The Era of Global Supply Chain Ecosystems

Source: WFP Supply Chain at a glance

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IDD Vision
The IOCOM Digest and Dialogue (IDD) is to be recognized as a world class outcome management Journal/Periodical.

IDD Mission
IDD’s Mission is to provide useful, timely and thought-provoking content in outcome management driven disciplines that addresses a broad spectrum of practices for knowledge exchange among academicians, researchers and practitioners.

IDD Objectives
1. Bridge the gap between academicians and practitioners in the discipline of outcome or benefit management
2. Provide a platform to academic researchers and practitioners for disseminating their research work.
3. Promote adoption of innovative outcome or benefit management disciplines
4 Highlight challenges being faced by the outcome managers (practitioners)

IDD Scope
1. The IDD journal will cover application of the cross cutting themes of Outcome management disciplines. No other journal in the world is having such orientation.
2. IDD journal’s main emphasis is on applied research.
3. IDD journal will accommodate articles based on both qualitative and/or quantitative approaches. However, preference will be given to mixed methods and action research.
4. Geographical territory of our journal is the entire globe.
5. Our target audience includes academics and practitioners in outcome or benefit management.
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IOCOM is a not-for-profit corporation registered in Canada. It is an organization of professionals, academics and an alliance of international and national associations, societies and networks engaged in the discipline of outcome management.

IOCOM invites professionals and academics to create a forum for the exchange of useful and high-quality theories, methodologies and effective practices in outcome management drawn from all management disciplines. IOCOM encourages outcome management practitioners from all disciplines to make use of our resources, to participate in our initiatives and to contribute to our goals as individuals or through their organizations. We offer global linkages to outcome management professionals, organizations and networks about events and important initiatives, as well as opportunities for exchanging ideas, practices, and insights with peers throughout the world.

IOCOM’s Vision

To create a world where professionals, academia, organizations and networks with a focus and interest in effective outcome or benefit management, collaborate to strengthen the theory and practice of the discipline that benefits society.

IOCOM’s Mission

To promote outcome or benefit management in the world at large through multidisciplinary professional and academic collaboration and contribute to the quest for outcome or benefit management evidence in decision making for business and organizational viability.

IOCOM organizational and individual memberships are free and provide the benefits of professional connectivity worldwide and access to IOCOM’s E-Journal, Digest and Dialogue (IDD).

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Welcome to this new issue of IDD focused on the new era of “Global supply chain ecosystem” and sub-themes. In a previous issue (Vol. 03 No. 4), I introduced the concept of business ecosystems in an article titled the “Dynamics of business ecosystems”. This concept was defined as “a complex network of interconnected businesses that depend on and feed on each other to deliver value for their customers, to the end users, and their key stakeholders”. These days, the term “ecosystems” appears to be the buzzword in business management circles.

Dr. Martin Christopher, professor emeritus at the Cranfield University School of Management, has gained international recognition for his work in the field of logistics and supply chain management. From the supply chain perspective, he adopts an end-to-end perspective of the flows of product and accompanying information from the source of raw materials to delivery to the end customer and sometimes beyond.

Dr. Christopher developed a definition of supply chain ecosystem as: “the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer”.

My message focuses on how this definition of supply chain ecosystem is applied in the context of the UN’s sustainable development goals (SDGs) or outcomes and benefit management in particular SDG 1, “end poverty in all its forms everywhere” and SDG 2 “end hunger, achieve food security and improved nutrition and promote sustainable agriculture”.

The UN Secretary General’s progress report 2018 on the SDGs or outcomes is an excellent way to start the conversation on the theme and its linkages to SDG’s 1 and 2. The report highlighted progress in many areas of the 2030 Agenda for sustainable development. The maternal mortality ratio in sub-Saharan Africa has declined by 35 per cent and the under-five mortality rate has dropped by 50 per cent. In South Asia, a girl’s risk of marrying in childhood has declined by over 40 per cent. The report also highlighted that after a prolonged decline, the number of undernourished people rose from 777 million in 2015 to 815 million in 2016, mainly due to conflicts and drought and disasters linked to climate change.

In making progress on these fronts of poverty reduction and zero hunger, the global food supply chain ecosystem plays a vital role in ensuring food security for all, which means 100 per cent access to adequate food all year round.
The agenda on SDGs adopted by all United Nations member states in 2015 provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 SDGs, which are an urgent call for action by all countries, both developed and developing, in a global partnership. The partnership recognizes that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth, all while tackling climate change and working to preserve our oceans and forests.

On the ground level, many non-governmental organizations such as the UN-funded World Food Program (WFP), which is part of the global food supply chain ecosystem, are contributing to poverty reduction and zero hunger SDG outcomes and world food security. WFP is an excellent profile of food supply chain ecosystem that is making a difference to benefit all citizens of the world, and especially the underprivileged. The WFP’s supply chain manages the entire process of end-to-end planning, procuring and delivering food assistance. This covers safe and quality food, goods and transport, as well as shared supply chain services for WFP, its partners and the entire humanitarian community.

The WFP’s supply chain facts and figures outputs and outcomes or benefits management:
- Purchased 3 million metric tons of food, valued at US$1.4 billion from 101 countries.
- Delivered of 3.8 million metric tons of food, of which 2.7 million metric tons travelled by sea.
- Delivered of US$842 million worth of cash-based transfers.
- On any given day, the Supply Chain manages a network of 650 warehouses worldwide supported by WFP owned fleet of trucks, charted vessels and aircrafts including a large retail chain.
- The UN Humanitarian Air Service transported 327,934 passengers and 2,708 metric tons of light cargo covering 15 countries.
- The UN Humanitarian Response Depots reached 95 countries in collaboration with several partners and shipped 7, 200 metric tons as well as relief items worth US $45 million.
- Logistics Clusters facilitated the delivery of 68,315 metric tons of relief cargo and the distribution of 1.4 million litres of fuel.
- Bilateral Logistics Services.

WFP is an enabling partner in multi-stakeholder partnership with the Bill & Melinda Gates Foundation to improve health supply chains across 17 countries. The WFP achievements illustrate the enormity and complexity of the supply chain ecosystem. WFP’s operations worldwide and its outputs and outcomes are making a significant contribution to the target population of 815 million undernourished people in the world. WFP’s supply chain 2018 review report constitutes an excellent resource for further reading.
With just 12 years left to the 2030 deadline, the UN Secretary General injected a sense of urgency call for collective action by world leaders to accelerate the pace of the actions to achieve the targets of the SDG.

See my article on a complimentary issue of food supply chain ecosystem and food waste reduction sub-ecosystem elsewhere in this issue. Reducing food loss and waste is critical to creating a Zero Hunger world and reaching the world’s SDGs, especially SDG 2 (End hunger) and SDG 12 (Ensure sustainable consumption and production patterns). I wrote it in hopes of creating knowledge transfer and awareness of such issues that may impact our daily lives and how we can play a role in mitigating food waste in our households.

Finally, a reminder: Use the IDD to tell us about your experiences. Let the world know what you are doing. IDD needs writers from all outcome management disciplines to maintain a continuous flow of articles, short or long. The editorial team welcomes suggestions for improving the quality of the IDD. It’s your e-journal. Help us make it world class!

Chair/President
Sandiran Premakanthan
Editors’ Note

The editors take great pleasure in presenting IDD, Vol. 4 Issue 4, which has as its theme: “The global supply chain ecosystem.” This issue contains four articles for your reading enjoyment.

Up in smoke: In Canada, cannabis has hit a new high: In October 2018, Canada became only the second country in the world -- and the first G7 nation -- to implement legislation that legalizes the recreational use of cannabis. It suddenly became legal to toke up. The world is watching Canada’s profound shift in public policy. IDD associate editor John Flanders assesses what has happened since pot was legalized, now that the smoke has cleared.

Pot-infused gummy bears? Edibles next in line for legalization in Canada: On October 17, 2019, Canada will take the next step in legalization when new regulations on cannabis edibles, beverages, topicals and extracts officially take effect. IDD associate editor John Flanders examines these regulations and what they mean for Canadians.

Reducing food loss and food waste in our quest for a zero hunger world: According to the United Nations Food and Agriculture Organization, “one-third of food produced for human consumption is lost or wasted globally, which amounts to about 1.3 billion tonnes per year”. IOCOM chair Sandiran Premakanthan examines the critical issue of food loss and waste in the supply value chain ecosystem and its impact on attaining the UN’s goals for a “zero hunger world”.

