NUTRI-NET CANADA

WORKING TOGETHER FOR A HEALTHY CANADA

A STRATEGY FOR THE CANADIAN FUNCTIONAL FOODS & NATURAL HEALTH PRODUCTS SECTOR

Haisley Millar Consulting Group Inc.
5/8/2008

Table of Contents

TABLES & FIGURES

Acknowledgements

Thanks are due to *Ms. Anne Wilkie, Vice President, the Canadian Health Food Association (CHFA) for* her guidance and leadership as Chairperson of Nutri-Net Canada during the process leading up to the publication of this sector strategy.

The individual members of the *Nutri-Net Canada (NNC) Steering Committee*, and the organizations which they represent, warrant recognition for their sustained work in developing both the concept of NNC and the regulatory, market studies and regional workshops. The enabling funding for this activity that was provided under the Science and Innovation Broker Program by *Agriculture and Agri-Foods Canada (AAFC)* is gratefully acknowledged. . The individuals that have served as Nutri-Net Canada Steering Committee members, listed in alphabetical order, are:

- John Argall, Executive Director, BioAtlantech, NB;
- Rhonda Barton, formerly Coordinator of Wellness West;
- Richard Cloutier, Vice-président Développement, Centre Québécois de Valorisation des Biotechnologies (CQVB);
- Ann Eastman, Manager - Emerging Sectors, BC Ministry of Agriculture and Lands, representing Natural Health Products Research Society of Canada;
- Kelley Fitzpatrick, Chair, Western Canadian Functional Food and Natural Health Product Network;
- John Kelly, Executive Director, MaRS Landing;
- Connie Kehler, Executive Director, Canadian Herb, Spice and Natural Health Product Coalition;
- Tamara Kononoff, Industrial Technology Advisor, National Research Council, representing Wellness West;
- Isabelle Marquis, Director, Nutra-Innovation Network (CQVB);
- Lisette Mascarhenas, Vice-President, Health and Nutrition, Ag-West Bio Inc.;
- David Sparling, Associate Dean, College of Management and Economics, University of Guelph, representing the Advanced Food and Materials Network;
- Craig Urton, Investment Manager, AVAC Ltd.; and
- Anne Wilkie, Vice President & Head of Regulatory Affairs, Canadian Health Food Association.

Acronyms

AAFC	Agriculture and Agri-Food Canada
CFDA	Canadian Food and Drugs Act
CHFA	Canadian Health Food Association
CQVB	Centre Québécois de Valorisation des Biotechnologies
DFAIT	Department of Foreign Affairs and International Trade
FDI	Foreign Direct Investment
FF	Functional Foods
FFNHP	Functional Foods & Natural Health Products
GDP	Gross Domestic Product
MNC	Multi-National Company
NGO	Non-Governmental Organization
NHP	Natural Health Products
NHPD	Natural Health Products Directorate
NHPR	Natural Health Products Regulations
NNC	Nutri-Net Canada
NPD	New Product Development
R&D	Research & Development
RAP	Regulatory Assistance Program
SR&ED	Scientific Research and Experimental Development Program
TOR	Terms of Reference

Definitions

Functional Food /Nutraceutical: The terms "*nutraceutical*" and "*functional food*" are commonly used terms but, to date, there is not an international consensus on their meaning, presenting challenges in research and analysis. The *Food Directorate of Health Canada's Bureau of Nutritional Sciences* has proposed the following working definitions[1]:

- A ***functional food*** is similar in appearance to, or may be a conventional food, is consumed as part of a usual diet, and is demonstrated to have physiological benefits and/or reduce the risk of chronic disease beyond basic nutritional functions.
- A ***nutraceutical*** is a product isolated or purified from foods, generally sold in medicinal forms not usually associated with food. A nutraceutical is demonstrated to have a physiological benefit or provide protection against chronic disease.[2]

Natural Health Products: The Natural Health Product Regulations, pursuant to the *Food and Drugs Act*[3] defines natural health products as a substance or a combination of substances in which all the medicinal ingredients are set out in Schedule 1. A natural health product could be a homeopathic or a traditional medicine that is manufactured, sold or represented for use in:

- The diagnosis, treatment, mitigation or prevention of a disease, disorder or abnormal physical state or its symptoms in humans;
- Restoring or correcting organic functions in humans; and
- Modifying organic functions in humans, such as modifying those functions in a manner that maintains or promotes health.[4]

---

[1] http://www.hc-sc.gc.ca/fn-an/label-etiquet/nutrition/claims-reclam/nutra-funct_foods-nutra-fonct_aliment_e.html

[2] The definition presented here is not a regulatory definition. In fact, most of the nutraceuticals fall under the definition of Natural Health Products.

[3] http://canadagazette.gc.ca/partII/2003/20030618/html/sor196-e.html

[4] However, a natural health product does not include a substance set out in Schedule 2, any combination of substances that includes a substance set out in Schedule 2 or a homeopathic medicine or a traditional medicine that is or includes a substance set out in Schedule 2. Readers should note that the regulatory definition for natural health product encompasses the definition of nutraceutical when the product is sold in dosage form. Moreover, Health Canada's current policy (1998) is that when incorporated into a food, that food becomes a drug until specifically exempted from the Food and Drug Regulations provisions that apply to drugs. Accordingly, the term "*nutraceutical*" is not considered relevant to the development and implementation of this sector strategy.

The Canadian FFNHP Sector: is that sector of the national economy involved in the commercial production and sale of FFNHP goods, services and technologies. It is comprised of producers, growers/collectors, harvesters, researchers/developers, analytical laboratories, processors, manufacturers, packaging and distribution, wholesalers and exporters, and retailers.

Timeframes: in the context of this document, short-term is defined as a period from 0-12 months inclusive; medium-term is defined as 13-36 months inclusive; and longer-term as 37 and over months.

Working Together for a Healthy Canada

Functional foods and natural health products (FFNHP) are formulated to provide health benefits to consumers. Leading health care economists continue to demonstrate significant reductions in health care costs (in the billions of dollars) attributable to the regular use of selected functional foods and natural health products in target populations sub-groups

Much of Canada's health care expenditures are related to preventable chronic diseases and adverse health outcomes. Canadians' personal expenditures on medical care and health services were in excess of $47 billion in 2007. Combined spending of provincial and territorial governments on health care was in excess of $101 billion in 2007. [5] This illustrates that even a one per cent reduction in health care expenditures arising from greater use of functional foods and natural health products would save approximately $1.5 billion annually.[6]

The ***Canadian Functional Food and Natural Health Products (FFNHP)*** sector has the potential to realize such savings for Canada by delivering to Canadians non-invasive, preventative and innovative products, many of which can be added to everyday foods – milk, juice, cereals, etc., without loss of taste while enhancing nutritional performance. The health benefits of functional foods and natural health products are globally recognized yet under-recognized within Canada's public policy and regulatory environment. This is but one challenge come opportunity faced by this growing sector.

This strategy document is the first to be developed for the Canadian FFNHP sector. This sector strategy has been developed through more than two years of collaboration and consultation led by industry and provincial government bodies sharing interest in the advancement of Canada's functional food and natural health products industries. This alliance of organizations coalesced in 2005 under the banner of *Nutri-Net Canada (NNC)*, foreseen to be the key organization that will serve as the catalyst and facilitator for implementation of the strategy in 2008 and years to follow.

This sector strategy addresses the challenges of recognition, acceptance and communication of benefits. The strategy also identifies the prerequisites for future growth and prosperity of the FFNHP sector in Canada, and proposes the implementation of a set of "*keystone programs*" for immediate implementation as well as complementary steps to move the sector forward in a sustainable manner.

---

[5] Statistics Canada - CANSIM

[6] Estimated by Haisley Millar Consulting Group from CANSIM statistics

Given the current regulatory environment and market conditions, many functional ingredients are introduced to consumers first as natural health products, then as functional ingredients in food products. Because of this the supply chains, research initiatives, target markets, investment requirements and regulatory objectives of the Canadian functional food (FF) and natural health products (NHP) industries are often discussed interchangeably and can be considered to be one emerging functional food and natural health product (FFNHP) sector.

The following sector strategy takes a longer-term perspective but its primary focus is on short and medium term objectives and activities. Much needs to be done and time is of the essence if the potential of this sector, its products and technologies is to be realized -- the potential to contribute greatly to the health of Canadians and the Canadian economy.

This strategy identifies many activities deemed necessary to the future growth and development of the FFNHP sector. However, their implementation is dependent upon the availability of both human and financial resources and leadership offered by other stakeholders. Key activities have been identified to be implemented in the coming fiscal year. This strategy will be re-evaluated and "*fine-tuned*" on an ongoing basis.

The vision of the FFNHP industry is:

To be globally competitive and at the heart of a healthy Canada.

Moreover, its mission is to:

- ***Be at the forefront of FFNHP innovation***;
- ***Achieve sustainable growth and profitability, through domestic and international collaboration and market development***; ***and***
- ***Create safe and effective products that sustain and promote the health and wellness of Canadians***.

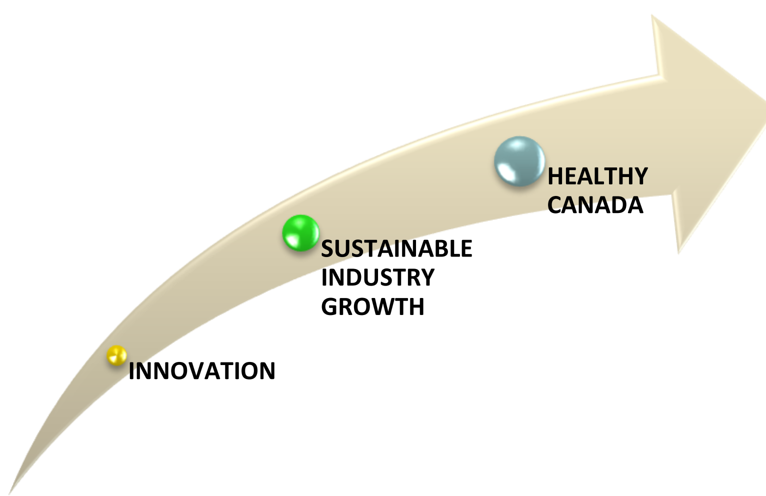

Figure 1: Working Together for a Healthy Canada

Sector Overview

The U.S., Western Europe and Asia-Pacific account for 85 percent of the world market value.[7] The Canadian FFNHP sector currently has roughly a 2.6 percent share ($3.2 billion) of the more than $100 billion global market for functional foods and dietary supplements (NHPs).[8] Based upon projected global market growth and without Canadian FFNHPs taking a greater market share, the Canadian FFNHP sector could expect to double market revenues to over $6 billion by 2010.[9] Canada is emerging as an important world supplier in the growing FFNHP market due to its diversified agricultural base and its innovative spirit and is well positioned to take advantage of:

- Global demographic, economic and social drivers;
- Anticipated modernization of Canada's regulatory environment designed in part to allow greater and more strategic use of health claims;
- The increasing recognition of the links between diet and health and agriculture and health; the impact of a healthy diet in reducing the risk of chronic diseases such as cardiovascular disease, diabetes and cancer;
- The increasing public scrutiny of multi-national food companies (MNC) in the wake of a growing childhood obesity epidemic and other health concerns;
- Concern of rising health expenditures; demographic drivers such as aging populations - the "*baby boom*" generation and their interest in '*healthy living*' during longer lifespans;
- The increasing affluence and education among world populations; and
- Consumer dissatisfaction with conventional (Western allopathic) medical treatments, therapies and pharmaceuticals.

Opportunities for market growth and development exist within consumer behavioural trends in North America and other markets that include:

- Growing interest in digestive health;
- Healthy aging – delay and prevention of conditions associated with later years;
- Body weight management;
- Healthier snack foods;
- Sports nutrition;
- Better nutrition in early childhood and adolescence;

[7] Global Nutrition Industry (2002), Nutrition Business Journal, Vol. 6, No. 8/9

[8] Scott Wolfe Management Inc., 2002

[9] Haisley Millar Consulting Group projections based on available market data value and growth statistics

- Healthy pregnancies; and
- Prevention of chronic diseases and adverse health outcomes.

