and practical measures for addressing issues around food and health, food and the environment and other concerns which draws together evidence about long-term trends in food production and consumption, and how food safety and nutrition impact on the health of the UK. Some key recommendations are: - For Government to "launch a public engagement about a more joined-up approach to UK food policy that pursues fair prices, safer food, healthier diets and better environmental performance"; - For DEFRA "to develop and engage the public and food businesses in a new shared vision to guide future food strategy". - "to continue to focus on fair prices, access to food and food security through competitive markets"; - "to promote the role of agriculture in mitigating and adapting to climate change"; - "to get the public sector in England providing healthier, more environmentally sustainable food"; - "improving the clarity of messaging to consumers"; and - "making further progress with the 5 A DAY campaign to increase average daily consumption of fruit and vegetables is a priority". *(Source:* UK Cabinet Office. (July 2008). Food Matters: Towards a Strategy for the 21st Century. Retrieved from http://www.cabinetoffice.gov.uk/strategy/work_areas/food_policy.aspx)

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ETP EUROPEAN TECHNOLOGY PLATFORM *FOOD FOR LIFE*			
The ETP seeks to deliver: - a platform for effective, consumer-oriented, and improved food products; - a forum for ensuring an effective approach to integrating "strategically-focused, trans-national, research in the nutritional-, food- and consumer sciences and food chain management; - training and education in multiple disciplines relevant for the food and nutrition". These products "will have a positive impact on public health. Such targeted activities will support a successful and competitive pan-European agro-food industry having global business leadership securely based on economic growth, sustainable food production and consumer confidence".	The ETP Food for Life Vision for 2020 and beyond was launched in Brussels in 2005. The next step which is currently underway is the development of a Strategic Research Agenda for a strategy to achieve this vision and to meet the innovation challenge, and a detailed Implementation Plan that describes the research, training, education and dissemination requirements needed to fulfill the vision and strategy. The immediate focus is on defining the requirements and priorities for the EU Commission's Framework Programme 7, the EU's main instrument for funding research in Europe which will run from 2007-2013. In the longer term this focus will be broadened to include nationally-funded initiatives.	**Joint Technology Initiatives** provide an entirely new mechanism to support long-term research through setting up long-term public-private partnerships, involving industry, the research community and public authorities. **ERA-NET Consortium SAFEFOODERA** aims to strengthen the European scientific base and food safety research. "In addition, the ETP has proposed that the European Commission consider support for the establishment of two more ERA-NETs on *Food and Health*, and *Sustainable Food Production/Food Chain Management"*. The ETP has responded to the **Lead Market Initiative** by identifying Healthy Foods as "a sector where the greatest market growth opportunities lie and which reflects the increasing consumer desire for a healthy and varied diet. Analysis of the issues facing this sector will cover areas that, in addition to R&D issues, will require future action for market success".	The three key thrusts identified by the ETP "Food for Life" for the food sector are also at the core of many Canadian frameworks. The key thrusts are as follows: **1: Improving health, well-being and longevity** includes the issue of obesity as one of the priority areas. **2: Building consumer trust in the food chain** identifies the following research challenges: - innovation; - sustainable safety of European food systems; and - consumer trust in the food system. **3: Supporting sustainable and ethical production** *(Source:* European Technology Platform Food for Life. (July 2005). Retrieved from http://etp.ciaa.be/asp/home/welcome.asp)

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Disease Specific Frameworks (Canada)			
Canadian Diabetes Strategy			
The goal of the Canadian Diabetes Strategy is to "provide an integrated, comprehensive, multi-sectoral, and sustainable approach to preventing and controlling diabetes". The Strategy recognizes that "one of the challenges in preventing diabetes is food access and security".			The recommendations for policy actions include: - Creating an environment in which "healthy choices in terms of nutrition and physical activity are easy choices"; - Programs and services in the community should support individuals with diabetes by encouraging and enabling healthy food choices and the access to healthy food. *(Source:* Public Health Agency of Canada. (1999). Canadian Diabetes Strategy. Retrieved from http://www.phac-aspc.gc.ca/cd-mc/diabetes-diabete/diabetes_strategy-diabete_strategie-eng.php#nat)
Canada's New Heart Health Strategy and Action Plan: Building a Heart Healthy Canada and Realizing our Vision			
The new Heart and Health Strategy and Action Plan for Canada will persuade people to adopt healthier lifestyles to achieve less chronic disease goal through a whole-of-Canada approach.	A report, released on Feb. 24, 2009 in Ottawa proposed an action plan on the development of a new Heart Health Strategy to fight heart disease in Canada, which will be closely aligned with the existing national strategies in stroke and diabetes. The action plan was initiated after a private member's bill and was introduced in the House of Commons in 2005, urging for the introduction of national strategies targeting heart disease and other chronic ailments. The new strategy will be undergoing a review.	There have been initiatives in place to address certain aspects of heart health, such as the **Canadian Heart Health Initiative**, which focused on prevention and promotion in the late 1980s, 90s. Currently, the **Canadian Stroke Strategy** focuses on access to integrated, high-quality and efficient services for stroke prevention, treatment, rehabilitation and community reintegration. At the provincial/territorial, regional and community levels, there are many **heart health programs** by governments, NGOs and the voluntary sector that use a range of approaches and initiatives related to chronic disease prevention and control, and health promotion. These include initiatives to address common major risk factors such as smoking, physical activity and healthy eating.	The new action plan made six key recommendations to fight heart disease and stroke nationwide, including creating "heart-healthy" environments and helping Canadians lead healthier lives highlighting a need to make healthier foods available. One of the suggestions made in the plan was to establish regulations for the amount of salt added to processed foods sold in Canada. Benchmarks that will lead to significant benefits to the overall health of Canadians and to the economy, and expected results include the following: By 2015 (in partnership with other strategies and initiatives): - 20% more Canadians eating at least five servings of vegetables and fruit per day - 20% more physically-active Canadians - 20% fewer obese or overweight adults - 35% fewer obese children *(Source:* Canadian Heart Health Strategy and Action Plan. (February 2009). Retrieved from http://www.chhs-scsc.ca/)

Name/Vision and Goal of Initiative	Current Status	Related Policies, Programs/ Initiatives	Relevance to the Vision, Goals and Approaches of the Integrated Health and Agri-Food Strategy for Canada - Synergies, Gaps or Conflicts
CANADIAN STRATEGY FOR CANCER CONTROL			
The Canadian Strategy for Cancer Control is a coordinated, comprehensive approach to managing cancer in Canada. It harnesses the strengths of Canada's federal system of government and province-based health care.	In 2006, the Federal Government committed $260 million over 5 years to implement the Strategy which is overseen by the Canadian Partnership Against Cancer, a new, independent and not-for-profit corporation to implement the eight strategic priorities of the Canadian Strategy for Cancer Control.		The initial priority areas are: • Cancer Prevention and Early Detection; • Supporting the Cancer Patient's Journey; • Supporting the Cancer Workforce; • Encouraging Cancer Research; and • Improving Cancer Information and Access. (*Source*: Canadian Cancer Society. (July 2006). Canadian Strategy for Cancer Control: a Cancer Plan for Canada. Discussion Paper. Retrieved from http://www.cancer.ca/canada-wide/how%20you%20can%20help/take%20action/advocacy%20what%20were%20doing/cancer%20control.aspx?sc_lang=en)

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