Humanitarian logistics and supply chain management in Pakistan: In 2005, a magnitude 7.6 earthquake shook the Kashmir region, along with sections of Pakistan, India and Afghanistan. Five years later, flooding on the Indus River led to a humanitarian disaster considered one of the worst in Pakistan’s history. IDD editor Atiq ur Rehman examines the discipline of supply chain management, analyzes developments in discipline and highlights challenges faced in the humanitarian sector.

How the supply chain management of oversight serves the public interest: Customers and citizens increasingly require leaders in both private and public sector organizations to provide assurances on how their services and products serve the public interest in their countries. Basil Orsini with his years of experience in oversight management and a contributor to the IDD examines oversight activities that have grown internally in response to the social expectations for private and public sector organizations.

And a reminder: Give us some feedback. Send us an email, or better still, write an article. We need authors who are willing to share new and innovative ways of looking at outcome management. Let’s hear from you.

Editors

Atiq ur Rehman, Susanne Moehlenbeck, and John Flanders
Up in smoke: In Canada, cannabis has hit a new high

John Flanders

Introduction

On a cold, windy night in the City of St. John’s, the capital of Newfoundland and Labrador, Canada’s easternmost province, a 46-year-old man lined up outside a retail shop to make a midnight purchase that would cement his place in Canadian history.

Ian Power became the first person in Canada in nearly a century to own a gram of legal recreational cannabis. At the stroke of midnight October 17, 2018, when the sale of non-medical cannabis officially became legal in Canada, Mr. Power was the first of more than 130 customers lined up outside a retail cannabis store on the city’s main street.

He had waited not just hours – but years – for the chance, after more than three decades of black-market marijuana purchases. “I think it’s one of the biggest moments of my life,” he told The Canadian Press news service. “There’s a tear in my eye. No more back alleys.”

The first purchase, rung in at five seconds after midnight, was paid for by a woman named Nikki Rose, 24, who bought one gram for Mr. Power and three grams for herself at a total cost of $49.98 CDN after tax.

Canada became only the second country in the world -- and the first G7 nation -- to implement legislation to permit a nationwide marijuana market. In the neighboring United States, 11 states and the District of Columbia now allow for recreational marijuana use, and 30 allow for medical use.

Uruguay was the first country to legalize the production of marijuana, sale and consumption in December 2013.

In Canada, Bill C-45, otherwise known as the Cannabis Act, stemmed from a campaign pledge of Prime Minister Justin Trudeau to keep marijuana away from underage users and reduce related crime. The act, which legalized the recreational use of weed, received Royal Assent on June 21, 2018.
The *Cannabis Act* ushered in a profound shift in public policy. But legalization had many critics. Some argued that potential health, public safety and addiction risks are significant and warned that public consumption of the drug could make it more appealing and accessible to minors.

But at this writing, some 10 months after legalization, the smoke has definitely cleared. Cannabis has become Canada’s new growth industry. According to the Toronto-Dominion Bank, legalization of marijuana will add as much as $8 billion to real gross domestic product.

“The world is watching,” said Mark Whitmore, Vice Chair of the consulting firm Deloitte Canada, which has published three reports on the opportunity that legalizing cannabis presents to the Canadian economy.

“Canada is in a unique position as the first G7 country to legalize recreational cannabis,” he said. “This move has sparked a wave of innovation and entrepreneurship, similar to Canada’s technology sector, which will create jobs for Canadians, new opportunities for businesses and revenues for governments.”

Deloitte said the total cannabis market in Canada, including medical and illegal as well as legal recreational products, is expected to generate up to $7.17 billion CDN in total sales in 2019.

Legal sales are expected to contribute more than half of this total—up to $4.34 billion—in the first year. Current and likely consumers expect to pay slightly more for legal products, with the former saying they’re willing to pay 10 per cent more.

This report examines the cannabis industry in Canada, with emphasis on the supply chain. Just for the record, the author has never smoked marijuana, and doesn’t think he ever will. But he knows lots of people who have.
Want to toke up? Welcome to Canada

So you want to come to Canada and legally toke up\(^1\). There are lots of websites that spell out how you can do so safely and responsibly. For a complete explanation of the legalities, consult the Government of Canada’s website (www.canada.ca).

The travel guide book, *Lonely Planet* (www.lonelyplanet.com), points out that there’s no one way of staying on the right side of the law. The *Cannabis Act* sets some national standards – consumption is restricted federally to adults 18 and older, for instance. But the rules vary from province-to-province and even from one town to the next. Most provinces and territories have set a minimum age of 19.

In British Columbia, for example, cannabis consumption is permitted anywhere tobacco smoking is permitted, but not where children are present (beaches, parks, playgrounds) or in vehicles.

Across the country in *Newfoundland and Labrador*, it’s allowed in private residences only. If you’re in *Saskatchewan*, you can buy from a private seller, including an online store. But in *New Brunswick*, sales are restricted to government-run liquor stores.

If you’re 18 or 19 or older (depending on province or territory), you can carry up to 30 grams (about an ounce) of legal dried cannabis, or its equivalent in non-dried form, in public. You can also share up to 30 grams of dried cannabis or its equivalent with other adults.

In Ontario, the most populous province, you can toke up just about anywhere you can smoke a cigarette. That includes many outdoor places, such as parks and sidewalks, as well as designated smoking guest rooms in hotels, motels and inns. But you can’t smoke up in places such as school grounds or anywhere children gather, or in hospitals, to name a few.

The province allows you to grow up to four cannabis plants per household, not per person – if you are aged 19 or older, it is only for your personal use, and the starting material was purchased from the Ontario Cannabis Store or an authorized retail store.

But one word of warning: Just don’t try to take weed across the border into the United States! The Canada Border Services Agency says that’s a definite no-no:

“The legalization of cannabis in Canada did not change Canada’s border rules. Taking cannabis or any product containing cannabis across Canada’s international borders is illegal and can result in serious criminal penalties both at home and abroad. This is the case even if you are travelling to places that have legalized or decriminalized cannabis. Transporting cannabis used for medical purposes is also illegal.”

In its most recent move, the Canadian Government late in July 2019 announced a free and quicker way to apply for pardons for simple cannabis possession. A new online applications

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\(^1\) The term is well known in North America and among pot users and means smoking pot
system aims to remove barriers to employment, housing, travel and volunteering opportunities for people who were convicted of simple possession before recreational cannabis use was made legal.

Justice Minister David Lametti said the announcement will help minorities who have been "disproportionately affected by cannabis laws." The new system eliminates the $631 CDN fee and lengthy wait times. The government estimates upwards of 250,000 Canadians have pot convictions; it suspects applications will be in the tens of thousands.

Supply chain: A strict legal framework at every stage of production

The \textit{Cannabis Act} was drafted to address the following goals:

- to establish strict product safety and quality requirements to protect public health and safety;
- to prevent young people from accessing cannabis and prohibit promotional activities or other enticements appealing to young people to use cannabis;
- to deter and reduce cannabis-related criminal activity by providing for the licit production of cannabis and by imposing appropriate sanctions and enforcement measures;
- to reduce the burden on police and the justice system associated with cannabis offences, particularly possession; and
- to inform Canadians of the risks associated with cannabis through sustained and appropriate public health campaigns.

The legislation created a strict legal framework for controlling the production, distribution, sale and possession of cannabis in Canada. To illustrate legal requirements, Health Canada, the federal department of health, produced a supply chain graphic (see below). It shows that federal licenses are required at every stage in commercial production: cultivation, processing and sale to the public.

The Government of Canada’s website lists more than 200 companies that hold a licence to cultivate, process or sell cannabis under the \textit{Cannabis Act}. “Most current and likely cannabis consumers want a variety of products offered at reasonable prices from suppliers who can vouch for the safety and origin of those products,” said Jennifer Lee, the Cannabis National Leader for Deloitte.