The opportunities and industry response have been illustrated in a number of studies in recent years. A 2005 study for the *Canadian Health Food Association (CHFA)* revealed that Canadian Natural Health Products industry doubled its size in less than ten years and as of 2005 enjoyed over $2.5 billion in retail sales in Canada and employed over 25,000 Canadians in retail, wholesale and production.[10]

A 2005 Statistics Canada survey[11] reported that of 389 firms active in the manufacturing, importation and distribution of functional foods and natural health products, 118 firms produced functional foods products, 174 firms produced natural health products and 97 firms produced both. Their combined revenue was $2.9 billion in 2004, of which $823 million came from firms producing functional foods, $1.6 billion from firms producing natural health products, and $442 million from firms producing both. Exports of FFNHP products amounted to $545 million in 2004, with the majority originating from NHP firms ($356 million). The most common destination for exports was the U.S.[12]

The current sales volume and related contribution to the Canadian economy is difficult to quantify precisely since many foods that are considered"*functional*" by consumers are not yet defined as such by regulation and thus are not able to carry approved health claims. What is very clear from the analysis completed for NNC by Nielsen Canada (formerly ACNielsen) is that a very large number of packaged foods and beverages on Canadian retail grocery shelves are formulated and labelled with consumer interest in health in mind. A limited "*basket*" (selection) of such products identified by source claims/content labelling for dietary fibre, omega-3 fatty acids, probiotic and/or vitamin/mineral fortification grew by approximately 21 percent in sales value between 2006 and 2007.

A recent study completed for NNC by the George Morris Centre examined the Canadian FFNHP market and the potential for the FFNHP sector to contribute to the Canadian economy. The study indicated that the FFNHP sector could contribute up to $12 billion annually, generating employment in excess of 50,000 jobs.[13]

---

[10] Leverus Inc.

[11] Results from the Functional Foods and Nutraceuticals Survey – 2005, Robert Palinic, Statistics Canada

[12] *Note*: overlapping and/or differing statistics are due to a lack of consistency in the scope of definitions for NHPs and functional foods within Canada and between international jurisdictions.

[13] Opportunities for the Canadian Agri-Food Industries in Functional Foods and Natural Health, Products, George Morris Centre, March 2008

Canada's Regulatory Environment

Studies completed for NNC and others in recent years have highlighted the negative market impact of the uncertainty within the current regulatory environment and the lack of coordination/interdepartmental oversight at the federal government level.[14,15,16] The current regulatory framework is often unworkable for FFs as the level of scientific substantiation required for health claims is not well defined. With regulatory modernization being a declared priority of Health Canada (HC), NNC commissioned Cantox Health Sciences International in 2007 to compare Canada's regulatory approach to those of major trading partners. This study yielded 10 key recommendations to transform the current framework to one that is enabling and supportive of both health outcomes and industrial competitiveness.[17]

The current regulatory framework for NHPs is struggling under the burden of the learning curve associated with implementation and a backlog of product license applications. Recognizing that many FFNHP sector participants are either emerging firms or entering the FFNHP market for the first time, the analysis for this sector strategy identified informed advice and assistance in navigating Canada's regulatory environment to be a very much-needed resource. Not only does the regulatory system need to be enabling, FFNHP sector participants need better capacity and advice on how to use it to bring new products and technologies to market.

The FFNHP sector's challenges and opportunities extend well beyond the scope and influence of regulation. Also recognized as a weakness to be addressed is the insufficient degree of coordination that exists among the players within the sector and among the government departments and agencies seeking to assist. The analysis undertaken for and by NNC clearly illustrated the need for new linkages and "*bridges*" in research, commercialization, investment and communications channels leading to consumers in Canada and other markets. Much of this sector strategy deals with bridging gaps and fostering collaboration to build on what is already being done and what has already been completed by the organizations that are active NNC participants and others in the public and private sectors.

This strategy foresees NNC's key role as being a catalyst and facilitator of strategic collaboration in pursuit of the strategy objectives and desired outcomes and has as its

[14] Critical Review of Health Canada's Standards of Evidence for Evaluating Foods with Health Claims and Analysis of Requirements for Pre-market Evaluation of Functional Foods and Related Health Claims in the Canadian Market, CanTox Health Sciences International.

[15] Comprehensive Overview of Federal Statutes and Regulations Applicable to Pre-Market Evaluation of Foods and Food-Related Health Claims, InterSect Alliance Inc.

[16] Canada's Proposed Regulatory Framework for Health Claims on Foods – A Comparison of International Regulations, CanTox Health Sciences International

[17] Ibid

focus five key strategic themes (*Figure 2*) which provide the foundations for the sector's strategic direction and activities over the next five years.

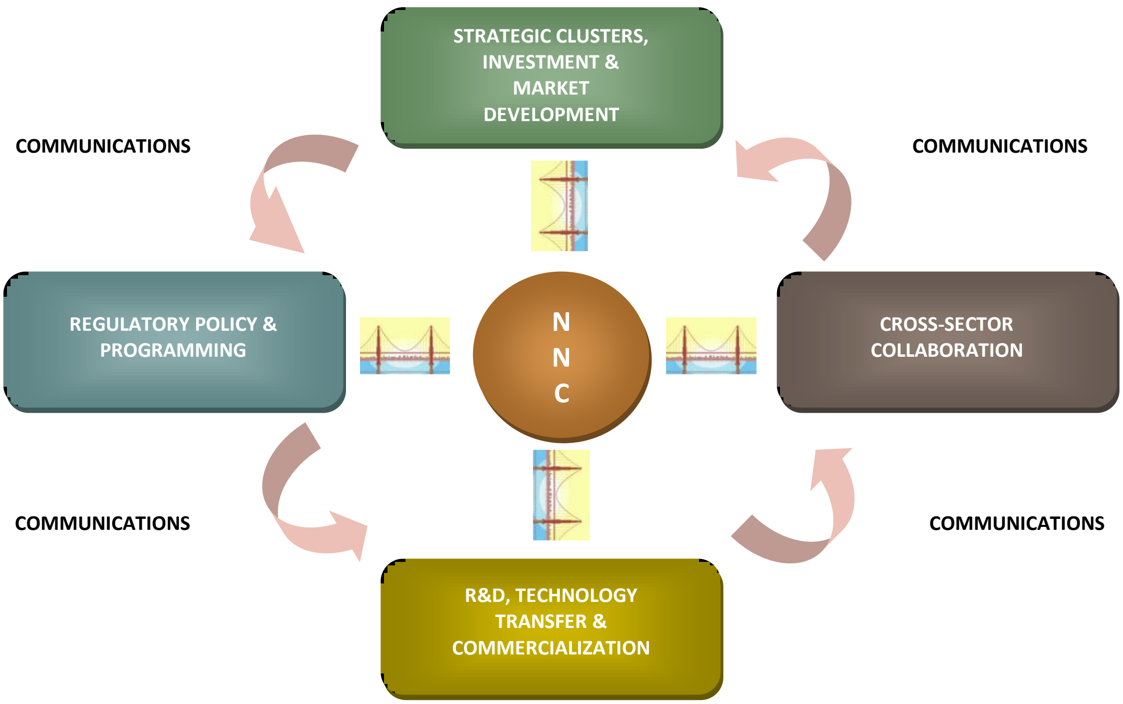

Figure 2: Canadian FFNHP Sector Strategy Themes and Linkages

Within each of the strategic themes, NNC has detailed a number of initiatives, supported by keystone programs, to address the sector's key concerns, and position it to take advantage of opportunities in the global market. Readers should note that implementation of these initiatives will require significant financial and in-kind resources in the near term.

- ***Strategic Clusters, Investment Attraction and Market Development:*** this theme supports the strategic development of the Canadian FFNHP industry through a series of short to longer-term initiatives. The core program for this theme is the **NATIONAL ASSET MAP AND INVENTORY OF THE CANADIAN FFNHP SECTOR**, which will be a valued portal of competitive intelligence used in fostering, facilitating and enabling cross-sectoral collaboration between the FFNHP industry and the Partners essential for sustained growth, i.e. government, research and the health community;
- ***Regulatory Policy and Programming:*** sustainable growth for the FFNHP industry needs a strategic view and long-term vision. However, this needs to be balanced

by a focus on practical issues of major concern to the industry. Various studies by NNC and its Partners, have confirmed that the Canadian regulatory environment as it applies to the FFNHP industry is the primary concern for the industry irrespective of the size of company. The following proposes a series of initiative to address this imperative and has two core program priorities – the development of a **REGULATORY ROADMAP** and a **REGULATORY ASSISTANCE PROGRAM**;

- ***Research and Development, Technology Transfer, and Commercialization:*** science and technology are the FFNHP industry's key competitive advantage in product differentiation, credibility and efficacy, quality and cost control, and are a critically important foundation for realizing meaningful health care cost reductions. The core initiative within this theme is the work towards the establishment of a **CANADIAN FFNHP QUALITY PROGRAM**. The other key priority within this theme is accelerating commercialization through support for product innovation, enabling technology transfer and bridging the funding gap between innovation and investment;
- ***Cross-Sector Collaboration:*** as the voice for the national industry, NNC's core focus is the building of bridges between the Canadian FFNHP industry and its key sectoral Partners to achieve enhanced industry growth through synergy and the minimization of duplication of effort, capacity and infrastructure. A core initiative in this theme will be the development of a **CANADIAN FFNHP INFORMATION PORTAL** as a single point reference source for the industry and other sectoral stakeholders. Within this theme the industry's need for skilled labour and business expertise is also acknowledged and initiatives proposed to mitigate this weakness;
- ***Networking and Communications:*** a final, but nonetheless essential, element in the successful implementation of the **CANADIAN FFNHP STRATEGY** is the development and maintenance of practical channels to encourage networking and communications among all the sector's constituents.

KEYSTONE PROGRAMS

- **REGULATORY ROADMAP**
- **REGULATORY ASSISTANCE PROGRAM**
- **CANADIAN FFNHP PRODUCT QUALITY PROGRAM**
- **CANADIAN FFNHP PORTAL**
- **NATIONAL ASSET MAP AND INVENTORY OF**

The Context for Sustainable, Sector Growth: the Canadian FFNHP Sector & the Global Market

WORKING TOGETHER FOR A HEALTHY CANADA.

THE CANADIAN FFNHP INDUSTRY IS A VITAL ELEMENT IN THE FUTURE HEALTH OF THE CANADIAN POPULATION, PROVIDING COST-EFFECTIVE, FULLY TESTED AND REGULATED INNOVATIVE PRODUCTS AND TECHNOLOGIES, THAT SUPPORT PUBLIC HEALTH AND WELLNESS POLICIES, REDUCE PUBLIC HEALTHCARE EXPENDITURES AND PROVIDE ALTERNATIVE HEALTH OPTIONS FOR CONSUMERS. THE STRATEGY PROPOSED WILL ENABLE THE INDUSTRY TO FULFILL THIS ROLE AND TO DEVELOP A SUSTAINABLE, GLOBALLY COMPETITIVE INDUSTRY USING SCIENCE AND TECHNOLOGY TO PROVIDE MARKET ADVANTAGES.

In developing a growth strategy for the FFNHP sector, recognition has to be taken of the global market environment as well as the Canadian market. The following presents highlights of and comments on key aspects of both markets. The section finishes with a consideration of the strategic analysis and foundational context specifically relating to the construction of the strategic plan and associated initiatives and activities.

The Global Market

Market data on FFs and NHPs varies significantly. For example, a MarketResesarch.com report projects the current global functional foods market to grow to US$167 billion by 2010.[18] Whereas a 2007 Datamonitor report gives a combined 2007 US, Western European and Asia-Pacific FF and drinks market of US$72.3 billion and projects a market value of US$95.3 billion in 2012 with a compound annual growth rate of 5.7 percent between 2007 and 2012.[19] The same report concludes that the Asia-Pacific FF market will continue to outperform the US and European market in the near future. Global demand for FFNHP (active /source /functional) ingredients is estimated to grow 5.8 percent annually through 2010 from a current value of $11.7 billion.[20]

---

[18] Global Market Review of Functional Foods - Forecasts to 2010, MarketResearch.com

[19] Functional Food, Drinks and Ingredients: Consumer Attitudes and Trends, Datamonitor, 2007

[20] World Nutraceuticals to 2010 - Demand and Sales Forecasts, Market Share, Market Leaders, Published: 07/2006 , The Freedonia Group

The market for FFNHPs has exhibited consistent growth over the last decade, and it is expected that this trend will continue. As a function of either gross domestic product (GDP) or per capita spending, Japan is the major market for functional foods. Combined, the U.S., Japan and European functional foods markets represent over 85 percent of global sales. At the current time, the largest markets for functional foods and supplements (taken here to be a proxy for natural health products) are the U.S., Europe and Japan, which accounted for 33.6 percent, 28.2 percent and 20.9 percent of sales in 2002 , respectively (*Figure 3*).[21]

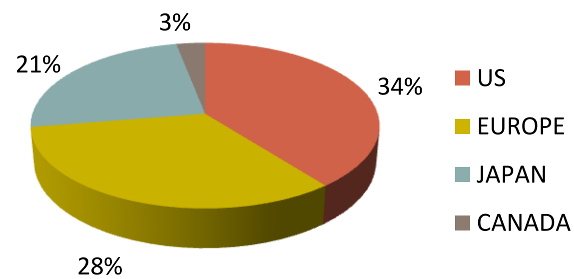

Figure 3: Global Market Retail Values, Industrial Countries (Source: NBJ, 2002)

The North American (US and Canada) market for FFs and supplements is valued at about $36 billion. US functional foods sales in 2005 were estimated at $6.4 billion[22] while supplement sales in 2005 were estimated at $25.8 billion[23] for total FFNHP sales of $32.3 billion. Canada is an important export market for other countries and the Canadian FFNHP sector has grown significantly in recent years, both in terms of the size of the domestic market and the number of firms that are engaged, while export sales have also increased substantially.[24] The Canadian market is generally estimated at 10 percent of the US market with a value of approximately US$3.2 billion in 2003, or 2.6 percent of global sales.[25] In 2005, Canadians spent US$36.70 per capita on fortified/functional packaged foods and beverages whereas this figure was US$68.60 in the US, US$82.80 in the UK and US$138.60 per capita in Japan.[26] Market data reveals that in 2001, consumers spent about CDN$3.8 billion on nutritional products, approximately CDN$175 per person. This figure represents a 130 percent increase in spending since 1997. By comparison, per capita consumption for nutritional products in other countries in 2001 was US CDN$245; Japan CDN$231; and Western Europe CDN$120.

Emerging markets such as China, India, Russia, Eastern Europe, and Latin America have great growth potential. The health food sector in China was valued at about US$6.0 billion in 2003, with projected growth of 100 percent by 2010, and a similar trend is observed in India.[27] The total nutrition sector in China and the rest of Asia (excluding Japan) in 2003 was valued at US$6.94 billion and US$7.64 billion, respectively. Within this, sales of

---

[21] Global Nutrition Industry (2002), Nutrition Business Journal. Vol.6, No 8/9

[22] Leatherhead Food International, 2006

[23] NBJ, 2007

[24] Functional Food and Natural Health Product Issues: The Canadian and International Context, October 2007.

[25] Scott Wolfe Management Inc., 2002

[26] Lewis, 2006

[27] Sun, 2006

functional foods accounted for US$790 million in China and US$1.36 billion in the rest of Asia and herb/botanical products for US$2.4 billion in China and US$1.76 billion in the rest of Asia.[28] By 2006, the total nutrition industry sales in China and in the rest of Asia reached US$9.71 and US$10.68 billion, respectively.[29]

Latin America is considered an emerging FFNHP market where cultural factors, low levels of nutrition knowledge and income constraints may limit the penetration of such products. Nevertheless, in large urban areas there are considerable numbers of health conscious consumers with the effective demand required to purchase functional foods.[30] In this context, Brazil and Mexico are the markets considered to have the greatest potential.[31] Estimates of the value of sales in the nutrition sector in Latin America was at US$3.67 billion in 2003, of which US$530 million, or 14.4 percent, was functional foods and US$1.47 billion, or 40.1 percent, was supplements.[32] By 2006, the value of the nutrition sector is estimated to have grown to US$5.79 billion.[33]

With growth in per capita incomes in emerging and transition economies such as Hungary, Poland and Russia, there is significant potential for the establishment of markets for FFNHPs and these markets are considered to have some of the greatest potential for growth in coming years.[34] In 2003, the total nutrition sector in Eastern Europe and Russia was valued at US$2.25 billion, of which US$550 million, or 24.4 percent, was functional foods and US$290 million, or 12.9 percent, was herbs/botanicals.

Drivers

The world market for FFNHPs has been and continues to expand driven by demographic, economic and social trends.

Regulation

Regulation and the regulatory process are key drivers that affect a multiplicity of factors such as consumer choice (Canadian vs. International), time to market, product cost, product credibility, access to market, corporate location and investment choices.

Consumer-based Drivers

Consumers are now investing in their health. Awareness of the relationship between diet and health has increased considerably in recent years, based on emerging evidence that a

[28] NBJ, 2004

[29] NBJ, 2007

[30] Lajolo, 2002

[31] Benkouider, 2005

[32] NBJ, 2004

[33] NBJ, 2007

[34] NBJ, 2004

healthy diet can contribute to reduced risk of chronic diseases such as cardiovascular disease, diabetes and cancer. Consumers seek to improve it holistically through nutrition, exercise and other lifestyle choices. FFNHPs have become a promising avenue to enhance health and well-being alongside broader dietary changes, both as a means to reduce the negative health effects of existing health conditions (for example hypertension) and to reduce the risk of future disease.[35] As individuals become more concerned with mortality consumer choice of a FFNHP product is often based on gaining an "*edge*" with respect to health and well-being.[36]

The factors steering consumer demand are changing and vary between increasingly fragmented consumer groups. Consumer choices are influenced by factors such as income, price of food, household size, age, information availability, prevalent values in society, and ethical and health aspects. An important factor in the development of FFNHPs is that besides nutrition, food also provides consumers with enjoyment, i.e. they do not want to compromise on taste.[37]

Big Food

Major multinational food companies (MNCs) and fast food chains are coming under increasing public scrutiny in the wake of a growing childhood obesity epidemic and other health concerns. "*Big Food*" has set its PR machine into overdrive with companies tripping over each other trying to position themselves as caring about health and wellness. PepsiCo has created a web site (www.healthispower.net) devoted to making the case that it cares about children's health. General Mills reformulated its cereals sold in the U.S. to contain whole grains, the company says, in response to the federal government's recommendations to eat more whole grains.

A recent (2008) report by Research and Markets Limited highlighted seven MNCs whose strategies in nutrition and health are considered the most advanced and the most successful and best illustrate the future direction of functional foods. The companies were - Danone (global), Unilever (global), PepsiCo (global), Emmi (Switzerland), Yakult Honsha (global), Pom Wonderful (US), and Innocent Drinks (Europe). The report also shows that the most successful companies are choosing strategies focused on either - marketing intrinsic healthfulness or new category creation.[38]

Rising Healthcare Costs

Total health expenditure in Canada, in current dollars was estimated at $141.2 billion in 2005, and is forecast to have reached $150.3 billion in 2006 and $160.1 billion in 2007. Real growth in health care spending in Canada is expected to be 4.0 percent in 2006 and 4.1 percent in 2007. In 1993, health expenditures were equivalent to 32.7 percent of total

[35] Functional Food and Natural Health Product Issues: The Canadian and International Context, 2007

[36] R. Orr, Ocean Nutrition Canada, Internal Research Studies, 2008

[37] Finland – A Competitive Forerunner In Healthy Nutrition: Food and Nutrition Sector Strategy Report

[38] 7 Outstanding Companies in Functional & Health-Enhancing Foods, Research & Markets, 2008

provincial and territorial government program expenditures (total expenditure less debt charges). In 2006, the share of program expenditures allocated to health increased to 39.2 percent.[39]

Public sector financing, which consists primarily of spending by municipal, provincial/territorial and federal governments, as well as workers' compensation boards or other social security programs, accounted for 70 percent of health spending in 2006. Private sector financing, primarily through health insurance and out-of-pocket payments, accounts for the balance. Expenditures for drugs have increased more rapidly than total health expenditures, with the result that the share of total health expenditures allocated to drugs increased from 9 percent in the mid-1970s to an estimated 17 percent in 2006.[40]

A key determinant in achieving good health outcomes are personal health practices or actions by individuals that can help them prevent diseases and promote self-care, cope with challenges and develop self-reliance. The use of FFNHPs represents a credible way to decrease healthcare spending and there is an increasing emphasis by the public and private sector funders of health care on preventative measures to control health care costs. The public policy and regulatory environments are evolving to take this into consideration.[41]

Demographic Changes

Demographic drivers include factors such as aging populations - the "*baby boom*" generation and their interest in 'healthy living' and the increasing affluence and education among world populations.

Complementary Medicines/Treatments

The general consumer dissatisfaction with conventional (allopathic) treatments, therapies and drugs has led to increased acceptance and utilization of '*complementary'* medicine within which, functional foods and natural health products are seen as core contributors to better health. This is mirrored by a rising acceptance among doctors, pharmacists and other health professionals although to date that rising acceptance has not translated into positive prescription of FFNHPs. It is anticipated that the expanding body of scientific and clinical research to validate effectiveness and safety of FFNHPS and the expanding press coverage of such research will help overcome this reluctance to prescribe. Complementary treatments and FFNHPs have seen increased marketing and advertising activities by suppliers. Their development requires considerable investments in research

[39] National Health Expenditure Trends, 1975-2007, Canadian Institute for Health Information

[40] Health Care in Canada, Canadian Institute for Health Information, 2007

[41] International Market Trends Analysis for the Functional Foods and Natural Health Products Industry in the US, Australia, UK and Japan, 2007

and development, but pioneering consumers are prepared to pay a higher price for them.[42]

Nutraceutical Ingredients

Global demand for nutraceutical ingredients is estimated to grow 5.8 percent annually through 2010. The best prospects include probiotics, soy additives, lycopene, lutein, sterol-based additives, green tea and other teas with antioxidant properties, glucosamine and chondroitin, and coenzyme Q10. China and India will be the fastest growing markets, while the US will remain the largest. Growth in the whole nutraceuticals sector is supported by continuing interest in keeping healthy, particularly among the over-40s, and retaining the ability to enjoy a long and healthy lifestyle.[43]

Global Trends

New Strategic Direction

In the past, the FFNHP industry focus has been on taking the "*bad*" elements out of foods. This is now changing to putting the "*good*" back in but without sacrificing quality, safety, taste, or texture and this is to be delivered without a significant price differential. Attention to product and market differentiation, and market focus and positioning continue to be demonstrated as key factors in achieving profitable sales growth nationally, regionally and globally.

A 2008 report[44] cited the ten key trends in food, nutrition and health as:

1. Digestive Health - a wellness issue and the biggest opportunity ;
2. Fruit and *superfruit* - the future of food and health;
3. The marketing power of "*naturally healthy*";
4. Beauty foods - the newest niche;
5. Weight management more about maintaining than losing;
6. Mood food feels its way;
7. A tipping point for the *premiumisation* of health;
8. Healthy snacking for the "*me*" generation;
9. Kid's nutrition - connecting to multiple trends is crucial; and
10. Antioxidants - the new probiotics?

---

[42] Ibid

[43] World Nutraceuticals to 2010 - Demand and Sales Forecasts, Market Share, Market Size, Market Leaders, Published: 07/2006 , The Freedonia Group

[44] 10 Key Trends in Food, Nutrition & Health 2008, Julian Mellentin

Digestive Health Dominates[45]

Digestive health offers significant opportunities with low risk and is attractive for FFs because it is correlated to wellness, unlike lowering cholesterol, which is more of a "*death and disease*" issue. *Activia* overcame scepticism in the U.S. from markets, researchers and dairy companies. In adult nutrition, *Danone* has proven itself a powerhouse of marketing and innovation. Its focused effort has definitely paid off with four nutritional dairy brands accounting for 29 percent of the company's total sales and 50 percent of its entire fresh dairy business.

CANADIAN COMPANIES IN DIGESTIVE HEALTH INCLUDE:

- **BIO-K+ INTERNATIONAL, QC**
- **HARMONIUM INTERNATIONAL, QC**
- **KCG SYNERGIZE, ON**

Fruit: The Future of Functional Foods[46]

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*" in consumers' minds. The fruit and health trend has been most striking in relation to the rise of the "*superfruits*", such as blueberries, pomegranates and mangosteens.