“Cannabis companies will need to have secure supply chains to protect the quality and integrity of their products, and retailers will need to meet consumer expectations, including providing a positive, engaging retailing experience and protecting the privacy of their customers, especially online.”
SUPPLY CHAIN FOR THE COMMERCIAL PRODUCTION AND SALE OF CANNABIS

Proposed Federal Licences

1. CULTIVATION
   - STANDARD CULTIVATION LICENCE
     - Large-scale growers of cannabis
     - Cultivate any variety of cannabis
     - Produce cannabis seeds, cannabis plants, fresh and dried cannabis
   - MICRO-CULTIVATION LICENCE
     - Small-scale growers of cannabis
     - Some activities as standard cultivation licence but on a smaller scale
   - NURSERY LICENCE
     - Growers of starting materials
     - Cultivate any variety of cannabis
     - Produce seeds and seedlings (including clones)
   - INDUSTRIAL HEMP LICENCE
     - Growers of industrial hemp
     - Cultivate approved varieties of industrial hemp (containing 0.3% THC or less)
     - Sell whole plant

2. PROCESSING
   - STANDARD PROCESSING LICENCE
     - Large scale production of cannabis products (e.g., cannabis oil)
     - Packaging and labelling products for sale to the public
   - MICRO-PROCESSING LICENCE
     - Some activities as a standard processing licence but on a smaller scale

3. SALE TO PUBLIC
   - AUTHORIZED PROVINCIAL AND TERRITORIAL SALE
     - Sell tested, labelled and packaged cannabis products
     - Distilled to be sold by individual P/Ts
     - SELL TO: Adults
   - FEDERAL SALE LICENCE (MEDICAL)
     - Sell tested, labelled and packaged cannabis products by phone, online or in person
     - SELL TO: Registered persons
   - FEDERAL SALE LICENCE (NON-MEDICAL)
     - Sell tested, labelled and packaged cannabis products by phone, online or in person with secure home delivery
     - SELL TO: Adults

OTHER FEDERAL AUTHORIZATIONS:
- ANALYTICAL TESTING LICENCE
- RESEARCH AUTHORIZATION
- IMPORT AND EXPORT PERMITS

ADDITIONAL NOTES:

ALL FEDERAL LICENCE HOLDERS CAN CONDUCT RELATED ACTIVITIES SUCH AS:
- Possession, transportation, storage, destruction, and intra-industry sales.

INDIVIDUALS ON ORGANIZATIONS MAY HOLD ONE OR MULTIPLE CLASSES OF LICENCES, WITH SOME EXCEPTIONS:
- A federal licence is required to obtain an import/export permit for scientific or medical purposes, or in respect of industrial hemp.

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Tel: 1-819-464-6868 • Toll-free: 1-800-368-8267 • Fax: 1-819-464-6423
Ironically, almost as soon as cannabis became legal for recreational use, the supply chain failed the system. In October 2018, the chief executive officer of one of Canada’s largest licensed cannabis producers, said his company was facing “short-term supply chain issues”. It would not be able to meet the full demand requested by the provinces on the day cannabis became legal.

Since then, Canada has been dealing with what some are calling a nationwide shortage of pot that has led some provinces such as Ontario to restrict store openings.

In Toronto, the capital of Ontario, shortages and wait times were blamed at least in part for the persistence of illegal sales at unlicensed pot shops.

Industry spokesmen told The Toronto Star in July 2019 that buyers’ continued reliance on illegal operations was a strong signal of their preference for those retailers and their products, and a direct knock on the inferior quality and higher prices found at licensed sellers.

But the Star said that prior to legalization, there were more than 90 illegal cannabis storefronts in Toronto. That dwindled to 36 soon after legalization. Now fewer than 10 remain, city officials confirmed late in July.

**Cultivation: How a small Canadian town went to pot**

Smiths Falls, population 8,780, is a gritty, industrial town in Eastern Ontario, roughly an hour’s drive southwest of Ottawa, the nation’s capital. For nearly half a century, it was known as the chocolate capital of Ontario. It was home to the Hershey Company's first plant outside the United States. With large-scale chocolate production anchoring the local economy, this small manufacturing town prospered. But by 2008, it was all over. Hershey closed its factory and moved production to Mexico. Its factory was left vacant for years, and the town’s economy went into a tailspin.

Today, there’s a new kid in town. The old Hershey factory is full again, and in fact it is expanding. It is headquarters for a company called Canopy Growth Corp., which in April 2019 became the world’s largest cannabis company, based on the value of all shares, or market capitalization.

A profile of the company in the Ottawa Citizen newspaper relates how Canopy Growth has injected new life into Smiths Falls. Many of its new workers have been drawn from Smiths Falls and nearby towns. The variety of jobs is somewhat surprising.

The Smiths Falls operation includes nearly all aspects of the burgeoning marijuana industry. There are employees who cultivate and trim plants, extract oils, conduct research into new strains and products, formulate marketing campaigns, answer calls from customers, administer the
operations, and package and distribute products. The employees include a surprisingly sophisticated information technology network.

The company expects its employment in Smiths Falls will top 1,000 by the fall of 2019, with 3,000 worldwide. By the end of 2018, Canopy Growth had invested $150 million to bolster its Smiths Falls manufacturing, distribution, research and administration, with another $70 million in investments slated for 2019.

In its fiscal year 2019, gross revenue from recreational cannabis amounted to $140.5 million. This revenue accounted for 16,250 kilograms and kilogram equivalents, or 67% of total cannabis sold in fiscal 2019.

As for Smiths Falls, Canopy Growth’s vastly increased construction activity and payroll have injected new life into the town. Hotels are full of out-of-town trades people. House prices are rising. Rental accommodations are tough to find. Builders are dusting off plans for subdivisions that were scrapped just a few years ago for lack of interest.

Retailers: Rolling with a Hobo

Don’t let the name put you off. Hobo is no vagrant on Bank Street, Ottawa, one of the city’s main drags.

Hobo Recreational Cannabis Store made its debut in April 2019, the first of its kind. The store is part of a British Columbia-based hospitality brand responsible for hip restaurants, bars and barber shops that have become fixtures in Vancouver and Toronto. Walk in and you might think you were in a jewelry store. A smiling greeter will check your ID in a reception area. Further inside, the cannabis showroom is decked out in warm, light wood paneling and accessorized with houseplants.

Wood shelves propped with a selection of cannabis packages are organized by pre-roll, capsule, spray and oil. Tabletop displays featuring dried flower run down the centre of the deep room and allow shoppers a chance to compare various strains in sensory jars.

“This is no longer your sketchy bodega where you must play a game of cop-chicken to gain trust enough to gain entry,” one customer wrote on the Yelp website. “No, this is an open store front with a smiling greeter, a short privacy wall, not to block entry but to provide privacy to shoppers. Birch veneer display tables line the floor, with an array of flowers on display in acetate containers with special magnifying glasses affixed to the top of each container next to a rubber stopper which you can remove to smell check the product,” he wrote.

“Next to each container is the price per 1g/3g/7g as well as the desired effects and cost of each product. The walls are aligned with various products, accessories, information....”
Hobo’s website (https://hobo.ca) puts it this way: “There’s a new normal in town and its name is Cannabis. Our aim is to make the cannabis buying experience disarming, compassionate and human. That’s why people roll with us.”

A wave of innovation and entrepreneurship

As Deloitte Canada points out, the federal government’s push for legalization has had a powerful effect, sparking a wave of innovation and entrepreneurship “that shares the fast-growing, can-do spirit of Canada’s technology sector”.

Even the media has jumped on the bandwagon. In June 2018, Postmedia Network Inc., a major Canadian news media company, announced the launch of TheGrowthOp.com. This epublication provides a comprehensive source of current and credible information for industry professionals, investors and consumers. “It’s rare to witness the birth of an entirely new industry,” Postmedia’s announcement said. “The GrowthOp is a premier destination to inform, educate, and connect readers to this new economy.”

And if you need some numerical information on cannabis, try Statistics Canada, the nation’s data-gathering agency (www.statcan.gc.ca). The Agency has copious data on four main topics:

- Health: Canadians’ use of cannabis by age, sex, province and territory
- Justice: Cannabis offences along with estimates of drug impaired driving
- Economy: Household spending on cannabis, as well as production and distribution, for both medical and non-medical use
- Prices: Consumer prices of cannabis by province and territory

Statscan’s National Cannabis Survey for the first quarter of 2019 showed that about 5.3 million people, or 18% of individuals aged 15 and older, reported using cannabis in the three months prior to the survey. This was up from 14% in the same quarter a year earlier, before legalization, primarily because of higher use among men.

The survey also found that during the first quarter, 646,000 people reported trying cannabis for the very first time.