CANADIAN COMPANIES IN FRUIT-BASED FFs INCLUDE:

- **LASSONDE INC., QC**

The Marketing Power of "All-Natural"[47]

The strategy of marketing the intrinsic health benefits of foods continues to be the most popular FF strategy worldwide. The boost in sales of dark chocolate is a good example of this trend in action. Worldwide consumption of dark chocolate has increased by 18 percent in the past 10 years following reports of high flavonoid (antioxidant) levels. In the U.S., dark chocolate sales rose 42 percent between 2001 and 2006; in the UK, dark chocolate retail sales grew 50 percent between 2004 and 2006, reaching $139 million in sales.[48]

CANADIAN COMPANIES IN THE "ALL NATURAL" MARKET INCLUDE:

- **NATURALLY NOVA SCOTIA, NS**
- **ACADIAN SEAPLANTS, NS**
- **OCEAN NUTRITION CANADA, NS**

Jumping on the Beauty Bandwagon[49]

Nourish your skin from the inside. 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 percent fat yogurt with an ingredient complex "*ProNutris*" which contains vitamin E, green tea, probiotics and borage oil. Beverage companies are also attempting to develop crossovers between cosmetics and nutrition. PepsiCo has extended its water brand

CANADIAN COMPANIES IN THE BEAUTY-NUTRITION MARKET INCLUDES:

- **ATRIUM BIOTECHNOLOGIES, QC**
- **BIOORIGINAL FOOD & SCI. CORP, SK**
- **DERMOLAB PHARMA LTEE, QC**
- **FYTOKEM PRODUCTS INC., SK**

---

45 International Market Trends Analysis for the Functional Foods and Natural Health Products Industry in the US, Australia, UK and Japan, 2007

46 Ibid

47 Ibid

48 AC Nielsen

49 http://www.nutraceuticalsworld.com/articles/2007/11/functional-foods-key-trends-to-watch.php

Aquafina into skincare; Nestlé and Coca-Cola are reportedly planning to co-launch a beauty beverage in 2008.

Mood Food: A Trend in the Making[50]

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. Nestlé recently invested $4 million a year for the next five years to research the nutrition-mood connection. New Zealand's *HortResearch* has a research program to look into the effects that certain fruits can have on mood and mental wellbeing. Unilever is communicating the weight management benefits of tea in Europe, but has been emphasizing tea's brain health benefits in Japan, Australia and the U.K.

Green Tea Too[51]

Green tea is widely perceived as the healthiest tea and a beneficiary of the rising consumer awareness surrounding antioxidants. It has become one of the most fashionable "*natural*" health ingredients in the past two to three years. Food manufacturers see green tea as offering the healthiest *halo* when added to products such as yogurt, smoothies, juice drinks and waters. Currently, Unilever is marketing tea for both its weight management and brain health benefits. Taiyo Green Power, Japan, promises to deliver clinically proven nutritional benefits of green tea antioxidants and stress reducing amino acids of green tea.

Packaging Innovation Invites Premium Pricing[52]

Strongly differentiated packaging design helps brands achieve better market positioning and achieve premium prices. One of the most important factors in FF success is packaging innovation. Innovative packaging is one of the main reasons of the success in the European market for sterol-based cholesterol-lowering foods, while the U.S. market has languished. Unilever brought the successful European packaging concept to the U.S. when it launched *Promise Activ*, its daily dose 100 ml (3 fl. oz) cholesterol-lowering dairy drink. Similar packaging has been adopted for drinkable yoghurts.

The Canadian FFNHP Sector

Canada is emerging as an important supplier in the growing FFNHP world market. The industry ranges from small, micro-sized start-ups to multinational enterprises, many of whom are recognized internationally for their bioactive ingredients. These include soluble and insoluble fibre from oats, barley and pulses; omega-3 fatty acids from fish and flax oil; unsaturated fatty acids from canola oil; plant sterols and stanols from vegetable and tall

[50] Ibid

[51] Ibid

[52] Ibid

oils; and protein from soy. The industry is also developing capacity in adding functional ingredients to food products, e.g. probiotic bacterial cultures, prebiotics (e.g. fructo-oligosaccharides), bioactives concentrated from berries and flax, novel fibres from pulses and in contract manufacturing of private label products.[53] Many of the functional food firms are targeting three main areas of products: vascular health, energy and general nutrition.[54] Specialized research and development centres and pilot plants located across Canada are well equipped to help companies develop innovative products and bring them to market.

Having doubled its market size between 2000 and 2005, the NHP industry now represents over $2.5 billion in retail sales in Canada and employs over 25,000 Canadians in retail, wholesale and production. Preliminary input-output modeling from the George Morris study completed for NNC indicates that the opportunities for the Canadian functional food industry from estimated contributions to the Canadian economy range from $3 billion to $12 billion. For the most optimistic scenario, potential functional food industry related employment was estimated at over 50,000.[55]

A survey of firms conducted in 2005 by Statistics Canada[56] noted that:

- 389 firms were active in the field of functional foods and nutraceuticals (FFN). Of these, 118 firms produced functional foods products, 174 firms produced nutraceuticals products and 97 firms produced products in both fields (*Figure 4*);
- Total FFN revenue was $2.9 billion in 2004, of which $823 million came from firms producing functional foods, $1.6 billion from firms producing nutraceuticals, and $442 million from firms producing both;
- Exports of FFN products amounted to $545 million in 2004, with the majority originating from nutraceutical firms ($356 million). The most common destination for exporters was the United States;
- 12,872 employees had FFN related duties;

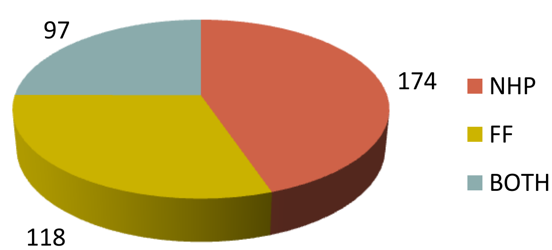

Figure 4: Canadian FFNHP Company Breakdown by Sub-Segment (Source: Statistics Canada)

[53] Agriculture and Agri-Food Canada

[54] Opportunities for the Canadian Agri-Food Industries in Functional Foods and Natural Health Products, Final Report, George Morris Centre, 2008

[55] Ibid

[56] Results from the Functional Foods and Nutraceuticals Survey – 2005, Robert Palinic, Statistics Canada

- 74 FFN firms indicated that they have unfilled positions for FFN employees;
- R&D expenditures on FFN products amounted to $75 million;
- 95 firms attempted to raise capital for FFN purposes in 2004. Of these, 73 were successful, raising a total of $206 million;
- Wholesalers were the most commonly used distribution channel, with 238 firms indicating such use. Direct selling to other companies was the second most common channel, with 185 companies indicating use;
- 136 firms developed trade secrets, 136 firms registered trademarks and 64 firms held patents in 2004;
- The US patent office accounted for the majority of existing patents or patents pending registered by FFN firms in Canada;
- Firms indicated that there were 9,715 FFN product lines on the market, with 6,327 products from nutraceutical firms; and
- The number of FFN firms, FFN revenues and FFN exports all saw notable increases over 2002 figures.

Nutritech Consulting Inc. (2004) data, adapted from Nutrition Business Journal (NBJ), showed that 2001 FF sales per capita in Canada were $88.9 (compared to $102.8 in the U.S.) and that sales of dietary supplements were $39.5 per capita (compared to $97.3 in the U.S.). Combined, this is a total of C$128.4 per capita spent on functional foods and dietary supplements. The lower sales in Canada of dietary supplements may be attributed to the limited number of true FFs available in Canada, the lack of health claims that would educate consumers about the benefits of the products and the restrictions on the number and types of dietary supplements that can be sold in Canada.[57]

Table 1 provides an estimate of the Canadian market (at the retail level) for FFNHPs.

Table 1: Estimate of the Canadian Market for FFNHPs, 2001 (Source: Nutritech Consulting Inc., 2004)

PRODUCT TYPE	RETAIL VALUE ($'M)	% OF MARKET
VITAMINS/MINERALS	540	44%
HERBS/BOTANICALS	400	33%
SPORTS/MEALS/SPEC	290	24%
TOTAL SUPPLEMENTS	*1,230*	*100%*

[57] Nutritech Consulting Inc, 2004

PRODUCT TYPE	RETAIL VALUE ($'M)	% OF MARKET
NAT/ORGANIC	850	20%
NATURAL PERSONAL CARE	360	9%
FUNCTIONAL FOOD	1,720	41%
TOTAL NUTRITION	*4,160*	*100%*

Examples of successful Canadian firms in the global market include:[58]

- ***Harmonium International Inc, QC*** - with sales in over 20 countries, Harmonium is one of the largest manufacturers and suppliers of probiotics in the world;
- ***CV Technologies Inc., AB*** - develops and manufactures natural health products;
- ***Lassonde Industries Inc., QC*** - is a Canadian leader in the development, manufacture, and marketing of an innovative and distinctive range of functional juices;
- ***KGK Synergize Inc, ON*** - offers contract research and product development services; and
- ***Ocean Nutrition Canada Ltd., NS*** - is the largest global supplier of marine-sourced omega-3 fatty acids for use in a wide range of food applications with an estimated 40 percent of global trade in marine-sourced omega-3 oils resulting in a turnover in excess of $50 million and 30 percent growth.

The *Western Canada Functional Foods and Natural Health Products Network* provides a comprehensive directory of Western Canadian FFNHP companies on their website (http://www.wcfn.ca/html/directory.html).

Benefits, Challenges and Opportunities

Markets for FFNHPs are potentially of great benefit to the agri-food sector in Canada, by providing opportunities for value-added production and decreasing dependence on commodity-based production and marketing. Raw materials for Canadian firms engaged in the production of functional foods and natural health products are only in part sourced domestically. Many commonly used ingredients are sourced through importation. Where possible, import substitution represents real opportunities for primary producers. Further, there is interest in the potential to develop '*new*' health-enhancing ingredients that can be grown domestically. Current examples include the enrichment of dairy products with conjugated linoleic acid (CLA) and soy proteins in bakery products to

[58] http://www4.agr.gc.ca/resources/prod/doc/misb/fb-ba/nutra/pdf/march_2007_brochure_e.pdf

enhance health. The issue of consumer acceptability, safety and protection is clearly of critical importance here.[59]

The FFNHP industry offers, to Canadians, opportunities to reduce the direct and indirect health costs associated with a number of prevalent chronic diseases, alongside broader changes in diet; however, there are concerns about the efficacy, quality and safety of FFNHPs. In some cases, the scientific evidence of their health benefits remains weak, partly because research in the fields of preventive health and health economics associated with FFNHP use remains under-funded. In part also because traditional evidence is not taken into consideration. There also concerns about adverse side effects and potential interactions with drugs. Some health professionals are sceptical about the efficacy of these products, especially where they are seen as substitutes for broader dietary improvements. Thus, while health professionals in Canada may have a relatively good opinion of functional foods and natural health products, few physicians actually recommend them to their patients.[60]

The Canadian FFNHP industry is currently facing a number of challenges and opportunities ranging from the regulatory environment, through to accessing supply and value chain partners, understanding and accessing investment, recruiting qualified staff with business expertise, and accessing innovative R&D. If strategically addressed these factors will lead to the global expansion of the Canadian industry. Key issues include:[61]

1. The lack of knowledge of the medical community (including naturopathic doctors), dieticians and health professionals about the proven benefits of FFNHPS;
2. How to effectively support innovative R&D , technology transfer and commercialization and the incorporation of new research and product ideas into new or improved products;
3. Access to appropriate funding at all levels of the development to market continuum;
4. The level of knowledge and experience of those in the sector. The FFNHP industry is young with generally inexperienced management expertise;
5. Consumer knowledge and acceptance of FFNHPs; consumer access to, use and understanding of information regarding FFNHPs can contribute to acceptance of these products. Such information is usually available through labels but the majority of Canadians question the accuracy and or credibility of the information;
6. Consumer attitudes towards FFNHPs are largely influenced by the perceived risks and benefits of these products, which in turn are associated with the technology

[59] Ibid

[60] Ibid

[61] Functional Food and Natural Health Product Issues: The Canadian and International Context, AAFC, 2007

used in their production; own and family perceptions and experiences of health risks can be a critical influence on the acceptance of functional foods and natural health products;

7. The carrier and the ingredients of FFNHPs are important issues influencing consumer acceptability with dairy products, non-alcoholic beverages and bakery and cereal products being the most frequent carriers of functional ingredients; and
8. FFNHPs generally have premium prices, reflecting higher input costs and an attempt to capture the value that consumers attach to their purported health properties. However, the consumer who wants the additional health benefit with the same taste and at the same price generally resists this.