Deloitte Canada summarizes everything this way: “In time, we expect legalization will legitimize consumption and diminish the stigma that surrounds it today. (Canadians have) shown that we have the maturity to develop strong, thriving industries based on tightly regulated, controlled substances such as beer, wine, and spirits. “It was not all that long ago that these were regarded in a vastly different light. In our view, cannabis will prove little different. Recreational consumption will eventually become normalized and mainstream, eliciting about as much reaction as having a pint of craft beer.”
Pot-infused gummy bears? Edibles next in line for legalization in Canada

John Flanders

The next step in the legalization of cannabis in Canada? Pot-infused edibles.

This stage is expected to create a Canadian consumer market for edibles and other alternative cannabis products worth more than $2.5 billion CDN a year, according to Deloitte Canada’s latest annual report on the country’s cannabis industry. It is also anticipated to generate higher profits for retailers than cannabis products that are already legal.

Health Canada, the federal health department, released new regulations on cannabis edibles, beverages, topicals and extracts in June 2019. The regulations, which include significant measures around child resistant packaging and plain labelling, will officially come into effect on October 17, 2019.

This will be one year to the day that the Liberal government of Prime Minister Justin Trudeau legalized recreational cannabis in Canada. However, federal officials said these products will not likely be on the legal market until mid-December 2019. The regulations are designed to limit the appeal of cannabis products and reduce the risk of food-borne illness or over-consumption.

Child-proof packaging and mandatory health warnings

Canadians should expect a small initial supply of cannabis edibles when they become legal in mid-December, and the limited range of products won't include goodies that might appeal to children, government officials say.

The products will require child-resistant and child-proof packaging, and must include mandatory health warnings. Single-serving products will be limited to 10 milligrams of THC, the psychoactive drug in cannabis.

Health Canada warns inexperienced users to start with 2.5 milligrams or less, and wait to see what the effects are. They also warn people using edibles to avoid smoking cannabis.

“The regulations seek to reduce the health risks of these cannabis products,” said Ginette Petitpas Taylor, Canada’s minister of health.

“At the same time, the amendments provide for a broad diversity of cannabis products, which will help displace the illegal market. These products pose unique health risks, which is why we have taken the necessary time to establish appropriate safeguards.”
Deloitte’s report estimated that more than $1.6 billion will be spent annually on edibles and $529 million on cannabis-infused drinks; topicals, concentrates, tinctures and capsules would combine for more than $400 million in sales.

With the global cannabis market worth an estimated US$100 billion combined among the top 13 cannabis markets, these new products will create valuable growth opportunities for the Canadian cannabis sector and help maintain the country’s leadership position, Deloitte said. Deloitte’s representative survey of 2,000 adult Canadians showed that nearly half of likely edible users are planning to consume gummy bears, cookies, brownies, or chocolate at least every three months.

“According to our research and stakeholder interviews, much of this economic boost will be on top of current cannabis product spending,” said Jennifer Lee, Deloitte Canada’s Cannabis National Leader. “The introduction of cannabis-infused edibles will clearly threaten the alcohol industry as consumers are using the product for similar usage occasions.”

The report notes that alcohol and tobacco companies are looking for opportunities to enter the legal cannabis industry to avoid losing market share. This could continue to fuel an already strong market for mergers and acquisitions in the cannabis sector.
Reducing food loss and food waste in our quest for a zero hunger world

Sandiran Premakanthan

Introduction

Imagine going to the supermarket and buying your weekly bundle of groceries to feed your family. Now imagine tossing a quarter of those groceries away as soon as you leave the store. That over-dramatizes the situation, but few countries are spared the plight of extraordinary food losses and food waste.

Canada wastes so much food that one researcher likens it to tossing a quarter of your groceries away when you leave the supermarket. In fact, Canada is among the worst globally in wasting food, according to a 2018 report on the state of food loss and waste in Canada, the United States and Mexico, covered by the Canadian Broadcasting Corporation.

The report released by the Commission for Environmental Cooperation — an environmental agency set up under the North American Free Trade Agreement — found when including all stages of the food supply chain, 396 kilograms of food per capita is wasted in Canada every year. That compares with 415 kilograms in the United States and 249 kilograms in Mexico.

According to the United Nations Food and Agriculture Organization (FAO), “one-third of food produced for human consumption is lost or wasted globally, which amounts to about 1.3 billion tonnes per year”. In Europe alone, around 88 million tonnes of food are wasted each year. Associated costs are estimated at €143 billion, according to European Union estimates. As of July 2019, the world’s population had surpassed 7.7 billion people. Many millions of these people go hungry every day. By 2050, the population is predicted to reach 9.1 billion, and this will require a 70 per cent increase in food availability. FAO says a significant part of this growth will take place in developing countries, where steadily increasing urban populations continue to create complex and lengthy food supply chains involving many actors, presenting challenges in delivering safe, nutritious food that is of good quality.

In my chair’s message elsewhere in this edition, I discuss the supply chain ecosystem and its application in the context of sustainable development goals (SDGs) or outcomes and benefit management. In particular, I look at SDG #1, “end poverty in all its forms everywhere” and SDG# 2 “end hunger, achieve food security and improved nutrition and promote sustainable agriculture”. This article examines the human food supply value chain and the food loss and

waste ecosystem. It discusses the critical issue of food loss and food waste and its impact in reaching the SDG#2 “end hunger for a zero hunger world” and SDG # 12 “ensure sustainable consumption and production patterns”. The article highlights FAO facts on food loss and waste at global, national and regional levels, and provides some tips to reduce food waste in hotels, restaurants, catering and households.

**Human food supply value chain and the food loss and waste ecosystem**

The supply chain ecosystem is defined as: “the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer”. It is the adoption of an end-to-end perspective of the flows of product and accompanying information from the source of raw materials to delivery to the end customer and sometimes beyond.

A FAO graphic (Figure 1) illustrates the human food supply value chain and the food loss and waste ecosystem.

![Figure 1](image)

**Food loss** is caused mainly by the malfunctioning of the food production and supply system or its institutional and policy framework. This could be due to managerial and technical limitations,
such as a lack of proper storage facilities, cold chain, proper food handling practices, infrastructure, packaging, or efficient marketing systems.

**Food waste** refers to the removal from the supply chain of food that is still fit for human consumption. This is done either by choice or after the food is spoiled or expired because of poor stock management or neglect.

There are five system boundaries distinguished in the food supply chains of vegetable and animal commodities and products. They are: agricultural production; post-harvest handling and storage; processing; distribution; and consumption.

The food loss and waste ecosystem illustrates where food loss and waste takes place and what mitigation strategies could help minimize the impact on the food supply value chain. For example, production and harvest food loss could be prevented through sustainable technical, social, economic and environmental practices. Coherent investments for short, medium and long term returns are suggested.

Inadequate storage facilities and techniques is another contributory factor of food loss. Capacity development, access to energy, inputs, investments and market information could be adopted to address this situation. Waste in hotels, restaurants, catering and households is preventable through adequate planning, consumer education and optimal food utilization.

The level of losses differs from one stage of the food supply chain to another, depending on crop type, level of economic development, as well as social and cultural practices in a region. In the case of fruits and vegetables, according to an FAO study, losses at harvest and during sorting and grading dominate in industrialized regions, probably mostly due to discarding during grading to meet quality standards set by retailers.

In developing regions, while losses at harvest and during sorting and grading are also high, losses during processing (14 per cent to 21 per cent) are much higher than those in developed regions. The distinct difference highlights the need to improve processing technologies for perishable products such as fruits and vegetables in developing regions.

**Food waste: This picture is worth a million words**

This picture (Figure 2) is worth a million words to get people’s attention to act and get the desired result or outcomes or benefits of reduced food waste in hotels, restaurants, catering and millions of homes around the world. I am sure all of us are guilty of wasteful habits, and have done exactly what you see in this picture. Food waste is hurting our world and putting extra
strain on our natural resources. It increases greenhouse gas emissions and contributes to climate change.

**Figure 2**

![Image of food being thrown away](https://via.placeholder.com/150)

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### Global quantitative food loss and waste

Food losses and waste amount to roughly US $680 billion in industrialized countries and US $310 billion in developing countries.

Industrialized and developing countries throw away roughly the same quantities of food, respectively 670 and 630 million tonnes. Total food loss and waste amount to 1.3 billion tonnes. Every year, consumers in rich countries waste almost as much food (222 million tonnes) as the entire net food production of sub-Saharan Africa (230 million tonnes).

The amount of food lost or wasted every year is equivalent to more than half of the world's annual cereals crop (2.3 billion tonnes in 2009/2010).

In industrialized countries:
- 30 per cent or 286 million tonnes of cereal products are thrown away by consumers;
- 29 million tonnes or 20 per cent of dairy products are lost in Europe alone;
- 8 per cent of fish and sea food caught are thrown back in to the sea as they are dead or dying or badly damaged;
- 263 tonnes of meat or 20 per cent produced are lost or wasted;

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• 22 per cent of oil seeds and pulses are lost or wasted, and;
• 5,814,000 tonnes or 45 per cent of roots and tubers in North America and Oceania are wasted at the consumption stage of the value chain.

A regional look

• Per capita waste by consumers is between 95-115 kg a year in Europe and North America, while consumers in sub-Saharan Africa, south and south-eastern Asia, each throw away only 6-11 kg a year.
• Total per capita food production for human consumption is about 900 kg a year in rich countries, almost twice the 460 kg a year produced in the poorest regions.
• In developing countries 40 per cent of losses occur at post-harvest and processing levels, while in industrialized countries more than 40 per cent of losses happen at retail and consumer levels.
• At the retail level, large quantities of food are wasted due to quality standards that over-emphasize appearance.

Food isn’t the only thing that is wasted when it goes uneaten: all the resources, such as seeds, water, feed, money and labour that go into making it are also lost.

Many nations finding innovative methods of fighting waste

The situation is not all distressing, however. Many countries are coming up with innovative methods of tackling food waste.

In Malaysia, food waste has reached a critical level as data by Solid Waste Management and Public Cleansing Corporation show that 55 per cent of solid waste disposed at landfills comprises food.
But MySafeFood is a project started in 2016 by the Malaysian Agricultural Research and Development Institute (MARDI), in collaboration with the FAO, under the latter’s global SaveFood initiative to reduce food waste. The Malaysian government has also started to seriously look into establishing a national food bank.

An example of reducing losses in fresh fruits by using effective drying techniques is developing dried mango product in Kenya. More than half of the mango production in Kenya is lost before reaching market. To address this problem, the German Corporation for International Cooperation partnered with a Nairobi-based company called Azuri Health to develop a dried mango product, under the FAO’s initiative.

Australia has OzHarvest, the nation’s leading food rescue organisation. It collects quality excess food from commercial outlets and delivers it directly to more than 1,300 charities supporting people in need across the country. Founded in 2004 by Ronni Kahn. After noticing the huge volume of good food going to waste from the hospitality industry, she decided there had to be a better way. Starting in Sydney with one van – the first of many donations from Goodman+ Foundation – she delivered 4,000 meals in the first month. OzHarvest now operates nationally, rescuing over 180 tonnes of food each week from over 3,500 food donors including supermarkets, hotels, airports, wholesalers, farmers, corporate events, catering companies, shopping centres, delis, cafes, restaurants, film and TV shoots and boardrooms.

In Canada, federal Agriculture Minister Marie-Claude Bibeau announced Canada’s first-ever federal Food Policy in June 2019. She called it a roadmap for a healthier and more sustainable food system for Canada and said that Canada’s vision is that “all people in Canada are able to access a sufficient amount of safe, nutritious and culturally diverse food. Canada’s food system is resilient and innovative, sustains our environment and supports our economy”. To make this vision happen, the government is investing $134.4 million in new funding over five years. “Too many Canadians aren’t able to reliably access sufficient amounts of healthy food,” Minister Bibeau said. “Too many children at school are trying to learn on empty stomachs. And we are wasting more than 11 million metric tons of food every year – worth nearly $50 billion”.

Minister Bibeau said $26.3 million will go toward setting up a “challenge” to fund the “most innovative food waste reduction proposals in food processing, grocery retail and food service” and to back the federal government in projects to cut its own food waste. Funding of $24.4 million will go to programs tackling “food fraud”, such as the mislabelling and misrepresentation of food products. That funding, the government said, will help “protect consumers from deception and companies from unfair competition.”
Minister Bibeau also announced that the Government of Canada is leading by example and will invest $6.3 million to cut its own food waste in federal facilities. Another $15 million has been earmarked to bolster food security in Northern Canada, where many communities have the highest rates of food insecurity in the nation, especially northern Indigenous people. Minister Bibeau also said that about 17 per cent of people who live in Yukon Territory are food insecure.

In Rome, Italy European Union (EU) Commissioner of Health and Food Safety Vytenis Andriukaitis and FAO Director-General José Graziano da Silva agreed to strengthen collaboration between the two organizations and signed a new letter of intent on 29 September 2017 to address food waste and food safety in supply value chains. This means working closely together to halve per capita food waste at the retail and consumer levels and reduce food losses along production and supply chains by 2030, a goal established under the new Sustainable Development Goals (SDG) global agenda.

At the signing ceremony, the EU Commissioner said: "Food loss and waste represent an unacceptable, unethical and immoral squandering of scarce resources and increase food insecurity". He added, "we are becoming more united, more efficient and more strategic in how we tackle these issues and as such, this agreement should be celebrated."

Here’s what you can do to become a #ZeroHunger hero

Here are nine easy ways the FAO says we could prevent this waste of food by changing our habits and become #ZeroHunger heroes:

• **Start small** – Take smaller portions at home or share large dishes at restaurants.
• **Leave nothing behind** – Keep your leftovers for another meal or use them in a different dish.
• **Don’t be prejudiced** - Buy “ugly” or irregularly shaped fruits and vegetables that are just as good but look a little different.
• **Check your fridge** – Store food between one and five degrees Celsius for maximum freshness and shelf-life.
• **First in, first out** – A simple but effective rule. Try using produce that you had bought previously and, when you stack up your fridge and cupboards, move older products to the front and place newer ones in the back.
• **Understand dates** - “Use by” indicates a date by which the food is safe to be eaten, while “best before” means the food’s quality is best prior to that date, but it is still safe.

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for consumption after it. In food packages you may also find "sell by" date, which is helpful for stock rotation by manufacturers and retailers.

- **Compost** – Some food waste might be unavoidable, so why not set up a compost bin or your green bin.
- **Donate the surplus** – Sharing is caring.

On special or festive occasions, plan food requirements ahead. Allowing your guests to self-serve may be a good idea, this in the hope that your guest follow the food waste tip of take what you like and in the quantity you can eat. In family meals, leftovers could be frozen or given to guests or they could be turned into next day’s lunch or dinner. As a rule, finish your leftovers before you cook a new meal.

**Ugly fruits and vegetables: consumer bias?**

FAO through its educational channels ⁸ is creating public awareness and knowledge on why it is important to love an ugly fruit and vegetables is good for the environment, the economy and in reducing world hunger. For example, 25-30 per cent of carrots don’t make it to grocery stores because of aesthetic or physical irregularities (ugly shape, colour). Beauty is in the eye of the beholder. It is our personal bias that prevents us from buying fruit or vegetables that do not conform to ‘normal’ shapes, size and colours that are considered superior for satisfying our hunger.

Because of such bias, one-third of the fruits and vegetables never make it to the grocery shelves because they are rejected by supermarket chains and buyers on their way from the farm to the wholesale and retailers. FAO estimates that waste is much higher for fruits and vegetables, almost half (45 per cent) of what is produced. The question is, would you buy an ugly shaped carrot or fruit if it is available at your local farmers markets or farm shops? Sales of fruits and vegetables can bypass some of the strict aesthetic standards that supermarkets have applied to products on their shelves. These pictures of the bananas and potatoes are prime examples of untraditional looking products, our personal or preferences bias will influence our decisions to buy or reject. Rules of thumb: if you intend to eat the fruit the same day, buy them ripe. If they are not sold, the fruits and vegetables end up in the garbage as waste and not in someone’s hungry stomach. Saving ugly fruit and vegetables isn’t just a question of ethics; it is a question of resources.

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Conclusion

Sustainable food supply value ecosystem produce safe and nutritious food for human consumption worldwide and contribute to climate resilience. In ensuring the sustainability of our food value chain, we must prevent food from becoming wasted and discarded. This will require behaviour changes and sustainable partnerships on consumption, production, marketing and logistics.

The magnitude of the problem (1.3 billion tonnes of food waste) needs to be monitored, measured and reported. Actions must be taken to continuously reduce the waste at all critical stages from production to consumption of food at local, national and global levels.

Food loss and waste reduction comprise a continuous battle for all humans if we are to succeed in creating a world without hunger. It continues to be one of the most urgent development challenges. FAO estimates that the entire world could be fed if half of what is lost or wasted is prevented. FAO is leading the way in partnering with international organizations, the private sector and civil society to enable food systems to reduce food loss and waste in both the developing and the industrialized world.

In reducing especially food waste, we could make a difference to the 821 million people who are left without food while we the fortunate consider it a given. Statistics clearly say that the world has to do a better job feeding its people, all 7.7 billion of them.

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Humanitarian logistics and supply chain management in Pakistan

Atiq ur Rehman

Introduction

On October 8, 2005, a magnitude 7.6 earthquake shook the Kashmir region (a disputed territory controlled in part by Pakistan and India), along with sections of Pakistan, India and Afghanistan. More than 80,000 people perished as a result of the quake, while an estimated 4 million others were left homeless.

In some places, whole sections of towns slid off cliffs and entire families were killed. The Muzaffarabad area suffered severe devastation, and the town of Balakot in the Khyber Pakhtunkhwa Province was almost completely destroyed.

The quake occurred just before the onset of the region’s harsh winter, exacerbating the disaster’s effects. In addition, landslides wiped out large numbers of the region’s roads, making many of the damaged areas inaccessible to relief workers in the immediate aftermath.

Then in late July and August 2010, flooding of the Indus River led to a humanitarian disaster considered to be one of the worst in Pakistan’s history. The floods, which affected 20 million people, destroyed homes, crops and infrastructure, and left millions vulnerable to malnutrition and waterborne diseases. An estimated 1,200 to 2,200 people were killed. Roughly 1.6 million houses were damaged or destroyed, leaving an estimated 14 million people without homes.

Humanitarian supply chain management plays a critical role in responses to such emergencies. A large number of victims of these two disasters could not be reached due to logistics challenges (Ergun et al., 2009).

This article examines the discipline of humanitarian logistics and supply chain management, analyzes developments in the discipline and highlights challenges faced in the humanitarian sector, with emphasis on events in Pakistan.

Discipline of supply chain management

Supply chain management is relatively a younger discipline. According to the Sphere Handbook, supply chain management covers “identifying the source of what is needed, procurement, quality...
management, risk management (including insurance), packaging, shipping, transportation, warehousing, inventory management, delivery and distribution” (Sphere Association, 2018). The objective of the supply chain is “to deliver the right supplies in the right quantities to the right locations at the right time” (Chandraprakaikul, 2010).

Supply chain management covers a wide array of activities, including preparation, planning, procurement, transportation, storage, distribution and performance evaluation (Costa, Campos & Bandeira, 2012 ). In the case of emergencies, the items covered by supply chain management are water and food supplies, medical facilities, communication facilities, camp management and distribution of aid.

In the humanitarian sector, the success of supply chain management is measured at two levels: the outcome level, that is, reduction in the impact of the disaster; and the output/delivery level: a) appropriateness; b) rapid/speed; c) quality; and d) efficient/cost. Transparency and accountability are also judged. Among all the success criteria, timing is often considered a most crucial factor in the case of humanitarian emergencies, as a slight delay in the delivery of aid can cost a lot, even human lives.

**Three key stages of supply chain management**

Three key stages of supply chain management are planning, management and evaluation. These are briefly described below:

**Planning**
Planning is the most crucial part of the humanitarian logistics and supply chain management cycle. Planning of logistics and supply chain activities in the humanitarian sector is much different from a normal supply chain management system. In the humanitarian sector, usually information available for planning is very inadequate and time is also too short. The target population is not clearly defined. The nature and intensity of the emergency situation are not predictable.

Uncertainties prevail in both the supply and demand sides. In view of these constraints, the humanitarian organizations have to keep themselves prepared in advance to meet any emergency situation. Usually they develop emergency response plans, notify quick response teams, allocate minimum necessary resources to undertake operations and maintain a certain minimum level of stock at some strategically important location.

**Management**
The management of supply chains covers seven areas: 1) humanitarian supply chain; 2) warehousing and inventory; 3) procurement; 4) transport; 5) fleet management; 6) import/export
and international commerce practices; 7) and managing a humanitarian supply chain response (Fritz Institute/CILT, ud.).

These seven areas are covered by Certification in Humanitarian Logistics (CHL), which has been launched jointly by the Fritz Institute and the Chartered Institute of Logistics and Transport (CILT). The main objective of this certification is to develop a workforce equipped with essential knowledge, skills and attitudes, required for undertaking logistics and supply chain operations in emergencies. The certification also covers areas such as principles of logistics and supply chain management in humanitarian context, managing procurement process, calculating warehouse space requirements and developing transport schedules etc.

It is encouraging to note that several standards have been developed for humanitarian logistics and supply chain management. These standards are to be followed to improve the quality, efficiency and effectiveness of the supply chain activities and also to ensure value for money while observing humanitarian principles. Some of the major standards are briefly described below:

The PARCEL, or Partner Capacity Enhancement in Logistics Standards (https://parcelproject.org/), is an inter-agency initiative that aims at developing capacity of the local humanitarian organizations to respond to humanitarian emergencies. The PARCEL standards cover areas, such as asset management, procurement, warehousing, fleet management and distribution.

The Sphere Handbook also contains standards for logistics and supply chain management (Sphere Association, 2018).

The Chartered Institute of Procurement and Supply (CIPS) Global Standard for Procurement and Supply (https://www.cips.org/Documents/Global_Standard/Global_Standard.pdf): Although CIPS standards don’t cover exclusively the domain of humanitarian programs, they provide a broad competency framework about logistics and supply chain management. The standards cover five levels of competencies: tactical, operational, managerial, professional and advanced. They also cover 11 themes: position and influence, external environment, technology, spend management, contracting, sourcing, delivering outcomes, metrics and measurement, developing individuals and teams, developing self and personnel skills and ethics.

Two international NGOs - Humanitarian Logistics Association (HLA) and RedR UK are jointly planning a project to compile standards of humanitarian logistics into a handbook. This initiative will mark a big contribution to the development of the discipline.
Evaluation
The evaluation of humanitarian logistics and supply chain management activities is the last, but an important, activity. Humanitarian organizations need to share experiences and learn from each other. The Humanitarian Logistics Association (HLA), a United Kingdom-based non-profit organization, is providing a common platform to the humanitarian logistics professionals. It needs to open regional and national chapters so that the professional development competencies spread more efficiently and effectively. This is much needed because a situation of emergency can arise in any part of the world at any point in time.

Key challenges in humanitarian logistics and suggestions
Humanitarian organizations in Pakistan confront a number of challenges in managing logistics and supply chains during emergencies, among them:

Cost of maintaining stockpiles: Dedicating a warehouse to humanitarian stocks and maintaining a certain level of stockpiling is expensive. An alternate solution is to contract with commercial organizations that have a wide distribution system, with a commitment that they will supply the agreed items at agreed prices. However, such arrangements carry lot of risk.

Communication between the field teams and the control room/office becomes one of the major barriers (Smilowitz & Dolinskaya, 2011; Ergun, et al., 2018). In affected areas, sometimes the communication system is badly affected. For example, the 2005 earthquake badly destroyed the communication system in Azad and Jamu Kashmir and Khyber Pakhtunkhwa province. In one instance, a truck carrying necessary goods was stuck at a point near Balakot owing to landslides, while the consignee organization kept sending more trucks. They had no idea that their earlier consignment was stuck at some location, as there was no mean of communication. Traffic kept building up on both sides, making the situation worse. In hours, the road was blocked on both sides. This became a lesson in the importance of effective communication systems in humanitarian efforts.

Delays in decision making also have an impact (Smilowitz & Dolinskaya, 2011). Decision making is affected by many factors: 1) inaccurate and/or unreliable damage and need estimates; 2) inadequate information about the required products available locally; 3) bureaucratic hurdles in approvals and release of funds; and 4) non-responsive and inefficient procurement management systems. In case of the 2010 super floods, initial assessments were very low and no one had imagined the scale of damage. By the time a more clear picture of the damages was revealed, it had already played havoc with the lives of people. The logistics teams of many organizations were not prepared to carry out operations on such a large scale as was needed.
Infrastructure-related issues add to the problems. In case of the 2005 earthquake and 2010 super floods, infrastructure had been badly destroyed, making the work of logistic teams very difficult. Hence, the logistics teams have had to explore all routes and more efficient means of transportation.

Uncertainties in demand, timing, location of delivery and supply of goods and services also offer many challenges (Ergun, et al., 2018). It has been observed that affected families tend to move out of the affected areas as and when they can. Many of them succeed in relocating to other cities. A large number of temporarily displaced people in Waziristan and Swat migrated to other cities, such as Peshawar, Rawalpindi, Islamabad and Karachi. When drought hit Tharparkar, some of the families managed to move to other areas. Similarly, in many cases, especially in case of drought and floods, it was observed that when news broke that at some location water, food and other items were being distributed, many families immediately rushed to take advantage of the opportunity of aid. Such patterns of movement made estimates of the humanitarian organizations less relevant.

Prices of essential items escalate, owing to abrupt imbalances created in supply and demand forces. Commercial entities hoard items which are in high demand pushing the prices upward. The situation gets worst when escalation in the demand of cargo handlers and transporters lead to an increase in the cost of operations. Access issues add to the cost of logistics.

Distribution issues: During rescue and relief operations carried out in the 2005 earthquake, it was observed that people living in pockets that were easily accessible received more aid than they actually needed, while in remote/not easily accessible locations, people starved.

Political interests also matter (Smilowitz & Dolinskaya, 2011). Local political actors come into action and start driving the flow of aid to families of their preference. They create obstacles if any humanitarian organization does not follow their instructions. Hence, the teams should be adequately trained in political skills, negotiation skills and tactics and problem-solving skills. It is also a challenge to minimize the wastage of resources (Smilowitz & Dolinskaya, 2011). During emergencies, wastage is usually inevitable - during transportation, storage and distribution. The situation is more critical in locations where the supply of goods exceeds the demand. During the earthquake of 2005, supplies came from hundreds of local philanthropists, common people and international aid agencies. They were diverted to easily accessible locations such as Muzafarabad and Balakot. The affected people living around these locations got more options to get tents, blankets, food and other supplies. Many beneficiaries threw away many of the items to avail themselves of better options. Coordination among multiple actors can help fix such issues.
Need related issues: During emergencies, many donors donate in kind, whereas experience suggests that donated items are mostly not needed (Ergun et al., 2009). In the 2005 earthquake and 2010 super floods, many donors donated food items (mostly bakery products and canned foods) and the affected people had no taste for such items. Eventually, many lots of such items were wasted.

Humanitarian standards: Field staff of local humanitarian organizations are often inexperienced and rarely have orientation to humanitarian standards. This situation is more pertinent to the staff of private parties engaged in the humanitarian logistics and supply chains. The local humanitarian organizations should assess their own processes and staff competencies in humanitarian supply chain management. The PARCEL project has devised an assessment tool that is available online. The tool measures compliance with the PARCEL logistics standards.

Government restrictions - In Pakistan, the INGOs are subject to several restrictions. They have to get permission from different federal and provincial government departments to carry out humanitarian operations. Besides, they are not allowed to carry out any survey. An alternative is to partner with any local NGO that has a valid NOC for a certain region and which has signed an MOU with Economic Affairs Division, a federal government department. Another challenge is to ensure inflow of resources (Smilowitz & Dolinskaya, 2011). Inflow of financial resources is mostly uncertain even when any disaster has hit, mainly because of the following issues: 1) government organizations resist declaring the state of emergency; 2) the local humanitarian organizations lack capacity in writing concepts notes/project proposals; 3) the systems and processes of the local organizations are not well established to give enough confidence to the donor organizations; and 4) the donor organizations take time in processing the proposals of funding. By the time funding is approved, ground realities have changed. A few years ago, when drought hit the region of Tharparkar in Pakistan, humans, animals and crops were badly affected. The biggest victims of the drought were the children. Some of the local organizations approached some donor agencies. By the time funding was approved, most of the affected population had moved out to other cities/locations.

Trends and innovation

Many innovations that have made supply chain management easier, efficient and effective have occurred in recent years: Google Maps, Waze, Mapquest, Sygic, Apply Maps, City Mapper and many others have greatly facilitated logistics and supply chains. It is easy to find more efficient routes. GPS vehicle tracking systems have also made a large contribution. However, the areas where Internet connectivity is either very poor or totally non-existent, such tools are useless. Sygic is one of the few known solutions that can work, even where Internet is not available. Cargo management softwares such as Magaya Cargo System help in transporting goods.
Inventory management systems (SAP, EZOffice Inventory, DEAR Inventory, ZAP ERP Inventory and bar coding technology) have also made significant contributions. Communication technologies help identify points where aid is needed. Drones and robotic technologies will make a big breakthrough in the distribution of aid.

Conclusion

Humanitarian logistics and supply chains play a key role in the success of humanitarian programs. The capacity of local organizations should be developed. Humanitarian organizations need to prepare logistics and supply chain plans in advance and identify risk factors that could impact logistics and supply chain operations.

References


How the Supply Chain Management of Oversight Serves the Public Interest

Basil Orsini

Introduction: The growth of organizational oversight

The business of satisfying customers and citizens has become more complex, challenging and fast-paced across the world. Global issues, such as those concerning the environment, are creating greater awareness of the need to ensure that corporate behaviours comply with legal requirements and ethical obligations.9

Customers and citizens increasingly require leaders in both private and public sector organizations to provide assurances on how their services and products serve the public interest in their countries.10 Pronouncements by organizational management do not, by themselves, satisfy this expectation.

Consequently, there has been a significant growth of oversight functions to ensure the integrity of organizational behaviour and reporting. The increase in external oversight on corporate behaviour has generated a corresponding increase in oversight units within organizations helping senior management to report publicly on their accountabilities.

This article focuses on oversight activities that have grown internally in response to the social expectations for private and public sector organizations. The observations and recommendations presented are based on more than 30 years of oversight experience in many large organizations in the Government of Canada. Through leadership, liaison, training and review of various oversight functions, I have witnessed opportunities for much greater collaboration and internal integration for the benefit of these organizations. These experiences inspired this article, and I believe also apply to large organizations in the private sector.

Wide range of oversight activities

The current range of information supplied to senior management on the integrity of their organizations and operations in serving the public interest is truly amazing. Consider the 18 topics illustrated below, alphabetically, for which there are normally various forms of internal oversight.

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Managing the supply can improve organizational oversight

Private and public sector organizations would benefit from the application of supply chain management to better integrate the internal production of information on how the public interest is being served. There are many definitions of supply chain management with most of them focusing on linking the supply of external services to an organization. This article focuses on integrating oversight services that are similar within an organization to achieve improvements in quality, cost, and satisfaction for managers and oversight employees.

In addition, the quality of internal oversight itself can be greatly improved through its strategic integration to better respond to legal requirements and stakeholder expectations. While some oversight functions operate under the guidance of well-established global professional bodies, most operate as best they can with limited independence and professional guidance.

An organization-wide and strategically integrated approach to the supply of information that is honest and reliable, that is to say, has integrity, would provide substantial benefits to those leading the organization.\(^{11}\)

Supply chain management has evolved to become one of the leading strategies for an organization to manage its resourcing needs, including internally generated information.\(^{12}\) It is increasingly recognized that an integrated approach creates new relationships within the organization, thereby better serving its long-term interests.

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Supply chain management creates a new way of understanding how business activities might be better carried out.\textsuperscript{13}

**Professional bodies have improved the quality for some oversight activities**

Professional bodies have developed over the years to guide the supply and improve the quality of much, but not all, of this oversight activity. Professional bodies are actively pursuing their professional mandates within restricted parameters. Currently, there is minimal integration among the supplies of these numerous types of integrity information.

We need a professional body to take the leadership to create positive interconnections between the various oversight services, while supporting an appropriate level of individual independence and professional integrity.

Most of the internal sources are guided by staff proceeding without the benefit of much professional guidance. Notable exceptions include, and are not limited to, the fields of audit, finance, fraud investigation and information technology.

**Disadvantages to the current approach of internal oversight**

What circumstances are likely to drive a move toward an integration of the internal supply of integrity information? Let’s consider the disadvantages of the current fragmented approach and then the benefits to be obtained by means of a managed supply chain.

Internal units operating without guidance from an external professional organization, which is most of them, operate under the following disadvantages:

- Professional certification of capabilities is not available to practitioners.
- Oversight staff do not have access to ongoing training to conduct their work at high levels of technical competence.
- Without a professional career path, positions lack attractiveness for higher calibre and longer-term appointments.
- The cycle of oversight from planning to reporting and follow-up lacks externally supported professional standards assuring the quality of work.
- Codes of ethics are not focused on their work environments.
- Insufficient organizational independence and access to senior management increase risks to the integrity of their reporting.

\textsuperscript{13} Fundamentals of Supply Chain Management, Dr. Dawei Lu, 2011 Dr. Dawei Lu & bookboon.com, pages 8 and 13.
Oversight units operating with guidance from an external professional organization do not have these disadvantages. Nonetheless, there are benefits to be obtained for these oversight units by a managed supply of information on organizational integrity.

**Significant benefits to managing the supply of internal oversight**

A supply chain of managed oversight activities would provide the following benefits:

- Under the leadership of a senior executive, there would be appropriate coordination among the varied oversight activities. Individual specialities would retain their professional independence to assure the integrity of their work.
- There would be coordinated multi-year and annual work planning and resourcing, coherently linked to the organization’s risks and external reporting needs.
- Operating managers would better understand the range and mandates of oversight activities and how to best relate their business operations.
- The core competencies shared by employees working in oversight would create synergies that would create enriched working environments and broader career tracks.
- Such a supply chain would minimize intrusion into business operations through coordinated planning, and by eliminating overlap and duplication among oversight activities.
- The wide range of administrative services would be provided more economically.
- There would be greater respect for and reliance on the professional products and services, both internally and by external oversight bodies.

**Strategic perspective needed**

The strategic decision of establishing a coherent supply chain to give coherence to individualized internal oversight activities is based on viewing the organization in the following ways:

- From viewing individual functional units supplying integrity information to a coherent process perspective.
- From the point of view of operating business units to a strategic organizational view.
- From a transactional to a relationship-based arrangement.
- From the interests of shareholders to the interests of stakeholders.

**Summary**

The responsibility to manage businesses with greater social responsibility is now well accepted. Oversight functions provide a broad array of information on corporate behaviour showing how the public interest is being served, or is not being served.

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Established to address specific public issues, the number and range of oversight activities have grown significantly and haphazardly in recent decades. As a result of individualized reporting on oversight, it is difficult for organizational leaders and their stakeholders to understand and report on how the public interest is being served.

The business concept of supply chain management offers an organizational opportunity well worth considering.
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Call for articles

Dear Sir/Madam

The IOCOM Digest and Dialogue (IDD) is an e-journal of the International Organization for Collaborative Outcome Management (IOCOM). It is web-based openly accessible periodical published on a quarterly basis. Its readers include members of the IOCOM present in more than 80 countries with a distribution of about 5000 active readers. Readers tend to be (managers, directors, consultants etc..) with an interest in exploring how to improve the delivery of outcomes across diverse societal sectors.

The editorial team invites you to write 2000-2500 word articles on any of the outcome management ecosystems and sub-themes. Articles on a chosen sub-theme should address the impact or influence on targeted populations in society. Please e-mail your interest to write an article indicating the title and an abstract of about 100 words.

Outcome management ecosystems

This concept of business ecosystems could be adopted to develop a tree of outcome management ecosystems. Here are some examples of outcome management ecosystems:

- Leadership and people management ecosystem and subsystems: Leadership development, leaders & managers, union-labour management, strategic planning and management, facets of human resources management; building & leading teams, negotiation and conflict resolution, complex employee behaviours in the workplace; motivating people, recruitment, retention, staff/employee appraisals, career & professional development, building employee capabilities, stress management, work-life balance, women & gender studies, organizational justice, participatory management.

- Financial, accounting and banking ecosystem and sub-systems: corporate finance, international finance, forensic accounting and fraud investigation, financial economics; cost-benefit analysis, contribution analysis, banking ecosystems: money laundering, digital currency, fintech, cryptocurrency, financial inclusion, innovative financial solutions for poor (micro financing); financial insurance; financial risk management: risk & loss control management.
- Business Management/Administration ecosystem and subsystems: business economics, business law, organizational behaviour, business ethics; business continuity, management reporting.

- Oversight management ecosystem and interconnected sub-systems: Audit, evaluation, total quality management (TQM) and ISO family of standards; continuous improvement, auditing ecosystems: Auditing Environmental and Occupational Health & Safety (OH&S) Management Systems.

- Government and Non-government organizations management ecosystem and sub-systems: Good governance, open government, public management/administration, NGOs contribution to social and economic development, Indigenous people and governments, provincial/state and municipal and local governments, organizational diversity, gender and minority issues at workplaces, cultural diversity, diversity and talent management, social and functional categorization, diversity and ethical issues.


- Information technology and information management ecosystems and sub-systems: Information resource management; information and communication technology (ICTs); digital preservation, cybersecurity, internet, data ecosystem including big data, data analytics; artificial intelligence, blockchain, machine language.

- Learning and innovations ecosystem, and sub-systems management of Innovation; Learning ecosystem, learning culture, learning fit, measurement, innovation ecosystem, start-ups ecosystem, technology eco-system; innovation, law, and technology.

- Industrial/Manufacturing management ecosystems and sub-systems: product design and development, Production management; Plant maintenance; Statistical Quality Control, Quality Assurance; Productivity sciences ecosystems: Industrial Engineering/Work study (Motion & Time Study), Method Study (Process Re-engineering), Work Measurement, Ergonomics and Workplace design; Operations management; Robotics, Marketing and distribution.
Supply chain management ecosystem and sub-systems: logistics, procurement, product life cycle management, asset management, supply chain planning, supply chain enterprises applications; supply chain visibility, green supply chain, risk and supply chain resilience, integrated logistics hubs, One Belt One Road (OBOR).

Engineering management ecosystems and sub-systems: civil engineering; mechanical engineering, electrical and electronics engineering, aeronautical engineering, architectural engineering, computer & software engineering, environmental science engineering.

Agricultural management ecosystem and sub-systems: agricultural policies, agricultural management services, food security and environment, sustainable agriculture, gender in agriculture, trade of agricultural commodities, World Trade Organization (WTO) agreement on agriculture, use of digital technology in agriculture, land grabbing, natural disasters and resilience;

Health management ecosystem and sub-systems: patient care, health outcomes and quality of life; health information ecosystem: eHealth: informatics, innovations and information systems; occupational health & safety: law & regulations; occupational hygiene; health law, ethics, & policy; health administration, quality of life, health emergency response management, health services research, pharmaceutical outcome research management and policy.

Criminal justice administration ecosystem and sub-systems: criminal law; Law enforcement (law & order), legal administration, offender (correctional) management; parole system, crime & socio-Legal Studies, e-justice.

Education management ecosystem and sub-systems: Educational administration; e-educational environments; Educating citizens of the 21st century; collaborative learning culture; collective intelligence; emotional education (social and emotional well-being); ecology of learning ecosystem: families, schools, community, networks and society.
Four possible levels of outcome management ecosystems and sub-systems:

- Those driven by clusters of management and technical disciplines;
- Those driven by sector agendas: agriculture, education, health, social services and so on;
- Those driven by national (country) level results agendas (political agendas); and
- Those driven by international and global agendas: climate change, sustainable development goals, World Health Organization (WHO) and other United Nations (UN) agendas.

With kind regards,
Editorial Team

Volume 5, No 1 January – March 2019
Issue 5.1: Government and Non-government organizations management ecosystem

Sub-systems: Good governance, open government, public management/administration, NGOs contribution to social and economic development, Indigenous people and governments, provincial/state and municipal and local governments, organizational diversity, gender and minority issues at workplaces, cultural diversity, diversity and talent management, social and functional categorization, diversity and ethical issues.

Last date for the submission of articles: 30th September 2019

Volume 5, No 2 April – June 2019
Issue 5.1: Health management/administration ecosystem

Sub-systems: patient care, health outcomes and quality of life; health information systems ecosystem: eHealth: informatics, innovations and information systems; occupational health & safety: law & regulations; occupational hygiene; health law, ethics, & policy; health administration, quality of life, health emergency response management, health services research, pharmaceutical outcome research management and policy.

Last date for the submission of articles: 30 October 2019

General Submission Guidelines

Words limit: 2000-2500
Referencing/citation Style: APA (6th ed.);
Font size: Times New Roman, 12 pts
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