Regulatory Environment for FFNHPs

The complexity of the regulatory environment has made it very difficult for individuals in both the private and public sectors to engage in informed dialogue on health claims for foods with a shared understanding of regulatory principles. Currently, there are no regulations or regulatory processes dealing specifically with functional foods in Canada. Functional foods without health claims are subject to regulations that apply to foods and novel foods. Functional foods with claims are deemed drugs. Consequently, there is no clear and predictable pathway for companies producing functional foods to make health claims related to their products.

As described by HC in the October 2006 *Blueprint for Renewal* report, the department recognizes there is a need for change in the current regulatory structure.

> ***Increasingly, Canada's approach to the regulation of health products and food is out of step with international best practices and, more fundamentally, with the needs and expectations of Canadians.***[62]

By mid-2007, HC and the CFIA had launched regulatory modernization initiatives intended to replace the existing *Food and Drugs Act (CFDA)* with a *Health Protection Act* and extensively overhaul the current regulations that apply to foods found within the *Food and Drug Regulations*. One of the major stated policy goals of HC's regulatory modernization *Blueprint for Renewal II Consultation Document r*eleased in April 2007 is –

> ***Promoting regulatory responsiveness to food innovation and promoting consumer access to foods with assessed health benefits, in particular, the development of a comprehensive approach for the management of food with health claims and completion of a policy on the discretionary fortification of foods.***

[62] Health Canada, 2006

By October 2007, HC's *Natural Health Products Directorate (NHPD)* had initiated a review of the *Natural Health Product Regulations* to clarify the regulatory definition of a NHP. Blueprint for Renewal II also promised a re-examination of consumer product categories. To date, this process has not been completed and no revisions have been made to the Food and Drugs Act and Regulations. Consequently, the Act still provides for only two categories of products, i.e. food and drug. With this product categorization still residing within the Act, there are four important facts to be noted to understand the status of the regulation of foods with health claims:

1. Functional foods are not recognized in law or regulation in Canada;
2. Nutraceuticals are not recognized in law or regulation in Canada;
3. NHPs are recognized in the *Natural Health Product Regulations (NHPR)* as a sub-category of drugs; and
4. All foods (including foods with health claims), natural health products and drugs are extensively regulated in Canada under federal laws and regulations.

There remain significant restrictions to the use of food additives and on the addition of vitamins and minerals to foods. The addition to foods of substances typically used as ingredients in NHPs is not permitted and is not provided for within regulations that apply to foods.

Health claims for foods are generally prohibited under *Section 3, Schedule A of the Food and Drugs Act*. The only health claims currently permitted are specifically exempted from Section 3, Schedule A. Two important policy principles were adopted by HC's Food Directorate in 1998 and still apply. These are:

1. Risk reduction and structure/function claims foods should be permitted; and
2. Any health claim for a food or food ingredient that claimed to cure, treat, mitigate or prevent a disease would require that the food or food ingredient would be considered to be and be regulated as a drug. This meant that such products (before being sold in Canada) would require pre-market evaluation with the standards of evidence required for generic and product-specific health claims dictated by the scope of the claim to demonstrate safety and efficacy.

Canada's regulatory requirements for foods, foods with health claims and natural health products (including dietary supplements) are substantially different from those of the U.S. and other industrialized countries. For example, there is a substantially larger number of health claims permitted for foods in the U.S. In addition, U.S. legislation and regulation does not require that dietary supplements undergo pre-market evaluation and product licensing as is the case in Canada under the Natural Health Product Regulations. In fact, Canada's NHPR are unique in the global regulatory context.

However, in light of HC's and the CFIA's regulatory modernization initiatives, it is hoped among FFNHP stakeholders that an internationally competitive regulatory framework for functional foods will be designed and implemented within Canada. The timing for regulatory modernization continues to be a concern. However, it is also anticipated that proposed amendments to HC's *Natural Health Product Regulations* will improve the business climate for the NHP value chains.

Strategic Analysis

Consideration and comparison of the FFNHP global environment with that of the Canadian industry is summarised in the SWOT Analysis below.

STRENGTHS	**OPPORTUNITIES**
▪ Ample and diverse biomass or raw materials ▪ Good R&D/Innovation capacity in the FFNHP areas ▪ Proximity to major export market, i.e. the United States (U.S.) ▪ Accessible government funding and support ▪ Willingness among stakeholders to collaborate ▪ Safe and effective products; FFs and NHPs are based on sound knowledge	▪ Health awareness and changing demographics ▪ Demand is growing globally ▪ The health-wellness link to diet is widely accepted ▪ Cultural diversity ▪ Brand Canada recognition ▪ Health Canada is pursuing modernization of regulations
WEAKNESSES	**THREATS**
▪ Regulatory environment and system ▪ Lack of coordination / synchronization between Agriculture & Agri-Food Canada, Health Canada and Industry Canada ▪ Early stage industry which exhibits a lack of leadership ▪ Duplication of effort and regionalism in logistics and infrastructure ▪ Lack of access to investment capital and commercialization support ▪ Lack of investment-ready innovation ▪ Lack of scientific substantiation for Canadian products ▪ Lack of knowledge regarding commercialization	▪ Lack of critical mass to grow ▪ Impact of climate change ▪ Shifting policy, regulations and standards ▪ Transient product and product category demand ▪ Sector competitiveness for raw materials (biomass) and labour against competing industries, e.g. biofuels, pharma ▪ Low cost competition from other jurisdictions, e.g. India, China/Asia-Pacific

Strategy Foundations

The strategy proposed in the following section is an evolution of, builds on, and advances the significant work, innovative programs and initiatives developed over many years in individual Provinces and Regions. Within Canada, there are at least 24 industry organizations or agencies working directly with and for the FFNHP sector (*Annex I*). Collectively, these groups bring 260 years of experience to this sector and provide a number of value-added services to the industry such as networking and commercialization support. Their work has encompassed a wide constituency of companies from micro-sized enterprises and growers/collectors to larger companies.

Since its conceptualization in December 2005, ***Nutri-Net Canada (NNC)*** - a collaborative initiative among regional and national industry, trade and research organizations and government bodies dedicated to advancing the development of the FFNHP sector in Canada, has built on this foundation. NNC is funded through *Agriculture and Agri-Food Canada (AAFC)* under the *Science and Innovation Broker Program*.[63] Stakeholder in kind contributions has more than doubled the value of the initiative to $1.5 million.

The goals of the NNC initiative are to:

1. Develop an in-depth understanding of the FFNHP sector within Canada and abroad;
2. Create a Canadian FFNHP industry strategy, which includes a communications strategy; and
3. Provide an implementation plan to foster a strong industry dedicated to improving the nutrition, health and well-being of Canadians.

Through its Steering Committee and sectoral Partners, NNC has carried the work of its antecedents forward through the support of regulatory, and market studies, workshops and key events. A summary of these activities is provided in *Annex II*.

NNC has stepped into this role to provide an enabling role in bridging and promoting collaboration among the FFNHP sector participants and stakeholders. In future where there is a clear consensus, NNC can be a single, national voice on major issues of common interest and concern. However, Nutri-Net Canada has pursued the development of this sector strategy with the view to act as a catalyst and facilitator for sector collaboration.

---

[63] The Canadian Health Food Association (CHFA) is the legal representative of Nutri-Net Canada, on behalf of the Nutri-Net Canada Steering Committee (NNC SC), and is responsible for the administration and delivery of the activities and objectives through a contribution agreement signed with Agriculture and Agri-Food Canada

The Canadian FFNHP Sector: Vision, Mission & Strategy

Vision

The *Canadian Functional Foods and Natural Health Products* (FFNHP) industry will be globally competitive and at the heart of a healthy Canada.

Mission

The Mission of the *Canadian Functional Foods and Natural Health Products* industry is to:

- Be at the forefront of FFNHP innovation;
- Achieve sustainable growth and profitability, through domestic and international collaboration and market development; and
- Create safe and effective products that sustain and promote the health and wellness of Canadians.

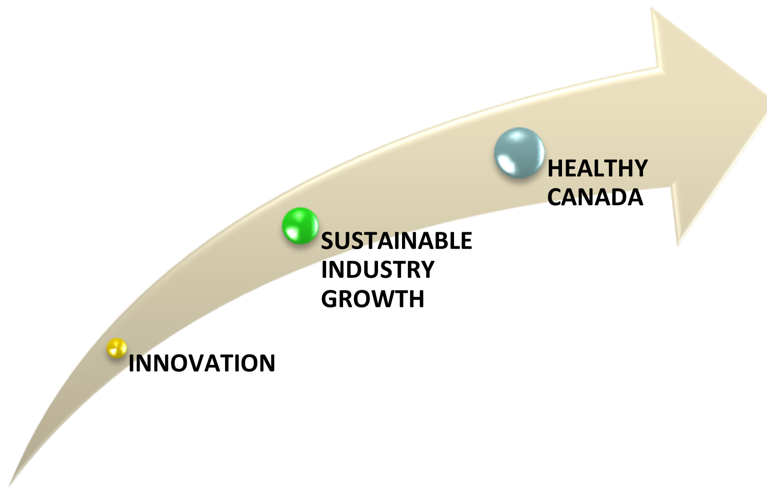

Figure 5: Working Together for a Healthy Canada

The Role of Nutri-Net Canada in Strategy Implementation – Strategic Bridges

A key element arising from the strategic analysis and workshops is the recognition that for the Canadian FFNHP industry to develop its full potential in a competitive global market, it requires both leadership and a mechanism to foster strategic collaboration among sector participants.

In an environment of challenges, opportunities and competing national priorities, the FFNHP sector needs to build consensus and communicate clear recommendations to government departments and agencies as to public policy, regulation, industry self-regulation and sector development programs and incentives that will meet the national interest.

NNC will seek to be an enabler of FFNHP sector development initiatives by taking a significant role in bridging support from current and future collaborating organizations in those areas where NNC and its partners have already demonstrated effectiveness and where there is a defined gap in service provision. This will include:

- Supporting improvements to regulatory policy and programming;
- Facilitating development of the "*Canada FFNHP Brand*";
- Providing credible information to government agencies and departments, e.g. HC.
- Compiling and distributing pan-Canadian sectoral information, intelligence and resources; and
- Facilitating cross-sectoral, pan-Canadian and multi-regional collaboration.

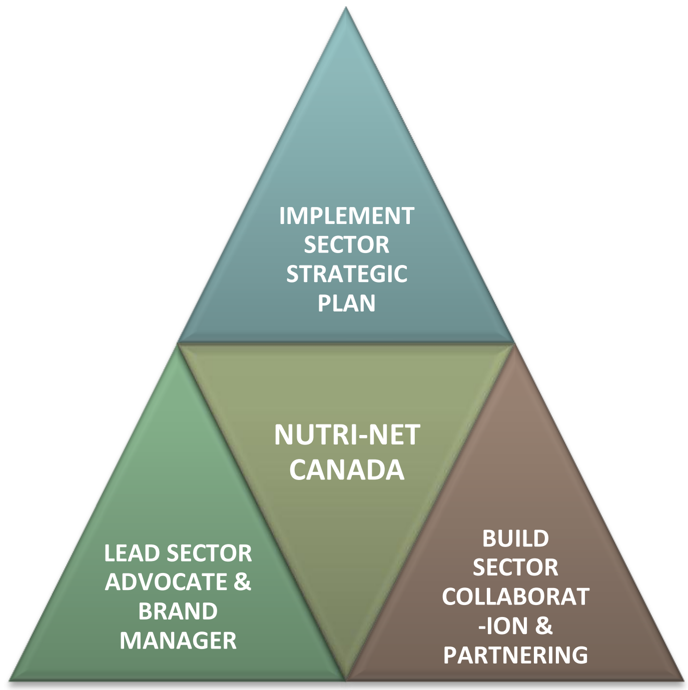

Figure 6: The Role of Nutri-Net Canada in the FFNHP Sector

NNC will build on its current network of FFNHP value chain Partners in the development of collaborative bridges between the sector's stakeholders, collaborators and partner organizations. Duplication of effort will be avoided by the use and support for assets already in-place whenever possible and by developing new resources or channels where they do not exist.

Strategic Themes

A focus on five key strategic themes (*Figure 7*) provides the foundations for the sector's strategic direction and activities over the next five years.

These themes are:

- **Strategic clusters, investment attraction & market development;**
- **Regulatory policy & programming;**
- **Research & development, technology transfer, & commercialization;**

- **CROSS-SECTOR COLLABORATION; AND**
- **NETWORKING AND COMMUNICATIONS.**

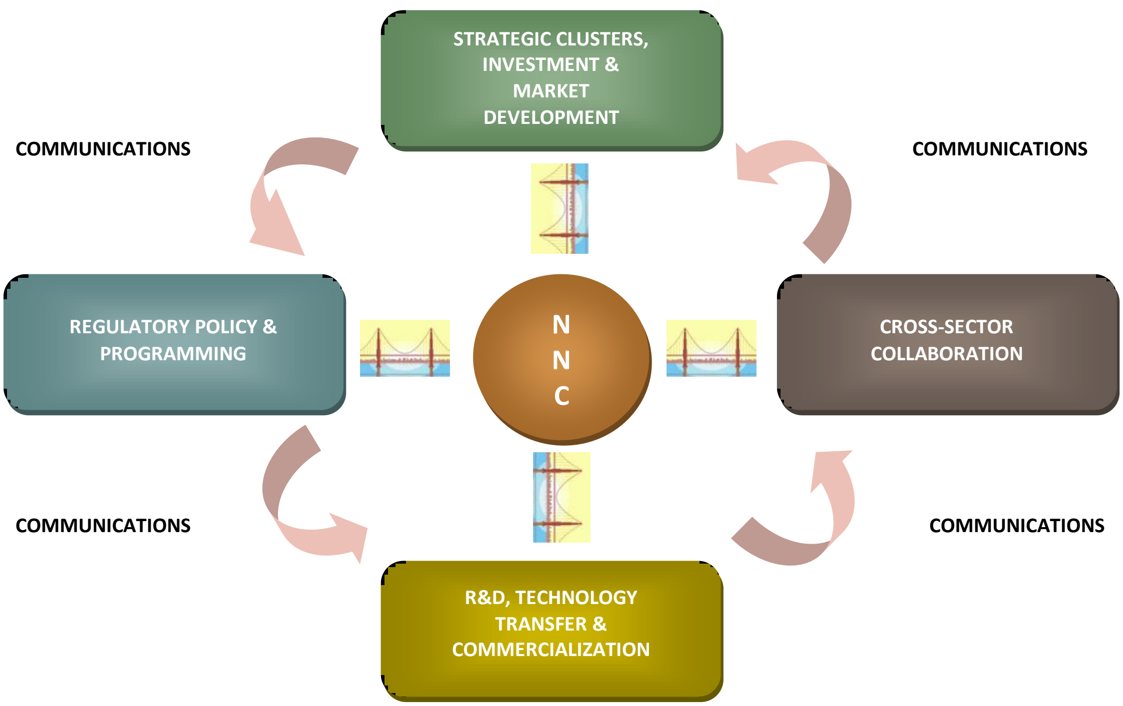

Figure 7: Canadian FFNHP Sector Strategy Themes and Linkages

Strategic Clusters, Investment Attraction and Market Development

This theme supports the strategic development of the Canadian FFNHP industry through a series of short to longer-term initiatives. The core program for this theme is the ***National Asset Map and Inventory of the Canadian FFNHP Sector***, which will be a single source of intelligence used in fostering, facilitating and enabling cross-sectoral collaboration between the FFNHP industry and the Partners essential for sustained growth, i.e. government, research and the health community.

Short-Term

1. Initiate the development of a ***National Asset Map and Inventory of the Canadian FFNHP Sector*** building upon existing work.

Medium-Term

1. Utilize the ***National Asset Map and Inventory of the Canadian FFNHP Sector*** to identify national and regional geographic clusters of unique expertise, agronomic and research capacity and infrastructure, proactively match opportunities with

capacity and infrastructure, and facilitate investment in new ingredient and product development.

2. Develop, and distribute the output of, a Canadian FFNHP Market Intelligence System, which will track Canadian FFNHP sales to provide accurate, timely information on market size and trends in the Canadian marketplace and compare these against international FFNHP market trends.

3. Collaborate with DFAIT and Industry Canada to raise global awareness of the Canadian FFNHP sector and in doing so develop international collaborations and partnerships.

Longer-Term

1. Support the growth of national core capacity by the identification and promotion of cluster development based on unique national and regional strengths with respect to capacity, natural resources and infrastructure.

2. Confirm and reinforce Canada's international status in FFNHP innovation, and foster industry economic stability and growth.

3. Engage with multinational food companies to link Canadian micro and small-to-medium sized enterprises' (SME) innovation and product development with identified opportunities in the health and wellness strategies of the MNCs.

Regulatory Policy and Programming

Sustainable growth for the FFNHP industry needs a strategic view and long-term vision. However, this needs to be balanced by a focus on practical issues of major concern to the industry. Various studies by NNC and its Partners, have confirmed that the Canadian regulatory environment as it applies to the FFNHP industry is the primary concern for the industry irrespective of the size of company. The following proposes a series of initiative to address this imperative and has two core program priorities – the development of a ***Regulatory Roadmap*** and a ***Regulatory Assistance Program***.

Short-Term

1. Advocate for the development of a portfolio of regulatory guidance and communications tools, including a ***Regulatory Roadmap***, using studies and reports already undertaken by NNC and its partners.

2. Continue effective and active participation of FFNHP stakeholders in legislative and regulatory reviews and in the improvement of FFNHP regulations.

3. Coordinate and submit a *Canadian FFNHP Review Report* to representatives of the federal government who maintain a mandate for the amendment of regulations that apply to FFNHPs. This is to comprise a brief summary/overview and the regulatory reviews/studies undertaken by NNC and its Partners.

Medium-Term

1. Collaborate to develop and promote a ***Regulatory Assistance Program***, to provide defined financial support and targeted consulting assistance on a case-by-case basis.

2. Collaborate to develop ingredient and product monographs to accelerate the passage of new products through regulatory review.

Longer-Term

1. Influence the modernization of Canada's regulatory infrastructure to establish Canada as an excellent jurisdiction for proof of concept and market testing of new FFNHP products; consequently encouraging both inward investment and indigenous sector growth.

2. Encourage development of programming to build awareness of processor, formulator and product developer and manufacturer needs of regulatory compliance by growers, producers and harvesters of FFNHP constituents.

Research and Development, Technology Transfer, and Commercialization

Science and technology are the FFNHP industry's key drivers of competitiveness, product differentiation, credibility and efficacy, quality and cost minimization. The core initiative within this theme is the work towards the establishment of a ***Canadian FFNHP Quality Program***. The other key priority within this theme is *accelerating commercialization* through the support for product innovation, enabling technology transfer and bridging the funding gap between innovation and investment.

Short-Term

1. Extend the *NNC Product Quality Initiative* to develop analytical methods suitable for validation and laboratory proficiency testing for additional FFNHPs of interest to the Canadian industry.

2. Develop and maintain an inventory of FFNHP current research capacity, projects and infrastructure.

3. Build industry-research collaboration and awareness of current opportunities by the initiation of a *Research to Receptor* series based on the MaRS Landing and CQVB models.

4. Building upon the *Funding and Incentives Database* initiated by NNC, provide and disseminate to industry, information on Federal and Provincial research incentives and support programs, e.g. SR&ED, provincial tax programs, and NGO/industrial research programs.

5. Disseminate key scientific documents, in English and French, to the FFNHP industry and research communities.

Medium-Term

1. Encourage the development of policies and programs that support FFNHP research and development, demonstration, commercialisation and adoption.

2. Expand the *Canadian FFNHP Market Intelligence System* proposed earlier to include the collection and distribution of intelligence on emerging technologies, product innovations and trends to encourage academia to understand potential opportunities in market-driven, applied research.

3. Investigate and propose a pan-Canadian approach for the transfer of FFNHP technologies and product innovation from the universities to industry.

4. Develop a Canadian portfolio of technologies and bring it to both the Canadian industry and the international market.

Longer-Term

Support the evolution of the *NNC Product Quality Initiative* to develop analytical methods suitable for validation and laboratory proficiency certification into a self-sustaining ***Canadian FFNHP Product Quality Program***.

Present disruptive-breakthrough technologies in the FFNHP sector to the investment community (angel, VC, government, etc.) to support the accelerated development of technology platforms, which could provide "*quantum*" leaps in competitiveness.

Cross-Sector Collaboration

As a catalyst for collaboration within the FFNHP sector, NNC's core focus is the building of bridges within the Canadian FFNHP sector and among NNC's key sectoral Partners. A core initiative in this theme will be the development of a ***Canadian FFNHP Information Portal*** as a single point source of reference for the industry and other sectoral stakeholders. Within this theme, the industry's need for skilled labour and business expertise is also acknowledged and initiatives proposed to mitigate this weakness.

Short-Term

1. With sectoral partners, design, develop, maintain and market a web-based ***Canadian FFNHP Information Portal***.

Medium-Term

1. Address the FFNHP industry's need for business-aware graduates by encouraging the development of curricula, in partnership with secondary and tertiary educational institutions, for the training of science graduates in business and management.

2. Address the FFNHP industry's need for skilled labour through the development of curricula, in partnership with secondary and tertiary educational institutions, for training in FFNHP analytical methods, formulation, and clinical research.

3. Support linkages with the medical community, health agencies and related NGOs.

Longer-Term

1. Support NNC's work with Federal, Provincial and Territorial departments and agencies to:

   - Obtain funding support for pharmaco-economic research and evaluation of health economics and public health outcomes for specific FFNHPs,
   - Build the body of evidence to support the inclusion of specific, well-validated FFNHPs in Provincial Formularies and by private health and life insurers.
   - Work to obtain tax relief for users of FFNHPs, and
   - Advocate for tax incentives for industry.

Networking and Communications

A final, but nonetheless essential, element in the successful implementation of the Canadian FFNHP Strategy is the institution and maintenance of practical channels to encourage networking and communications among all the sector's constituents.

Short-Term

1. Communicate the *Strategic Plan* to stakeholders and seek their endorsement, support and commitment to implementation.

2. Identify and support sector "*champions*" who will endorse and promote the Strategic Plan to and within their individual constituencies and jurisdictions.

3. Work with partner organizations, to raise sector awareness, encourage networking and promote communications across the sector, from producer to consumer.

Medium-Term

1. Develop and distribute communications briefings and marketing collateral targeted to key stakeholder audiences to meet their unique needs and interests, using NNC and Partner-developed materials.

2. Bring the investment, research and industry communities together on a regular basis through the design of a *Communications Program* for Investors based on established venture forum models.

Longer-Term

1. Establish Nutri-Net Canada as a source of timely, trusted information for the FFNHP sector, and a key influence in the construction of a Canadian regulatory system that safeguards consumers whilst providing an excellent foundation for innovation, technology transfer and commercial development.

Moving the Strategy Forward

Flowing from five "***keystone***" programs, which will form the foundation for the FFNHP sector's development and growth during the next three years and which are considered essential for industry growth, *Tables 3-5* focus on the short (0-12 months) to longer-term (37+ months) actions tasks and activities support the direction of those themes.

KEYSTONE PROGRAMS

- REGULATORY ROADMAP
- REGULATORY ASSISTANCE PROGRAM
- CANADIAN FFNHP PRODUCT QUALITY PROGRAM
- CANADIAN FFNHP PORTAL
- NATIONAL ASSET MAP AND INVENTORY OF

Future Funding

Funding for NNC, and the initiatives undertaken during the past two years, were provided by AAFC (Science and Innovation Broker Program) and augmented by in-kind and cash contributions from industry and NNC organizations. It is NNC's expectation that AAFC will remain a key source of cash funding in the 2008/2009 fiscal year for the proposed Canadian FFNHP Strategy, and the activities detailed in *Tables 3-5*. However, combined in-kind and cash support from industry and other organizations will exceed AAFC's contribution in 2008/2009 and beyond.

NNC projects that the funding for the proposed 2008/2009 activities will have an industry to AAFC total support ratio of approximately 1.5 to 1.0 (60/40 percent). This implies significant cost sharing of some initiatives with other levels of government and collaborating non-government bodies.

Roles and Responsibilities

Roles and responsibilities for the implementation plan are presented in *Table 2*.

Table 2: FFNHP Sector Strategy: Proposed Roles and Responsibilities

	ORGANIZATION	ROLES & RESPONSIBILITIES
1	NUTRI-NET CANADA (NNC)	Strategy implementation Securing funding for initiatives Securing collaboration partners for initiatives
2	INDUSTRY & INDUSTRY ASSOCIATIONS	Matching funding Leadership, collaboration and participation in selected initiatives

	ORGANIZATION	ROLES & RESPONSIBILITIES
3	FEDERAL GOVERNMENT (AAFC, DFAIT, HC, IC)	Funding Collaboration, regulatory review, international support (DFAIT)
4	PROVINCIAL GOVERNMENT DEPARTMENTS & AGENCIES	Funding Regional input and support of specific initiatives
5	ACADEMIA	Collaboration on R&D and technology/product development Collaboration on development of training and education initiatives

Implementation Plans

Table 3: Short Term Implementation Plan

THEME	STRATEGY	ACTIVITIES	TIMEFRAME	PERFORMANCE MEASURES
NUTRI-NET CANADA	Determine an effective organizational structure for NNC	Consider governance options for NNC Confirm the mandate of NNC	0-6 months	NNC organizational and governance structure agreed and put in-place NNC mandate confirmed with key funders
STRATEGIC CLUSTERS, INVESTMENT ATTRACTION & MARKET DEVELOPMENT	Initiate the development of a *National Asset Map and Inventory of the Canadian FFNHP Sector* building upon existing work.	Develop and maintain a "*Who's doing what*" inventory to facilitate collaborations between research and industry Assemble a collaboration matrix of NNC networks/Partners to aid in the identification of potential project partners Identify sector investors Maintain and update the database of funds and incentives developed by NNC, in an on-line, interactive format Collate and provide links to national and regional FFNHP research and development capacity and infrastructure	6-12 months	*National Asset Map* and components developed, assembled and distributed to sectoral stakeholders
REGULATORY POLICY & PROGRAMMING	Advocate for the development of a portfolio of regulatory guidance and communications tools, including a *Regulatory Roadmap*, using studies and reports already undertaken by NNC and its partners.	Develop a web-based, interactive *Regulatory Roadmap* for the FFNHP Sector Develop a *Regulatory Toolbox*, including user-friendly *Regulatory Guidelines*	6-12 months	*Regulatory Roadmap* completed and hosted on NNC website Regulatory Guidelines developed from NNC studies Regulatory Toolbox materials collated
	Continue effective and active participation of FFNHP stakeholders in legislative and regulatory reviews and in the improvement of FFNHP regulations.	NNC representatives to meet with policy staff in Departments of Health and Agriculture on a regular basis to update and advocate for improvements to the national regulations and for harmonization of regulations internationally.	0 – 36+ (ongoing activity)	Schedule of meetings/sessions with Federal representatives

THEME	STRATEGY	ACTIVITIES	TIMEFRAME	PERFORMANCE MEASURES
	Coordinate and submit a *Canadian FFNHP Review Report* to representatives of the federal government who maintain a mandate for the amendment of regulations that apply to FFNHPs. This is to comprise a brief summary/overview and the regulatory reviews/studies undertaken by NNC and its Partners.	Ensure NNC information on regulation/legislation is updated and maintained Prepare an abstract of NNC studies with respect to regulatory reviews. Prepare a single source package of NNC and partners studies on regulation/legislation	6-12 months	Abstract and single source package prepared and distributed to Health Canada NNC recognized as providing coordination and leadership
RESEARCH & DEVELOPMENT, TECHNOLOGY TRANSFER & COMMERCIALIZATION	Extend the *NNC Product Quality Initiative* to develop analytical methods suitable for validation and laboratory proficiency testing for two additional FFNHPs of interest to the Canadian industry	With Partners, develop methodologies for validation and testing for two FFNHPs	9-12 months	Methodologies developed and disseminated to FFNHP industry
	Develop and maintain an inventory of FFNHP current research capacity, projects and infrastructure	Building upon the Wellness West Infrastructure Database for Western Canada, engage a consultant to further the inventory and recommend how a national or regional database should be maintained Support the development of the Canadian researchers' database project by the Natural Health Product Research Society of Canada.	6-12 months	Inventories of FFNHP R&D Infrastructure Consultant report & recommendations The Canadian researchers' database project by the Natural Health Product Research Society of Canada is established and becomes self-sustaining
	Build industry-research collaboration and awareness of current opportunities by the initiation of a *Research to Receptor* series based on the MaRS Landing and CQVB models.	Initiate a *Research to Receptor* series based on the MaRS Landing and CQVB models	6-18 months (overlaps short-medium term timeframe)	One *Research to Receptor* series delivered nationally
	Building upon the *Funding and Incentives Database* initiated by	Building on the database initiated by NNC, continue to collect and collate information on	6-18 months (overlaps short-	Information disseminated

THEME	STRATEGY	ACTIVITIES	TIMEFRAME	PERFORMANCE MEASURES
	NNC, provide and disseminate to industry, information on Federal and Provincial research incentives and support programs, e.g. SR&ED, provincial tax programs, and NGO/industrial research programs.	government programs, and NGO/industrial research programs, etc. Disseminate to industry through NNC website/portal and Partner networks	medium term timeframe)	Industry inquiry responses
	Disseminate key scientific documents, in English and French, to the FFNHP industry and research communities.	Identify, through industry and research partners, key scientific documents that need to be translated Engage a translator to undertake the work Disseminate the papers to industry and research communities via NNC website/portal and Partners	6-12 months	Scientific papers translated and disseminated
CROSS-SECTOR COLLABORATION	With sectoral partners, design, develop, maintain and market a web-based *Canadian FFNHP Information Portal*	Develop the Terms of Reference for an RFP Engage a web-designer/consultant to specify and make recommendations on the design, development and marketing of a FFNHP portal. To include - Sectoral Asset Map, a listing of events of interest to the sector value chain members, communications packages, Regulatory Guidelines and Regulatory Roadmap and links to Partners	9-15 months (overlaps short to medium term timeframes)	Develop Terms of Reference and RFP documentation Portal design and marketing plan submitted and agreed by NNC.
NETWORKING & COMMUNICATIONS	Communicate the *Strategic Plan* to stakeholders and seek their endorsement, support and commitment to implementation	*2008 Nutri-Net Canada Conference*, Quebec City NNC Website Identify strategic sectoral stakeholders, Partners, Partner networks and distribution channels	0-3 months	Conference delivered; cross-sector attendance achieved NNC website updated and traffic tracked Plan distributed to Partners Letters of Support received from a representative cross-section of the FFNHP sector's stakeholders

THEME	STRATEGY	ACTIVITIES	TIMEFRAME	PERFORMANCE MEASURES
	Identify and support sector "*champions*" who will endorse and promote the Strategic Plan to and within their individual constituencies and jurisdictions	Identify credible "*champions*" within the sector value chain Use NNC personal networks to recruit champions Develop a media and information support package for each champion constituency	3-9 months	One champion identified from each member of the FFNHP value chain Media and information packages distributed to champions Champions provide brief on how they will support the strategy
	Work with partner organizations, to raise sector awareness, encourage networking and promote communications across the sector, from producer to consumer	Establish a *National Functional Foods and Natural Health Products Conference* hosted by Nutri-Net Canada in collaboration with Partners Develop a *Communications Plan* that uses a blend of channels and media, e.g. newsletters, e-broadcasts, pod-casts, webinars, and videoconferences Work with sectoral partners to develop a national calendar of events that would include receptor forums to encourage industry-investor-academia networking, the showcasing of R&D/new technologies, and the delivery of regional Investor-Readiness Workshops for the FFNHP industry following the successful BioAccess BioPitch model, and Develop *Case Studies* based on globally significant success stories from industry and research partners, e.g. Ocean Nutrition Canada	0 – 36+ months (ongoing activity)	Annual National FFNHP Conference & Trade Show organized and delivered Communications Plan identifies a blend of media and distribution channels suitable for sector stakeholder groups identified and used National Calendar of FFNHP events collated and published 3 case studies identified and written up All Nutri-Net Canada project reports posted on website upon completion

Table 4: Medium Term Implementation Plan

THEME	STRATEGY	ACTIVITIES	TIMEFRAME	PERFORMANCE MEASURES
STRATEGIC CLUSTERS, INVESTMENT ATTRACTION & MARKET DEVELOPMENT	Utilize the ***National Asset Map and Inventory of the Canadian FFNHP Sector***	Identify national and regional geographic clusters of unique expertise, capacity and infrastructure Proactively match opportunities with capacity and infrastructure Facilitate investment in new product development (NPD)	12-18 months	*Asset Map* expanded to include cluster analysis Increase in level of national collaborations and use of infrastructure Rising level of investment in NPD
	Develop, and distribute the output of, a *Canadian FFNHP Market Intelligence System*, which will track Canadian FFNHP sales to provide accurate, timely information on market size and trends in the Canadian marketplace and compare these against international FFNHP market trends	With Partners, define appropriate categories and work with Statistics Canada and industry monitors (e.g. AC Neilson, etc) to identify approaches to track sales in different categories of retail outlets Identify and assess key sources of international FFNHP trends	18+ months (ongoing)	Canadian FFNHP sales tracked and trends in the Canadian marketplace made available to industry. Impact of Government policy changes characterized.
	Collaborate with DFAIT and Industry Canada to raise global awareness of the Canadian FFNHP sector and in doing so develop international collaborations and partnerships	Liaise with DFAIT and AAFC to build awareness and to promote the Canadian FFNHP sector in the Canadian Consuls and Consulates Provide industry sub-sector specific information to encourage collaboration and inward investment Identify in-market events and conferences where FFNHP sector trade missions would be effective and promotion of these, in association with other partners, to government trade and economic development departments Develop a system for the gathering and distribution of market intelligence and trends and for the matching of identified global	12-36+ months (overlaps medium to long-term timeframe)	Increased awareness as evidenced by the flow of inquiries from international companies and research institutions Increase in the number of new international collaborations and partnerships

THEME	STRATEGY	ACTIVITIES	TIMEFRAME	PERFORMANCE MEASURES
		needs with Canadian capabilities and natural resources		
REGULATORY POLICY & PROGRAMMING	Collaborate to develop and promote a ***Regulatory Assistance Program***, to provide defined financial support and targeted consulting assistance on a case-by-case basis	Collate NNC and Partner information on the need for a RAP Construct program parameters, eligibility and assistance offered	12-24 months	*Regulatory Assistance Program* researched and agreed
	Collaborate to develop ingredient and product monographs to accelerate the passage of new products through regulatory review	With Partners, agree on a priority listing of monographs Engage Partners and third parties to research and prepare monographs	18-30 months	A minimum of one monograph produced by end of year 3
RESEARCH & DEVELOPMENT, TECHNOLOGY TRANSFER & COMMERCIALIZATION	Encourage the development of policies and programs that support FFNHP research and development, demonstration, commercialisation and adoption	With Partners, organise and deliver regional workshops to determine what policies and programs are appropriate and how they should be applied Promote the demonstration and adoption of new technologies by the identification of economic and other incentives whose application will result in the maximization of technology commercialization in FFNHP	18-36 months	Four regional workshops delivered Recommendations on incentives made and communicated to Federal, Provincial and Territorial governments
	Expand the *Canadian FFNHP Market Intelligence System* to include the collection and distribution of intelligence on emerging technologies, product innovations and trends to encourage academia to understand potential opportunities in market-driven, applied research	Develop Terms of Reference and contract for the development of an "*Emerging FFNHP Technologies*" study Use the *Wellness West Technology Watch* publication as a model for building awareness of new technologies and regional capacity	12-18 months	RFP Terms of Reference Study Report Replication of Technology Watch in Central and Atlantic Canada,
	Investigate and propose a pan-	Develop TOR for an RFP to engage a	18-24 months	RFP Terms of Reference

THEME	STRATEGY	ACTIVITIES	TIMEFRAME	PERFORMANCE MEASURES
	Canadian model for the transfer of FFNHP technologies and product innovation from the universities to industry	consultant to research, analyse and recommend a technology transfer approach for the FFNHP sector		Study report and agreement on an appropriate technology transfer approach for different FFNHP subsectors and different members of the industry
	Develop a Canadian portfolio of technologies and bring it to both the Canadian industry and the international market	Develop TOR for an RFP to engage a consultant to research and compile an inventory of FFNHP technologies with commercial/market potential and to determine a suitable host platform for the inventory	24-30 months	RFP Terms of Reference Study Report and Database of Technologies
CROSS-SECTOR COLLABORATION	Address the FFNHP industry's need for business-aware graduates by encouraging the development of curricula, in partnership with secondary and tertiary educational institutions, for the training of science graduates in business and management	Consult with Industry Partners and Academia to develop a "*science to business*" curriculum focused on business awareness not entrepreneurship	18-36 months	University course curriculum developed and accredited
	Address the FFNHP industry's need for skilled labour through the development of curricula, in partnership with secondary and tertiary educational institutions, for training in FFNHP analytical methods, formulation, and clinical research	Consult with Industry Partners, Researchers and Academia/Community Colleges to develop a curriculum to train students in FFNHP analytical methods, formulation and clinical research	18-36 months	University and/or Community College course curriculum developed and accredited
	Support linkages with the medical community, health agencies and related NGOs	With Partners, establish linkages with key health sector players/organizations Consult with key health sector players /organizations on establishing channels to disseminate FFNHP information	12-36 months	Communications channels and forums with key health sector players/organizations established
NETWORKING &	Develop and distribute	Develop, update and maintain a "key	6-18 months	Distribution list constructed and maintained.

THEME	STRATEGY	ACTIVITIES	TIMEFRAME	PERFORMANCE MEASURES
COMMUNICATIONS	communications briefings and marketing collateral targeted to key stakeholder audiences.	audience" distribution list Identify and collate NNC and Partner-developed materials Identify and address "gaps" in communications and marketing collateral		All NNC and Partner materials identified and indexed. Communications and marketing materials compared against stakeholder audience needs
	Bring the investment, research and industry communities together.	With Partners, define, design and deliver a *Communications Program for Investors* based on the Venture Forum model	18-30 months	Program delivered nationally Registrations Investor interest/awareness raised

Table 5: Longer Term Implementation Plan

THEME	STRATEGY	ACTIVITIES	TIMEFRAME	PERFORMANCE MEASURES
STRATEGIC CLUSTERS, INVESTMENT ATTRACTION & MARKET DEVELOPMENT	Support the growth of national core capacity by the identification and promotion of cluster development based on unique national and regional strengths with respect to capacity, natural resources and infrastructure.	Develop a FFNHP "*cluster plan*" for Canada based on unique national and regional strengths, competencies and infrastructure	24+ months	Unique clusters identified and matched against global trends
	Confirm and reinforce Canada's international status in FFNHP innovation, and foster industry economic stability and growth	Develop International Market Plan for the development and promotion of the "*Canada FFNHP Brand*"	24+ months	International Market Plan developed and promoted to Canadian Consulates abroad
	Engage with multinational food companies to link Canadian micro and small-to-medium	Open dialogue with BigFood through the use of established industry networks, e.g. ONC, to	24+ months	BigFood opportunities listed, prioritized and communicated to the micro- and SME

THEME	STRATEGY	ACTIVITIES	TIMEFRAME	PERFORMANCE MEASURES
	sized enterprises' (SME) innovation and product development with identified opportunities in the health and wellness strategies of the MNCs	develop a priority opportunity listing Match and communicate the resultant opportunities to the micro and SME FFNHP sub-sectors Research on the benefits for consumers and companies, market research on potential, rapid product development, cost effectiveness, assurance of supply, promise of a stream of product innovations with regulatory approval for making health claims about them		FFNHP communities
REGULATORY POLICY & PROGRAMMING	Influence the modernization of Canada's regulatory infrastructure to establish Canada as an excellent jurisdiction for proof of concept and market testing of new products; consequently encouraging both inward investment and indigenous sector growth	With Partners develop position paper on the regulation and legislative changes required to establish Canada as a preferred FFNHP product development and market testing location With Partners identify and advocate to the various levels of Government	18+ months (ongoing)	Position paper on Canada as a preferred location Increased investment in indigenous sector growth Increased Foreign Direct Investment (FDI)
	Encourage development of programming to build awareness of processor, formulator and product developer and manufacturer needs of regulatory compliance by growers, producers and harvesters of FFNHP constituents	Expand the *Sector Asset Map* to include developing the tools, regulations and incentives that will identify and promote unique cluster development	24+ (ongoing)	Clusters identified and Growth Programs and Tools developed Overall growth in national clusters Increased collaboration between clusters for funding, markets and investment
RESEARCH & DEVELOPMENT, TECHNOLOGY TRANSFER & COMMERCIALIZATION	Support the evolution of the *NNC Product Quality Initiative* to develop analytical methods suitable for validation and laboratory proficiency testing into a self-sustaining ***Canadian***	Develop, test and validate analytical methods for laboratory proficiency accreditation Develop *FFNHP Product Quality Program*	30+ months (ongoing)	Product Quality Initiative business plan implemented. FFNHP Product Quality Program developed and accredited

THEME	STRATEGY	ACTIVITIES	TIMEFRAME	PERFORMANCE MEASURES
	FFNHP Product Quality Program			
	Present disruptive-breakthrough technologies in the FFNHP sector to the investment community (angel, VC, government, etc.) to support the accelerated development of technology platforms, which could provide "*quantum*" leaps in competitiveness	Work with industry and academic partners to identify and prioritise emerging disruptive technologies Work with industry and academic partners to identify a program of incentives and support to enable the identified technologies	30+ months (ongoing)	Identified FFNHP disruptive technologies Identified incentives and support required to bring these technologies to production
CROSS-SECTOR COLLABORATION	Support NNC's work with Federal, Provincial and Territorial departments and agencies	Obtain funding support for pharmaco-economic research and the evaluation of health economics, public health outcomes, and for specific FFNHPs Build the body of evidence to support the inclusion of specific, well-validated FFNHPs in Provincial Formularies and by private health and life insurers Obtain tax relief for users of FFNHPs and advocate for improved tax incentives for industry	30+ months (ongoing)	Funding obtained for evaluation of FFNHP benefits on national health outcomes Documented evidence of validated FFNHPs available to Provincial Formularies and Private Health and Life Insurers Improved tax situation for individuals using FFNHPs and industry
NETWORKING & COMMUNICATIONS	Establish Nutri-Net Canada as a source of timely, trusted information for the FFNHP sector, and a key influence in the construction of a Canadian regulatory system.	Develop "*Canadian FFNHP Brand*" to be managed by NNC Establish the brand by attention to credibility drivers such as providing well-research and trusted information, influencing regulation reviews, fostering sector investment, and facilitating sector collaborations and partnering	24+ months (ongoing)	Brand identity and Brand Plan Presence in media

Monitoring the Strategy

This initial sector strategy is ambitious in scope but reasoned in terms of its portrayal of what needs to be accomplished to advance Canada's functional food and natural health products industries as an emerging sector with vast potential. The sector strategy will evolve to reflect the maturation of the sector and the evolution of its needs. In the near term, the performance of the sector strategy implementation will be measured by key outcomes that will require an unprecedented level of collaboration among the participating organizations. Readers should note that there are factors critical to the achievement of some of the outcomes that are not within the control of these organizations. The outcomes will nonetheless be pursued.

By the end of 2010, these expected outcomes are:

- An Internet-based information portal that is the preferred source of comprehensive information about the FFNHP sector, its participants, its research and development activity/capacity and its contribution to the Canadian economy and health care system;
- A modernized, tiered-risk based, internationally competitive, enabling policy and regulatory framework for FFNHPs, health claims and indications for use that includes clear and consistently met performance standards for pre-market evaluation of health claims and other claims for foods;
- A nationally available assistance program to assist applicants in navigating Canada's regulatory system that applies to functional foods and natural health products;
- Enhanced international recognition of the quality and integrity of FFNHPs of Canadian origin that arises from increased capacity in product quality management and analytical capacity;
- Increased investment in FFNHP research and commercialization activity within Canada, building on a quantified, internationally recognised research resource base;
- A sustained level of FFNHP health economics analysis to encourage and guide public and private sector investment in use of FFNHPs in Canada's health care delivery system, including the eligibility of FFNHPs in insured pharmacare programs as complementary medicines; and
- Enhanced recognition of the role of FFNHPs in health promotion and chronic disease prevention, as evidenced by the increasing prominence given to FFNHPs by health care and nutrition practitioners in their advice and treatment of patients.

The outcomes outline above are a partial list but reflect the more important outcomes that can be achieved through one additional outcome, that being an unprecedented and sustained level of collaboration among the participants in Canada's FFNHP sector. The performance of this sector strategy will be measured against the attainment of these outcomes. The evaluation of the performance will be a key determinant in refining the strategy in years to come.

Annex I: Key Canadian FFNHP Organizations

- Advanced Food & Materials Network (AFMNet)
- Ag-West Bio Inc.
- Atlantic Canada Network on BioActive Compounds
- BC Functional Food & Nutraceutical Network
- BioAtlantech
- Canadian Health Food Association
- Canadian Herb, Spice and Natural Health Product Coalition
- Canadian International Grains Institute
- Centre Québécois de Valorisation des Biotechnologies (CQVB)
- National Research Council-Plant Biotechnology Institute, Crops for Enhanced Human Health
- Flax Canada 2015
- Innovation Place Bio Processing Centre
- Manitoba Food Processors Association
- Manitoba Pulse Growers Association Inc.
- MaRS Landing
- Natural Health Product Research Society of Canada
- Nutraceutical and Functional Food Institute (INAF)
- Office of Clinical Research at St.Boniface Hospital
- PÔLE Québec Chaudière-Appalaches
- Pulse Canada
- Sask. Herb and Spice Association
- Soy 20/20
- The Food Development Centre (FDC) - A Special Operating Agency of Manitoba Agriculture, Food and Rural Initiatives.
- Wellness West

Annex II: Listing of NNC Enabled Initiatives, Studies & Reports

Workshops

- January 23, 2008: Eastern Canadian FFNHP Industry Strategy Workshop; Guelph, ON; Charlottetown, PEI
- December 13, 2007: Western Canadian FFNHP Industry Strategy Workshop; Burnaby BC; Edmonton, AB; Saskatoon, SK
- November 27/28, 2007: Nutri-Net Canada Food Health Claims Symposium, Toronto, ON
- October 11, 2007: Québec-Manitoba Inter-provincial Technology Exchange Meeting; Québec City, QC; Winnipeg, MB
- September 19/20, 2007: Nutri-Net Canada Sector Strategy Workshop, Winnipeg, MB

Studies & Reports

- *Canada's Proposed Regulatory Framework for Health Claims on Foods – A Comparison of International Regulations*, CanTox Health Sciences International
- *Critical Review of Health Canada's Standards of Evidence for Evaluating Foods with Health Claims and Analysis of Requirements for Pre-market Evaluation of Functional Foods and Related Health Claims in the Canadian Market*, CanTox Health Sciences International.
- *Comprehensive Overview of Federal Statutes and Regulations Applicable to Pre-Market Evaluation of Foods and Food-Related Health Claims*, InterSect Alliance Inc.
- *The FFNHP International Market Trends: Opportunities for the Canadian Agri-Food Industries in Functional Foods and Natural Health Products in the US, Australia, UK and Japan*, George Morris Centre.
- *The FFNHP Canadian Market Trends: Opportunities for the Canadian Agri-Food Industries in Functional Foods and Natural Health Products*, George Morris Centre
- *The Nutri-Net Database Project*, George Brook Consulting
- *The Nutri-Net Canada Food Health Claims Symposium*, November 27-28, 2007, Toronto, ON

Nutri-Net Canada Conference

- *Nutri-Net Canada Forum*; Québec, QC, February 18-19, 2008: