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# CAREERING

By/Par CERIC

## Climate change and careers

## Changement climatique et carrières



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## CAREERING

*Careering* is a magazine by and for career development professionals in Canada, with analysis of and reflection on the latest theories, practices and resources.

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Supporting Canadians to navigate learning and work: Updating the Standards and Guidelines for career professionals  
Tomorrow's graduates need a multidisciplinary approach to climate-change mitigation

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**Lindsay Purchase**

**W**hen we talk about the future of work, we consider the skills people will need to thrive in an increasingly automated world. But how often do we reflect on how climate change factors into employment prospects?

Our warming planet is a frightening reality to confront. A 2019 federal climate report found that northern Canada is warming twice as fast as the rest of the world. We know that heat waves and wildfires – like those seen in recent years

in Montreal and BC – will become more frequent and more intense. Some areas will suffer increased droughts while others will see more flooding.

This will affect where and how we work. Within our country and around the world, people will be displaced by climate change, which will affect the labour market and those individuals' career development needs. Extreme weather will result in job losses and also have implications for worker safety.

But it's not all bleak. As we try to mitigate climate change, many new job opportunities will be created, requiring innovation and cross-sectoral collaboration. Recent climate protests by high school students around the globe suggest that the next generation is eager to take on this challenge. Career professionals have a significant role to play in helping students and young professionals with interests in environmentalism build meaningful careers, as well as assisting mid-career workers whose jobs will be transformed or eliminated by climate change.

This issue of *Careering*, with thought-provoking articles in print and online ([ceric.ca/careering](http://ceric.ca/careering)), examines the intersection of climate change and employment from many different angles. Articles explore employment trends, the effect of extreme weather on environmental professions, industries in transition such as agriculture and energy, the link between youth career education and climate change, and more.

Climate change affects us all – and requires us all to act. As you read this issue, I encourage you to reflect on what climate change could mean for you and your clients, and what roles you could play in tackling the challenges it will bring.

**L**orsque nous parlons d'avenir du travail, nous avons généralement en tête les compétences dont les gens auront besoin pour réussir dans un monde de plus en plus automatisé. Mais nous arrive-t-il de penser à l'influence des changements climatiques sur les perspectives d'emploi?

Le réchauffement de la planète est une réalité effrayante à laquelle il faut faire face. Selon un rapport fédéral de 2019 sur le climat, le nord du Canada se réchauffe deux fois plus rapidement que le reste du monde. Nous savons que les canicules et les feux de forêt, comme ceux qui se sont produits ces dernières années à Montréal et en Colombie-Britannique, gagneront en fréquence et en intensité. Certaines régions seront touchées par des sécheresses accrues, alors que d'autres seront sujettes à davantage d'inondations.

Tout cela aura un effet sur les endroits où nous travaillons et sur nos méthodes de travail. Dans notre pays, comme partout ailleurs, les changements climatiques forceront le déplacement des gens, ce qui aura un effet sur le marché du travail et les besoins de ces personnes en matière de développement de carrière. La météo extrême occasionnera des pertes d'emploi, en plus d'affecter la sécurité des travailleurs.

Cependant, les perspectives ne sont pas complètement sombres. Dans nos efforts pour réduire les effets des changements climatiques, de nombreux nouveaux débouchés seront créés, nécessitant un esprit d'innovation et une collaboration intersectorielle. Les récentes manifestations pour le climat organisées par des élèves du secondaire de partout dans le monde donnent à croire que la nouvelle génération est prête à relever ce défi. Les professionnels de la carrière ont un important rôle à jouer auprès des étudiants et des jeunes professionnels intéressés par l'environnementalisme, pour les aider à bâtir une carrière significative, et auprès des travailleurs à la mi-carrière dont les emplois seront transformés ou éliminés en raison des changements climatiques.

Ce numéro de la revue *Careering* propose – tant dans sa version imprimée qu'en ligne ([ceric.ca/careering](http://ceric.ca/careering)) – des articles portant à réflexion et présente différents points de vue sur le croisement entre les changements climatiques et l'emploi. Il explore les tendances en matière d'emploi, l'effet de la météo extrême sur les professions de l'environnement, les secteurs d'activité en transition comme l'agriculture et l'énergie, le lien entre l'éducation au choix de carrière des jeunes et les changements climatiques, et bien plus encore.

Les changements climatiques nous touchent tous, et nécessitent que nous passions à l'action. J'espère que ce numéro vous fera réfléchir aux effets des changements climatiques sur votre vie et celle de vos clients, ainsi que sur les rôles que vous pourriez jouer pour affronter les défis qu'ils engendreront.



# How will climate change affect the future of employment in Canada?

## Comment les changements climatiques affecteront-ils l'avenir de l'emploi au Canada?

Yasmin Rajabi and Erin Warner

*Brookfield Institute report raises questions about the implications of four environmental trends on the labour market*

*Un rapport du Brookfield Institute aborde les répercussions de quatre tendances environnementales sur le marché du travail*



Illustrations by Jesseca Buizon. Buizon is a Toronto-based illustrator and graduate of OCAD University's illustration program. She creates her illustrations by merging traditional and digital mediums.

Illustrations de Jesseca Buizon. Jesseca Buizon est une illustratrice de Toronto, diplômée du programme d'illustration de l'Université de l'École d'art et de design de l'Ontario. Elle crée ses illustrations en combinant des supports traditionnels et numériques.

**T**he floods and tornado that hit Ottawa this past spring have cost the city \$5.6 million and counting in damages (Chianello, 2019). Similar instances of climate change have devastated communities across Canada and will continue to do so as the climate crisis accelerates. In fact, the Insurance Bureau of Canada reported that the cost of insured damage due to severe weather was \$1.8 billion last year, with other recent years as high as \$4.9 billion (Scofield, 2019). There is an urgent need for Canadians to anticipate and prepare for the shocks and stresses of a future affected by the changing climate – and to consider what can be done to mitigate the current course.

**L**es inondations et la tornade qui ont frappé Ottawa au printemps dernier ont coûté jusqu'ici 5,6 millions de dollars en dommages à la Ville (Chianello, 2019). Des cas semblables de changements climatiques ont dévasté des collectivités de partout au pays et continueront de le faire à mesure que la crise du climat s'accélérera. En fait, le Bureau d'assurance du Canada a rapporté que le coût des dommages assurés occasionnés par de mauvaises conditions météorologiques s'est élevé à 1,8 milliard de dollars l'an dernier, et qu'il avait atteint jusqu'à 4,9 milliards de dollars les années précédentes (Scofield, 2019). Les Canadiens doivent dès maintenant anticiper les répercussions d'un avenir affecté

## *"There is an urgent need for Canadians to anticipate and prepare for the shocks and stresses of a future affected by the changing climate – and to consider what can be done to mitigate the current course."*

To help Canadians prepare for this future, and more specifically their future employment, the Brookfield Institute's report *Turn and Face the Strange* identifies 31 trends with the potential to affect the labour market in the next 10-15 years (Thornton, Russek & O'Neil, 2019). This report is part of the Institute's ongoing initiative, *Employment in 2030*, a national research project to develop a holistic forecast of in-demand skills, and the distribution of these skills across geographies, industries and demographic groups.

While *Turn and Face the Strange* is not a prediction of the future or a deep analysis of any one trend, it aims to spark exploratory and imaginative thinking and push readers to ask themselves "what if?" What if Canada sees a rise in wildfires, floods and mudslides? What if cases of mental-health issues associated with technology use continue to multiply? What if artificial intelligence (AI) becomes capable of performing creative tasks?

### Key trends

The trends highlighted in the report were identified using a strategic foresight methodology called horizon scanning – a technique for gathering broad, emerging information in order to identify possible changes affecting a topic of study. We scanned academic journals,

par les changements climatiques et s'y préparer, en plus de songer aux solutions possibles pour atténuer les tendances actuelles.

Afin d'aider les Canadiens à se préparer à cet avenir, et plus précisément à leur emploi futur, le rapport *Turn and Face the Strange* du Brookfield Institute a repéré 31 tendances pouvant éventuellement affecter le marché du travail au cours des 10 à 15 prochaines années (Thornton, Russek et O'Neil, 2019). Ce rapport a été publié dans le cadre d'un projet de recherche national de l'Institut, *L'emploi en 2030*, qui vise à établir des prévisions générales sur les compétences qui seront recherchées et la répartition de ces compétences entre les régions géographiques, les secteurs d'activité et les groupes démographiques.

Le rapport *Turn and Face the Strange* ne constitue pas une prédiction de l'avenir ni une analyse approfondie d'une tendance en particulier, mais vise à stimuler la réflexion exploratoire et imaginative et à pousser les lecteurs à se demander « Et si...? ». Et si le Canada constatait une hausse des feux de forêt, des inondations et des glissements de terrain? Et si les cas de troubles mentaux associés à l'utilisation de la technologie continuaient de se multiplier? Et si l'intelligence artificielle (IA) devenait capable d'accomplir des tâches créatives?

### Grandes tendances

Les tendances soulignées dans le rapport ont été cernées au moyen d'une méthodologie de prospective stratégique appelée « analyse prospective », une technique servant à rassembler des données générales et émergentes pour déterminer les changements possibles touchant le sujet de l'étude. Nous avons analysé des revues spécialisées, des médias populaires et des sources journalistiques alternatives, détarrant plus de 600 signaux du changement que nous avons résumé en 31 tendances qui pourraient influencer l'avenir de l'emploi.

Si nous savons bien que les changements technologiques continueront de modifier les marchés de l'emploi, il est également important de tenir compte du rôle joué par les développements sociaux, environnementaux et politiques. La durabilité environnementale, en particulier, est un secteur que nous ne pouvons plus ignorer. À cette fin, nous avons cerné quatre tendances liées à l'environnement pouvant avoir des répercussions sur l'avenir du travail au Canada. En lisant la description de chacune de ces tendances ci-dessous, songez à la manière dont elles pourraient affecter vos perspectives d'emploi futures ou celles de vos clients.

### Rareté des ressources

Alors que la crise du climat s'aggrave, les ressources naturelles comme l'air pur, l'eau pure et le sable propre pourraient se raréfier et, par conséquent, devenir très précieuses. Selon le Fonds mondial pour la nature (s.d.), d'ici 2025, les deux tiers de la population

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## « Les Canadiens doivent dès maintenant anticiper les répercussions d'un avenir affecté par les changements climatiques et s'y préparer, en plus de songer aux solutions possibles pour atténuer les tendances actuelles. »

popular media and fringe news sources, unearthing more than 600 signals of change, which we synthesized into 31 trends that have the potential to affect the future of employment.

While many of us are well aware that technological change will continue to affect labour markets, it is also important to consider how broader environmental, social and political developments play a role. Environmental sustainability, in particular, is an area that we can no longer afford to ignore. To this end, we were able to identify four trends related to the environment that may have an impact on the future of work in Canada. As you read through each below, consider how these trends may affect your future job prospects or those of your clients.

### Resource scarcity

As the climate crisis worsens, natural resources like clean air, water and sand could become scarce and therefore extremely valuable. According to the World Wildlife Fund (n.d.), by 2025, two-thirds of the world's population may face water shortages. Resource scarcity across Canada and globally will affect industries that rely heavily on natural resources, such as energy, forestry and mining. Water-reliant sectors such as agriculture, food processing and manufacturing could struggle to maintain access to these resources. How will these industries develop new practices to conserve resources like paper and water? How will our policies and infrastructure change to adapt to water scarcity and air pollution? Will new, energy-efficient industries grow or develop in response to resource scarcity? How will we alter our habits to consume less?

### Wildfires, flooding and mudslides

In August 2018, British Columbia declared a state of emergency as a result of 559 forest fires that burned across the province (Johnston, 2018). All over Canada we are experiencing similar instances of wildfires, flooding and mudslides due to a rise in extreme weather conditions. The tourism industry may be affected should these natural disasters become more common. How will other industries that Canada is so well known for, such as forestry, mining and agriculture, be hurt? Will others benefit from these unfortunate incidents, such as infrastructure or goods and services that monitor or prevent floods and wildfires? What will the impact be on economic activity in regions more susceptible to climate disasters?

### Climate refugees

As climate change continues to take a toll on the places we live, millions of people will be displaced globally. While the current legal definition of refugees in Canada does not include provisions for climate-related displacement, we need to start considering how we will respond to this global issue. How might people from regions that have been devastated by climate change use their first-hand experience to help respond to the international demand for solutions? Would a new source of talent reduce the cost of labour in certain sectors? How will the government and other bodies react to an increase in demand for settlement services?

mondiale pourraient être confrontés à une pénurie d'eau. La rareté des ressources, tant au Canada qu'ailleurs sur la planète, affectera les secteurs d'activité qui reposent sur les ressources naturelles, comme l'industrie forestière, minière et de l'énergie. Les secteurs qui dépendent de l'eau, comme l'agriculture, la transformation alimentaire et la fabrication, pourraient avoir de la difficulté à accéder à de telles ressources. Comment ces industries développeront-elles de nouvelles pratiques pour conserver des ressources comme le papier et l'eau? Comment nos politiques et notre infrastructure changeront-elles pour s'adapter à la rareté de l'eau et à la pollution de l'air? De nouvelles industries écoénergétiques croîtront-elles ou se développeront-elles en réponse à la rareté des ressources? Comment modifierons-nous nos habitudes pour réduire notre consommation?

### Feux de forêt, inondations et glissements de terrain

En août 2018, la Colombie-Britannique a déclaré l'état d'urgence en raison des 559 feux de forêt qui ravageaient la province (Johnston, 2018). Partout au Canada, on constate des cas semblables de feux de forêt, d'inondations et de glissements de terrain occasionnés par l'intensification des conditions météorologiques extrêmes. Le secteur du tourisme pourrait être touché si ces catastrophes naturelles devenaient plus fréquentes. Comment les autres secteurs d'activité pour lesquels le Canada est reconnu, comme l'industrie forestière, minière ou agricole, seront-ils touchés? D'autres profiteront-ils de ces incidents malencontreux, comme les services d'infrastructure ou les entreprises de biens et services qui surveillent ou préviennent les inondations et les feux de forêt? Quelles seront les répercussions sur les activités économiques des régions prédisposées aux catastrophes climatiques?

### Réfugiés du climat

Alors que les changements climatiques continuent d'affecter les lieux habitables, des millions de personnes seront déplacées à l'échelle mondiale. Même si la définition juridique canadienne des réfugiés exclut pour l'heure les déplacements liés au climat, nous devons commencer à réfléchir à la manière dont nous aborderons ce problème mondial. Comment les gens des régions dévastées par les changements climatiques pourraient-ils utiliser leur expérience personnelle pour contribuer au développement de solutions internationales? Une nouvelle source de talents réduirait-elle le coût de la main-d'œuvre dans certains secteurs? Comment le gouvernement et d'autres organismes réagiront-ils à la hausse de la demande de services d'établissement?

### Énergie de remplacement

La demande en énergie continue de croître, alors que la technologie s'immisce dans tous les aspects de nos vies, depuis les trains de banlieue jusqu'aux téléphones qui occupent nos mains en permanence. En 2016, les entreprises canadiennes ont consacré 18,1 milliards de dollars à



## Alternative energy

The demand for energy is only growing as technology permeates every aspect of our lives, from the trains we take to work to the smartphones that never seem to leave our hands. In 2016, Canadian companies spent \$18.1 billion on in-house energy research and development (Statistics Canada, 2018). There has been a focus on generating energy that is clean, efficient, renewable and affordable. How will this affect the traditional, resource-based energy sector? If significant strides are made toward clean, inexpensive energy, more companies could invest in AI, tech systems and increased computational power. How might this affect demand for skilled workers to operate alongside these new technologies?

As author Roger L. Martin and professor Alison Kemper write, the climate crisis will no doubt require both restraint and innovation (Martin & Kemper, 2012). Restraint, as we adapt our behaviour to try to limit further damage. Innovation, as we work to develop new technology to fix what we have done and to help us find a new way forward. In this way, with the devastation of climate change also comes an opportunity for new advancements. When reflecting on what climate change will mean for the Canadian labour market, career practitioners should consider: What kinds of new companies will arise in its wake? What new solutions will be developed? Where are gaps likely to emerge in the near future and how can we take advantage of these opportunities? We urge you to explore how these four environmental sustainability trends will affect the future of work in Canada and consider what careers may change or emerge as a result. ■

la recherche et au développement à l'interne en matière d'énergie (Statistique Canada, 2018). L'accent est mis sur la création de sources d'énergie propres, efficaces, renouvelables et abordables. Quel effet cela aura-t-il sur le secteur traditionnel de l'énergie, fondé sur les ressources naturelles? Si d'importants progrès étaient réalisés vers l'obtention d'une énergie propre et abordable, davantage d'entreprises pourraient investir dans l'intelligence artificielle, les systèmes technologiques et une puissance de calcul accrue. Quel en serait l'effet sur la demande pour des travailleurs qualifiés aptes à exploiter ces nouvelles technologies?

Comme l'écrivent l'auteur Roger L. Martin et la professeure Alison Kemper, la crise du climat nécessitera sans aucun doute de la retenue et de l'innovation (Martin et Kemper, 2012) : de la retenue, pour adapter nos comportements et ainsi limiter les dommages à venir, de l'innovation, pour développer de nouvelles technologies qui permettront de corriger les dommages déjà causés et de trouver de nouvelles solutions pour l'avenir. Ainsi, l'effet dévastateur des changements climatiques s'accompagne d'une occasion d'innover. Lorsqu'ils réfléchissent aux répercussions des changements climatiques sur le marché du travail canadien, les intervenants en développement de carrière doivent se poser les questions suivantes : Quels types de nouvelles entreprises émergeront? Quelles nouvelles solutions seront développées? Dans quels secteurs risque-t-on de déceler des lacunes dans un avenir rapproché, et comment pourrions-nous les combler? Nous vous encourageons à explorer l'influence de ces quatre tendances relatives à la durabilité environnementale sur l'avenir du travail au Canada et à réfléchir aux carrières qui pourraient changer ou apparaître. ■

### AUTHOR BIOS • BIOGRAPHIES DES AUTEURES



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# Career development will help equip children to take on climate change

Stefania Maggi



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*Helping young people think critically about how employment and the environment intersect can shift their sense of fear to a feeling of empowerment*

**O**ur coastlines are being redefined, forests and grasslands destroyed, homes, schools and critical infrastructure damaged. Livelihoods are endangered, our way of life is challenged and our traditions threatened. This is climate change transforming the world as we know it.

At the same time, children suffer from a wide range of mental-health problems. Young people are struggling to find their place in a world with such an uncertain future. They feel powerless in the face of the climate change giant, which they know they must fight, but feel is too big to be defeated. They feel vulnerable, ill-equipped and under pressure. This is not the doing of climate change. This is our own doing.

## **Our greatest resource in battling climate change**

We do this to our children because we fail to see their resilience and their limitless potential. We marginalize them to the fringes of decision-making by stripping them of their greatest assets: their propensity for big dreams, their innate ability to think outside of the box and their calling to take on any challenge, the bigger the better.

We don't honour and nurture young people for what they have to offer to the collective well-being, to the future of our planet. Our children are the greatest resource we have to make things right for the health of this planet and all of its inhabitants. Now is the time to enable and empower them to take charge of their own futures for the good of all living beings.

Career and leadership development could be the answer in preparing the workforce of tomorrow to take on and beat this tremendous challenge by shifting the sense of fear and hopelessness to one of empowerment

and purpose. Enough with messages of despair that paralyze us. Let's do what we do best as educators and career coaches. Let's equip young people to find their purpose and help make this planet healthier through career and leadership guidance and education.

## **Thinking critically about jobs and the environment**

This is the spirit that motivated me to create the 100 Jobs Challenge! a program designed to promote early career and leadership development and climate change awareness.

The program challenges participants (a group of 15-20 young people between the ages of 12 and 18) to identify 100 present and future jobs they believe can help us mitigate and adapt to climate change. Then, they work backward to determine the skills/education required to secure these roles. Facilitators provide youth participants with context and guidance, encouraging youth to reflect more deeply on the contribution of their career of choice to the collective well-being. However, youth take the lead in the process of seeking information, thinking critically and identifying relevant results throughout the five-day workshop.

The purpose of the 100 Jobs Challenge! is to prepare the workforce of tomorrow to think more deeply and critically about jobs and the environment. It aims to increase knowledge, awareness and competence about how each career choice one makes can play a direct or indirect role in restoring the health of this planet. The program also aims to promote the development of socio-emotional skills, resilience and social responsibility in youth in the early stages of their career and leadership development.





## A unique approach

This approach stands out from mainstream approaches to career and leadership development in several ways.

**It is timely, relevant and interdisciplinary.** Because the program is embedded in the context of a real-life problem, participants feel that what they are learning is relevant to their lives. Also, rather than focusing on specific disciplines that may not be of interest to all participants, the activity challenges students to identify present and future jobs related to the theme and then work backward to determine the skills/education required.

**It promotes self-directed learning and problem-solving.** Facilitators provide youth participants with context and guidance, but youth take the lead in seeking information, thinking critically and identifying relevant results. The target of identifying 100 jobs, 20 of which have to be “invented” for the future, motivates participants to engage in problem-solving without the fear of being “wrong.” Youth can follow their curiosity and identify careers that interest them personally. This encourages entrepreneurial skills-building and out-of-the-box approaches to career and leadership development.

## The 100 Jobs Challenge

- **Who:** Young people 12 years of age and older. Groups can be of mixed ages to facilitate mutual socio-emotional learning and leadership skills.
- **When:** Originally developed to fit the format of summer camps and winter breaks, the 100JC can be adapted into after-school programs, weekend retreats and other kinds of events.
- **Where:** Anywhere participants can both collaborate and spend time by themselves to complete individual activities. Participants should have access to internet and be able to conduct research online individually or in small groups.
- **How:** The 100JC is co-ordinated by three certified trainers: a lead facilitator and two youth facilitators.

**It fosters a culture of collaboration.** The format of the program is highly interactive, with many opportunities for youth to work together and discuss in groups. The facilitators act as partners in learning rather than traditional teachers and create an environment of collaboration and mutual respect where diverse perspectives are valued. This format allows for practising key foundational pre-employment and employment skills such as the ability to work in teams and respect for diversity and inclusion.

**It is reflective.** Throughout the program, there are opportunities for young people to pause and reflect deeply on their interests, inclinations, strengths, aspirations and goals. These deliberate moments are designed to give participants a chance to practice and consolidate important pre-employment and employment socio-emotional skills such as self-efficacy, self-awareness, independence and self-reflection.

**It is evergreen.** Unlike many career resources that are in constant need of updating, the 100 Jobs Challenge! provides a guided process for youth to identify current jobs and skills requirements. Furthermore, it challenges youth to be forward looking and imagine certain jobs/careers that may emerge in the future, helping them to realize the importance of lifelong learning for the changing world of work.



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**It integrates technology and multimedia approaches.** During the workshops, youth learn research skills using the internet and other available sources of information. They can also stay connected with facilitators and their program peers via social media during and after the program. The use of technology and multimedia strategies to facilitate learning enhances best practices in pedagogical science while keeping the learner engaged.

### Skills to succeed in the future of work

In my experience working with youth, I have come to understand how fundamental it is for an impactful career-coaching program to address developmental needs first and foremost. Career professionals working with youth need to have space and time built into their services to support the development of pre-employment skills that are so critical to a successful life-long career trajectory. A career professional is successful when they know that their young clients have learned to search within themselves, as opposed to in a list of job descriptions and salary scales, to discover their career aspirations.

In other words, the focus of career services for young people should be less on matching interests to specific job titles and more on the acquisition and consolidation of pre-employability skills – that is, socio-emotional skills – which young people can carry with them from one job to the next and use to adapt to the rapid changes of today’s world of work. It is up to the career professional to adjust their programs and services to meet the socio-emotional needs of their clients and to offer opportunity for growth and positive development.

The Organization for Economic and Co-operation Development report on socio-emotional skills and career development (Chernyshenko, Kankaraš & Drasgow, 2018) is an excellent resource providing the knowledge base for career guidance and coaches working with youth who want to integrate key socio-emotional learning in their programs.

In the end, it doesn’t matter what careers our students choose. What matters is what they know about the impact that their careers can have, one way or another, on the health of our planet. What matters is how that knowledge will influence their actions in their personal and professional lives. The choice remains theirs to make, and it should not be any other way. ■



#### AUTHOR BIO

**Stefania Maggi** is the Founder & CEO of Be Your Best Self, Inc. (BYBS), a social enterprise created to empower young people to build their future with purpose, self-awareness, resilience and social responsibility. Maggi is also a university professor, researcher, child rights advocate and sci-fi author.

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# What does the energy efficiency sector look like in Canada?



By the end of 2019, the **energy efficiency workforce** is expected to grow by **8.3%** creating over **36,000** jobs.



**66%** of all **Canadian energy efficiency jobs** in 2018 were in construction

## Six key industries in energy efficiency:



Construction



Manufacturing



Wholesale Trade



Professional and Business Services



Utilities



Other Services

**70%** of energy efficiency employers reported having some difficulty in hiring suitable employees. A **lack of qualified workers** was one of the **most-cited reasons**.

## What types of jobs are energy efficiency workers employed in?

- 42.9%** in **installation or repair**
- 19.6%** in **management/professional** roles
- 14.6%** in **administration**
- 6.3%** in **sales**
- 6.7%** in **“other”** roles



The **energy efficiency workforce** is generally less diverse than the national workforce, with **18%** of workers reported to be **female** and **2%** reported to be **Indigenous**. The sector has a **higher proportion** of workers **between 18 and 34** than the national average.



Information courtesy of the 2019 report *Energy Efficiency Employment in Canada* by ECO Canada, a not-for-profit organization dedicated to supporting environmental professionals and employers from coast to coast. ECO offers training, research, academic accreditation and career services. It provides Canada's leading environmental certification for Environmental Professionals (EP®) and multiple employer wage subsidies programs. Discover how ECO Canada supports environmental careers at [www.eco.ca](http://www.eco.ca).



# CLIENT SIDE

In this *Careering* feature, jobseekers reflect on successes and struggles in their career development.

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## ***What I learned from quitting my job to study cannabis in my 30s***

**When Amanda Felske decided to leave full-time work to return to school as a mature student, she had to navigate financial and time-management challenges**

**W**hen I was considering my career path at the end of high school, the trajectory seemed pretty straightforward: choose a college/university program, complete it and get a job. I had never considered what lay ahead after getting that job and was naive to the fact that there could (and would) be challenges and changes, and that my path wouldn't always go in a straight line. I didn't anticipate that I would be at a crossroads in my mid-30s, with big and scary decisions to make.

I chose a three-year chemical engineering technology program, completed it with dean's list honours and landed an amazing job as a chemical lab technologist at a local biopharmaceutical company. Prophecy fulfilled, right? I loved that job and worked there for 10 years before the company was sold and operations moved to another province; they were generous and offered re-location for all employees, but due to family matters, I was not able to move with them. This was the first time I realized that the path ahead wasn't as clear as I thought it would be.

### **Time to pivot**

I moved on to an R&D lab at a plastics manufacturer, where I spent two years doing work I found boring in a hostile environment. I was frustrated and unfulfilled, and knew I had to switch directions. I had been interested in upgrading my education for a few years and began investigating programs at local colleges, which is where I stumbled across the one-year, post-grad Cannabis Applied Science program at Loyalist College in Belleville, ON, where I live.





## "It took digging deep to build up the courage to make this a reality."

It was all over the news that large cannabis companies were staking out our area, so this seemed like an ideal time to make a move; the program would complement my previous education and experience, and hopefully give me an edge to advance my career at one of these companies. It all sounded pretty perfect discussing it over a campfire with my husband (who ultimately gave me the final push to go through with it), but we also had many challenges to consider: Would we be able to manage the loss of income while I studied? How would we handle appointments and childcare for our eight-year-old son if I had less flexibility in my schedule? It had been a long time since I was a full-time student; could I handle this alongside household responsibilities? What if this was all for naught, and the companies didn't actually come to the area or I was unable to get a job in the field? It took digging deep to build up the courage to make this a reality, but I was accepted to the program and quit my job. It was happening.

### Navigating challenges

Financially, we crunched some numbers and realized we could make it work. My husband's salary, along with a chunk of our savings, could pay for the course and sustain us while

I was unemployed. I did look into some forms of financial aid, but we decided to leave that as a last resort and try to do this without incurring more debt. We managed, which was a huge relief. Not financially contributing to the household was the largest mental hurdle I had to overcome during this process; as a mom you are so busy putting everyone else first that it can be hard to accept the support of others and focus on yourself.

Child care worked out, partly due to my husband's flexible schedule, but also pure luck that we had no major conflicts or issues to deal with (no broken bones!). After being in school for a bit, I could gauge when I could and couldn't miss class in order to spread the responsibility of appointments and was open with my professors any time I was away.

As for being a full-time student again, that was a difficult transition but an incredibly rewarding experience. This was tough for me because my "jobs" around the house had to be spread out and deprioritized if I had a heavy work load. Sometimes the floors didn't get vacuumed or the dog didn't get walked, but we found a balance that worked. My son thought it was both funny and annoying that I had homework because I wasn't as

available to him as he was used to, but he was proud of me and sometimes helped out more around the house. I had always been a good student and those practices came back easily, so the bulk of the challenge ended up being in juggling homework and housework, while getting in some family time here and there, too.

### Studying cannabis

While local employment opportunities were a big draw, I was also excited to dive into the science of cannabis, which turned out to be so much more engaging and intriguing than I had anticipated. We covered everything from regulations to extraction, but I was, not surprisingly, drawn to the chemistry and analytics. It was amazing to learn about so many aspects of the industry while finding out where my passion lay, which helped me to visualize where I saw myself once the course was done.

I was very lucky to get a student research position while I was in school, which was a collaboration between a local cannabis company and the college. After school ended, I continued to work part-time on this project, hoping to transition to full-time. I saw a job posting on LinkedIn for cannabis drinks producer Truss Beverages, a start-up company coming to the area, and I had a huge gut instinct that this was the job I had been waiting for. I applied and my gut led me in the right direction; I started with Truss as a senior chemist at the end of August.

We knew there would be difficulties to navigate and did our best to anticipate them and have a plan in place, which served us well; open communication was an integral part of this transition for all of us. Despite the challenges we faced as a family to make it happen, the decision to return to school was one of the best I have ever made. ■

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**Amanda Felske** lives in Belleville, ON, with her husband and son. When she's not in the lab, you can find her walking their dog, Bailey, playing ultimate Frisbee or enjoying all things outdoors at her cottage.



# Changement climatique : quelles conséquences sur le marché de l'emploi et sur les nouvelles générations?

Pascal Geneviève



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Les entreprises ont démarré leur transformation pour répondre à cette nouvelle génération de candidats en quête de sens et d'engagement environnemental et social

**A** lors que les vagues de chaleur et les inondations sont de plus en plus fréquentes et intenses partout sur la planète, les politiques de lutte contre les changements climatiques s'intensifient. Ces actions gouvernementales, combinées à l'évolution des attentes des citoyens et des consommateurs, sont amenées à modifier en profondeur la quasi-totalité de nos activités économiques. On parle ainsi d'une transition vers une économie bas-carbone, transition essentielle pour limiter les dérèglements climatiques et maximiser notre capacité d'adaptation.

C'est dans ce contexte que l'on observe d'ores et déjà des modifications en ce qui concerne les attentes de la population active, ce qui devrait affecter durablement le marché du travail. On observe notamment deux

tendances qui seront amenées à se poursuivre dans les années à venir. D'une part, on note un intérêt des personnes en emploi ou des candidats pour des métiers à faible empreinte environnementale. D'autre part, de plus en plus d'organisations évoluent vers des modèles bas-carbone, ce qui force leur personnel à acquérir des nouvelles expertises.

## La recherche de sens

Lors d'entrevues, il m'arrive très souvent de rencontrer des candidats qui affirment vouloir aligner leurs valeurs avec le métier qui va les occuper quarante heures par semaine. On est loin du temps où le prestige de l'employeur et le montant du salaire étaient les premiers critères de sélection d'un emploi. Ainsi, on retrouve ce besoin quasi-urgent de



donner du sens à leur travail chez de nombreux jeunes diplômés, qui entendent parler de problèmes environnementaux et notamment des changements climatiques depuis leur enfance. Plusieurs d'entre eux sont conscients qu'ils héritent d'un nombre considérable de défis à relever.

Ce n'est pas seulement la génération Y qui fait part de ce besoin. Je rencontre également ce sentiment chez de nombreux professionnels expérimentés qui souhaitent se réorienter. D'ailleurs, certains d'entre eux vont jusqu'à accepter une réduction de salaire à condition qu'ils fassent un travail dans lequel ils s'accomplissent. Ainsi, pour attirer et retenir les talents, c'est un atout pour une entreprise que de mettre en place une démarche responsable sur les sujets environnementaux et sociaux. Encore faut-il la communiquer!

À ce sujet, depuis plusieurs années, de très nombreuses entreprises divulguent de l'information sur la façon dont elles prennent en considération les enjeux climatiques. Plus particulièrement, les entreprises cotées en bourse soumettent de l'information à l'attention des investisseurs sur des plateformes telles que CDP, GRI, etc. Il arrive très souvent que les employés ne soient pas au courant des initiatives en place dans leur propre entreprise. Ainsi, il est avantageux pour un employeur de faciliter l'accès à cette information pour permettre aux employés de comprendre les risques auxquels les activités de leur entreprise sont exposées et les moyens mis en place pour gérer ces risques, ainsi que les solutions considérées pour tirer profit des occasions d'affaires. De nombreuses organisations mettent en place un réseau de leaders à l'interne, qui leur permet de partager l'information en lien avec les défis environnementaux. Faire partie de ce réseau peut permettre à l'employé non seulement de mieux comprendre les enjeux concrets mais également de participer à la diffusion et la collecte d'informations et éventuellement à des projets d'amélioration continue. C'est ainsi une façon de retenir les talents en les engageant dans la démarche de responsabilité environnementale et sociale.

Pour aller plus loin, de nombreux professionnels choisissent de s'outiller en se formant en dehors des murs de l'entreprise. Au-delà des cours universitaires, certaines organisations professionnelles offrent également des formations à leurs membres, comme l'Ordre des comptables professionnels agréés du Québec ou les associations provinciales regroupant les ingénieurs. Depuis peu, on trouve également des formules de jeu ludique sur le climat, dans lequel le participant est immergé dans une situation réaliste afin qu'il soit acteur de son apprentissage.

Ces formations permettent l'acquisition de fondements théoriques et pratiques sur la prévision et la gestion des risques climatiques, le choix de solutions résilientes ou l'intégration de nouvelles technologies pour réduire l'empreinte carbone de l'organisation.

## Les entreprises qui se transforment et s'adaptent

Les organisations elles-mêmes sont soumises à de nouvelles contraintes liées aux changements climatiques, ce qui les amène à revoir leur façon de faire. Par exemple le quotidien danois Politiken réduit ses publicités sur les destinations lointaines et interdit à ses employés les déplacements en voiture à essence à l'intérieur du pays (Gruda, 2019). La mine Nouveau Monde Graphite, dont le graphite sert à la fabrication de batterie Lio-ion, vise la carboneutralité en 2021 à travers l'électrification de tous ses procédés (Les Affaires, 2018). Sous la pression d'Apple, deux entreprises concurrentes, Alcoa et Rio Tinto, unissent leur forces pour développer une technologie de production d'aluminium bas-carbone (Apple, 2018).

## De quels métiers parle-t-on?

Il y a bien sûr des métiers qui sont au cœur de cette transition, comme les acteurs du secteur de l'énergie. Alors que le secteur du charbon voit son avenir s'assombrir, celui des énergies bas-carbone a le vent dans les voiles. Mais la transition bas-carbone dépasse de loin ce secteur. En effet, tous les secteurs d'activité sont consommateurs d'énergie et émettent des gaz à effet de serre (GES), que ce soit les transports, le secteur manufacturier, le bâtiment, l'agriculture ou la gestion des matières résiduelles. La contrainte climat s'insinue partout : chez le développeur de projet d'infrastructure qui doit joindre les émissions de GES de son projet à sa demande d'autorisation, chez le gestionnaire de centre de données informatiques qui s'établit proche de source de production d'électricité bas-carbone pour séduire ses clients, chez le responsable logistique qui optimise les déplacements des véhicules pour réduire les émissions, chez l'éleveur bovin dont le cheptel produit du méthane, un puissant GES, ou chez l'enseignant qui a le devoir de préparer ses étudiants à cette nouvelle réalité.

Ainsi alors qu'une fraction croissante de la population active cherche un métier à impact positif, les métiers eux-mêmes sont en profonde mutation. Espérons que cette double évolution permette au plus grand nombre d'aligner leurs valeurs personnelles avec leur vocation professionnelle. ■



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# *How climate change will shape the future of environmental professions – for better and for worse*

Melissa Drury and Paul Richard

The consequences of a warming planet will create opportunities in ‘green’ jobs while also putting new demands on environmental protection workers



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Climate change will have important impacts on society, including the workplace. Environmental professions will be both negatively and positively affected in ways that are unique to this field, as well as by trends that will affect the workplace in general.

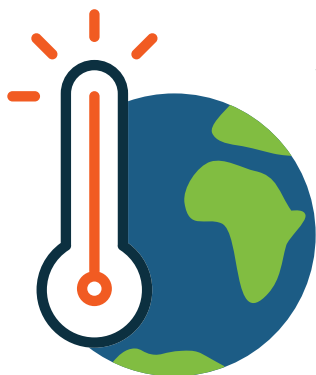
That the labour market will change is clear. According to a recent International Labour Organization report (2019), climate change will put up to 80 million jobs at risk by 2030, particularly in agriculture and construction, but also in the transportation, tourism, sports and industrial sectors. Despite being a northern country, Canada is not immune; the ILO report estimates the equivalent of a loss of 800 full-time jobs from heat stress alone. Temperature extremes will make outdoor work difficult or impossible, while consequences

of climate change such as more frequent flooding or fires will also indirectly affect employment.

Conversely, the authors of an *International Labour Review* article about mitigation of climate impacts argue that "climate action is an opportunity to create over 24 million jobs across the world. To maximize the employment opportunities, governments need to complement climate action with a conducive legal framework, consultation process of society, social protection, skills and industrial policy to enable a just transition" (Montt et al., 2018).

Not all these future jobs are expected to be of an environmental nature, of course, but the environmental profession – the "green" jobs – will be well represented.





*"Climate change will put up to 80 million jobs at risk by 2030, particularly in agriculture and construction, but also in the transportation, tourism, sports and industrial sectors."*

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## Present and future opportunities in green jobs

Climate change is tackled by decarbonizing the economy and by sequestering carbon. Green jobs act directly on these objectives: installers of solar panels, windmills, efficient windows or electric charging stations; designers of efficient vehicles, public transit, industrial processes; energy auditors and sustainability planners are examples among the many trades and professions that contribute to reducing emissions. Land-use managers and conservation professionals may create programs that build biomass and sequester carbon, such as planting and caring for tree and kelp forests; engineers who design high-tech systems for atmospheric carbon dioxide removal are also working toward the same objective: reducing atmospheric carbon.

Sharan Burrow (2015), General Secretary of the International Trade Union Confederation, says that jobs are already being created from investments in climate action: "In renewable energy, the US solar industry is creating jobs 20 times faster than the overall economy, while the world's largest renewable energy job market is in China, with 3.4 million working in the industry. In Germany, 370,000 people are employed in renewable energy, the largest number in Europe."

In Canada, employment opportunities in green jobs have been steady (ECO Canada, 2012) or, more recently, growing (ECO Canada, 2018, 2019). In its latest reports, ECO Canada identified the sectors with the highest demand as natural resources management, environmental health and safety, and waste management. Their 2012 report used a different but overlapping classification that listed environmental protection, resource conservation and green energy as the sectors most in demand.

Our own experience shows that a large number of environmental protection positions (a subset of green jobs) are not advertised in the media surveyed by ECO Canada. This suggests such surveys may underestimate the actual number of green jobs in the Canadian economy.

Likewise, TopResume (n.d.), a career agency, has similar findings based on US data about the most in-demand green jobs:

- environmental scientists;
- green building professionals;
- solar, water and environmental engineers;
- environmental protection scientists and technicians;
- corporate sustainability professionals

Environmental awareness led to the creation of these jobs and industries. Will climate change affect this distribution or the nature of these jobs?

## Influences on employment in environmental careers

### Government policy

The answer to this question depends largely on the evolution of policy. Renewable energy jobs in Germany were created by a 1990 policy decision, then the unexpected number of solar panel installers, wind mechanics and smart grids experts became large enough to insulate the profession from changing political winds. A similar set of policies across Canada would likewise create many green energy and energy-efficiency jobs, tilting the balance away from the more traditional environmental protection sector.

### Severe weather

The environmental protection sector is also likely to grow as a result of climate change and the resulting severe weather. Significant droughts, for instance, adversely affect biosystems, from fisheries to natural parks, and measures to alleviate impacts will rely on data provided by environmental protection scientists and technicians.

Storms, expected to be more frequent and more severe, will also affect environmental protection practitioners. Erosion-control professionals implement measures to prevent sediment from construction sites from entering fish-bearing streams; frequent severe cloudbursts may require the development of new regulations and best practices. Large-scale flooding, as has happened this decade in Calgary, Toronto and Montreal (twice), increases the risk of contamination from mold and sewage, and exacerbates problems of contaminated sites remediation (in our observation, still a leading employment sector for environmental protection practitioners). Municipal flood-prevention programs – including those using green infrastructure – will result in increased employment opportunities, from construction monitoring to land-use planning.

Large-scale wildfires such as those recently experienced in British Columbia, Alberta and California not only produce very poor air quality, but also contaminate water resources. Once fires are under control, a huge task of environmental monitoring remains, and this will become more frequent as the climate changes.





Finally, it must be mentioned that weather extremes will put new demands on environmental protection practitioners. Field work, a large component of the job, is more physically demanding during heat waves or storms, adding to the dangers of gathering samples in tinder-dry environments or stormy lakes. Further, these environmental stressors also add to the risk of workplace mistakes. Accidental spills, for instance, require rapid action from first responders, including those trained in containing spills, reclaiming affected lands and monitoring for toxic substances.

## A collective response

Climate change will likely create many opportunities for environmental practitioners, both in traditional fields such as environmental monitoring and in newer fields such as energy auditing. While this may seem to be good news at first glance, the prospect of increased employment in this sector is contingent on a well-functioning economy and governance system that can respond effectively to the challenge of climate change. This challenge is immense and requires a response from environmental professionals of all kinds. ■



### AUTHOR BIOS

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# CAREER BRIEFS

## Cannexus20 offering discounted registration until Nov. 6

CERIC's Cannexus National Career Development Conference, taking place Jan. 27-29 in Ottawa, is shaping up to be even bigger and better in 2020. Delegates can save \$50 on the regular one-day or three-day rate by registering by Nov. 6, 2019.

Cannexus will feature more than 150 education sessions on a wide variety of topics in career counselling and career and workforce development. More than 1,200 delegates are expected from across Canada and abroad.

Cannexus20 will host keynote addresses from Natan Obed, President of Inuit Tapiriit Kanatami; Tristram Hooley, Director of Research for the UK-based Careers & Enterprise Company; and Zita Cobb, Founder & CEO, Fogo Island Inn and Shorefast Foundation.



Learn more and register at [cannexus.ca](http://cannexus.ca).

## Future Skills Centre takes steps to support mid-career workers facing transition

The Future Skills Centre is spending \$7.65 million to fund 10 projects aimed at helping mid-career workers be successful amid a changing labour market. The projects include:

- Helping prepare oil and gas workers to take on jobs in the tech sector;
- Testing training models to upskill cashiers for higher-skilled jobs in food and retail;
- Exploring upskilling opportunities for workers with disabilities across Canada.



More details are available at [fsc-ccf.ca](http://fsc-ccf.ca).

## CERIC to fund project that demonstrates how career development can improve mental health

Led by Life-Role Development Group Ltd., with the support of Simon Fraser University and the Career Education Association of Victoria in Australia, this project will produce a handbook for career practitioners that addresses their role in supporting or improving client mental health. Expected to be released in early 2020, the book will help career practitioners learn about:

- How their work bolsters mental health and potentially intervenes with mental illness;
- How they can more effectively strengthen clients' mental health;
- Ways to communicate the vital role of career development in enhancing mental health.



Visit [ceric.ca/projects](http://ceric.ca/projects) to learn more about the forthcoming resource.

## Study explores 'emotional tax' carried by people of colour at work

A Catalyst study found many Canadian women and men of colour experience an emotional tax in the workforce – a combination of being on guard against bias, feeling different from peers at work and the associated effects on well-being. Among the findings:

- 33% to 50% of Black, East Asian and South Asian professionals report being highly on guard to protect against bias;
- 50% to 69% of those professionals have a high intent to quit.



Read more about the findings at [catalyst.org](http://catalyst.org).

## Popular CERIC-funded *Computing Disciplines* guide to see update in 2020

CERIC is funding a project for Mount Royal University to update its popular guide to computing careers, which will now add two emerging areas: data science and cybersecurity. The second edition of *Computing Disciplines: A Quick Guide for Prospective Students and Career Advisors* will also expand on training opportunities such as college programs and coding camps.

The new guide is expected to be released in early 2020, and once again will be made available for free download.



The current guide can be found at [ceric.ca/computing](http://ceric.ca/computing).



# Principles in Action

Elementary career education equips students to navigate complex world of work

Ed Hidalgo



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With a goal of bringing greater clarity and consistency to our national conversations about career development, CERIC developed a set of **"Guiding Principles of Career Development"** that have been enthusiastically embraced across Canada. These eight Guiding Principles are intended as a starting point to inform discussions with clients, employers, funders, policymakers and families.

Each issue of *Careering* features a Guiding Principle "in action," exploring how a career professional is applying a Principle in practice.

As a career development professional working in primary and secondary schools, I realize that beginning career education and exploration in the early grades can be controversial. However, recent research including the CERIC-published book *The Early Years, Career Development for Young Children* by Mildred Cahill and Edith Furey (2017) and the *Career-related learning in primary. What works?* report by the Career and Enterprise Company (Kashefpakdel et al., 2018) provide support for this approach. Like these authors, I believe that "children create their own stories, but not in isolation" (Cahill & Furey, 2017, p. 64). Students have many co-authors, including teachers, who provide important context as they develop a vision of their possible future selves alongside their families.

As Wehrle, Kira and Klehe's (2018) and Eismann's (2016) research highlights, first-generation students and refugees experience unique barriers that limit their engagement and advancement into available career paths, diminishing their career choice privilege. Understanding the internal and external constraints students

may experience has been core to our mission of providing contextualized career development in our classrooms.

My school district uses a process called "World of Work" to provide every child with career development that is integrated within their classroom curriculum and deployed by teachers.

A framework within this called "Mission of Me" guides students through:

## Guiding Principle

Career development can be complex and complicated, so context is key – there may be both internal constraints (financial, cultural, health) and/or external constraints (labour market, technology).

[ceric.ca/principles](http://ceric.ca/principles)

## A model for context in career development

The school district in which I work, located in El Cajon, CA, has 27 schools and 17,500 students. It is one of the most wonderfully diverse districts in the region, with some of the highest numbers of refugee families regionally as well as students from a mix of socio-economic backgrounds.

- Learning about their strengths, interests and values
- Exploring the labour market and learning about jobs and academic opportunities in their community
- Forming their stories based on their increasing self-awareness and exposure to opportunities available to them



The Mission of Me is integrated through four levels of exposure: 1) explore a job, 2) participate in an “as if” experience or simulation, 3) meet a professional who does the job, and 4) participate in a demonstration of learning or practice. Through this process, teachers integrate technology, reading, math and science, and equally important, provide an opportunity to apply knowledge to real-world problems. We encourage students to reflect on their learning and how their Mission of Me connects to the people in the job they explored.

As we work with students to integrate careers education in the early grades, it’s important to communicate that this work is not about encouraging students to select a pathway or make decisions, but rather to create opportunities to explore, meet professionals, and develop context and application for what they are learning. The goal is to expose young people to all types of work environments and career skills and keep them from foreclosing prematurely on possibilities as they work to develop their identity. While career development is complex and complicated, it can also become more accessible to young people when they have a supported space in which they can explore the world of work.

### Creating a common language

We believe that context is key – as the Guiding Principle states – to understand both our students’ needs and how to develop programming to support their career development. This is why we actively engage parents in our programs and why we use the RIASEC as the guiding framework for building a common language of career interests across the school and family.

The RIASEC vocational interest typology developed by Holland (1959, 1997) is “the most widely adopted theoretical framework for interest measurement” (Briley et al., 2017, p. 6). Holland’s typology describes people according to their resemblance to six vocational personalities and environments known as the RIASEC.

Parents are invited to work with World of Work coaches in training aimed at improving student and adult learning related to the world of work. During this three-course experience, families can explore their own strengths, interests and work values, learn the language

of the RIASEC, hear about career opportunities and begin to create a common language of careers they can use with their children.

More than 900 families have joined us for some form of career development learning over the past school year. Breaking down institutional and cultural barriers is critical to serving our families and leveraging the power of schools, which are trusted entities in the eyes of parents and a tremendous way to support career development across students’ life span.

### Sammy’s story

Like many students in our district, Sammy began his schooling as an English-language learner and first-generation citizen. When Sammy was in Grade 4, his teacher became an early adopter of integrating career development in her class. Over the school year, Sammy participated in career exposure activities, simulations and meet-a-pro opportunities.

It was during one meet-a-pro experience that his idea about his possible future career options changed. He was introduced to the district superintendent during a school visit. During their conversation, Sammy realized they both identified with the same RIASEC themes. As he learned more about the work of a superintendent, his interest piqued and he even envisioned himself in the role. The superintendent offered Sammy the opportunity for a job shadow. Now in Grade 5, Sammy continues to be interested in the path of superintendent. And, importantly, as he heads into middle school, he’s even more motivated to do well and achieve his goals.

### Access for all

Providing career development in the early grades affords educators the opportunity to proactively moderate contextual barriers that can impede students’ success, such as gender, race, learning differences and socio-economic status. Integrating career development with classroom learning ensures access for all students, which in turn benefits the communities where they live by putting them on a path to gainful employment. ■



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# What climate change will mean for jobs in food and agriculture in Canada

Laxmi Prasad Pant

Changing practices and consumer preferences are expected to have a disruptive effect on employment

Canada has joined a bid among developed countries to become a leader in fighting climate change while protecting jobs. The government adopted the Solidarity and Just Transition Silesia Declaration in 2018, which emphasizes the importance of decent work in the shift toward climate-resilient economies. The Canadian House of Commons declared a national climate emergency on June 17, 2019.

Translating these commitments into economic prosperity and decent jobs within food and agriculture is a challenging process. The Intergovernmental Panel on Climate Change (IPCC) recently released a *Special Report on Climate Change and Land*, to which this author has also contributed, with a new estimate that livestock, crop, fertilizer and fossil fuel use in agriculture account for about 21-37% of global GHG emissions (IPCC, 2019).

In Canada, the food and agriculture sector produces over 10% of greenhouse gas (GHG) emissions and is responsible for one in eight jobs, employing over 2.3 million people (Agriculture and Agri-Food Canada, 2016, 2019). This sector is also the largest employer in the world, and it will grow further to feed the 10 billion people expected to inhabit the planet by 2050 (United Nations, 2017). This growth will have to be low-carbon in order to meet GHG emission-reduction targets.

## Climate change exacerbates labour market challenges

The effects of climate change on food and agricultural jobs should be considered within the context of the already deteriorating labour market. Canadian rural communities are on the decline, and the food and agriculture sector has already faced labour market shortages. The most notable changes are youth out-migration, aging population, population decline and closing down of social services.

According to the 2016 Census of Agriculture (Statistics Canada, 2017), the number of farms has been decreasing in Canada; the family farm is declining at a faster rate. Canada has the second-lowest proportion of family farmers after New Zealand (Graeub et al., 2016).

The Conference Board of Canada, in its 2016 report, estimated that labour shortages within the agriculture sector have doubled over the past decade (Meyer-Robinson & Burt, 2016). Shortages are expected to increase two-fold again in the next 10 years, reaching 113,800 people. In a positive framing of the labour shortages, Ontario Agricultural College's *Planning for Tomorrow 2.0* report estimates that four jobs are available for each graduate in food and agriculture (Synthesis Agri-Food Network, 2017).



Quality of the available jobs is equally important regarding social stigma, occupational health and workplace safety. Food and agricultural careers in Ontario's Perth County suffer from social stigma, particularly those jobs that do not necessarily require post-secondary education (DEEP Centre, 2015).

According to a recent International Labour Organization report (Montt et al., 2018), climate change affects the quality of jobs that rely on ecosystem services, including employment in agriculture, fisheries, forestry and tourism. The risks and hazards associated with climate change affect vulnerable farm workers the most, including women, migrant workers, people in poverty, Indigenous people and persons with disabilities.

### Climate change not always bad for the local economy and jobs

Climate change may also have some positive implications for agricultural workers. In temperate countries like Canada, global warming can open up more areas for farming (Cui, Hao David et al., 2018). For instance, the West Kootenay region in British Columbia will experience a longer growing season, hotter summers and more frost-free days (Roussin et al., 2015). This should increase the region's capacity to grow food. However, scorching summers can cause drought, which might require additional water for irrigation, food processing and municipal use.

Career planners in food and agriculture should recognize that agriculture is both a source of GHGs as well as a sink where crops and soils can capture and store carbon. One way to make food and agricultural systems low-carbon and climate-resilient is to promote agroecology, which is using science, practice and social movements to bring incremental and transformational changes in industrial agriculture (Gliessman, 2018). For instance, such changes include minimum or zero tillage that has increased carbon capture and storage in soils, most notably in canola, soybean, field pea and wheat in the Canadian Prairies.

While incremental changes are compatible with the incumbent practices, transformational changes can be essentially disruptive. The largest share of GHG in Canadian agriculture comes from livestock (5%) followed by crops (3%) and fossil fuel use (2%). Hence, Canada's Food Guide recommends eating more plant-based protein sources, which has been applauded as a step forward to reduce our carbon footprint (Health Canada, 2019). A recent IPCC report (2019) also recommends eating less meat, which requires transformational changes in our habits and practices. This transition could disrupt the incumbent labour market, particularly for those working in the carbon-intensive beef cattle, dairy cattle and eggs industries.

The Food Policy for Canada aims to address these challenges by supporting agricultural systems that are low-carbon, climate-resilient, less wasteful, and supportive of the local economies and jobs (Agriculture and Agri-Food Canada, 2019). A transition to agroecological farming would help fulfill this mandate. This would eliminate carbon-intensive jobs in the industrial farming sector while creating carbon-friendly jobs that require a new set of skills, such as intercropping, crop rotation, cover crops, integrating trees and small animals back into farming. Agroecological farming could also improve occupational health and safety and provide opportunities to learn new skills, experience self-fulfillment and exercise human ingenuity (Timmermann & Félix, 2015).

In agroecological systems, incumbent workers and aspiring jobseekers will have to unlearn old skills and learn new skills, such as how to control weeds, insect pests and diseases without using harmful chemicals. We are heading to the Fourth Industrial Revolution, and advanced technologies – physical, digital and biological technologies – are prominent in food and agriculture as well (Pant, 2019). These technologies can reduce the food and agriculture sector's carbon footprint through input use efficiency, but policymakers should also recognize anxieties, including unprecedented job losses to automation and robotics (Rotz et al., 2019).

### A call for action

How climate change, and subsequent mitigation and adaptation, will affect local economies and employment in food and agriculture is poorly understood. This ambiguity is only expected to grow in the future. For instance, the declaration of a climate emergency could lead to resource mobilization; it could also create a sense of insecurity and fear among children, vulnerable workers, family farmers and aspiring jobseekers. Career counsellors, educators, leaders and policymakers should consider this reality while preparing the next generation of the workforce in this sector.

We need to make the food and agriculture profession more respected in a changing climate, regardless of whether or not a job requires post-secondary education. Advancements in physical, digital and biological technologies can make us climate-smart while advancing the profile of the industry. However, lack of access to advanced technologies as a result of the digital divide across social classes and geographic regions can create inequalities among already vulnerable agricultural workers (Rotz et al., 2019; Pant & Hambly-Odame, 2017). Career counsellors should be aware that new opportunities from technological advancements come with challenges to train younger farmers and aspiring jobseekers in advanced and highly technical skills as well as social and interpersonal skills. ■

You can find the complete list of references in the online version of this article at [ceric.ca/careering](http://ceric.ca/careering).



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# CASE STUDY

In this recurring *Careering* feature, career professionals share their real-life solutions to common problems in the field.



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## Helping a client conquer doubts and determine next steps after post-secondary

*Career counsellor Connie Covey guides an overwhelmed liberal arts graduate through identifying her transferable skills, interests and potential pathways*

Recently had the opportunity to meet with an intelligent young woman who had just completed university. Laura felt disillusioned and overwhelmed. She had completed a Bachelor of Arts in human services and public relations, but now felt that was the wrong direction for her future. She wanted to speak to a career counsellor before deciding about further education.

### Laura's story

Laura felt strongly about contributing to society and promoting equality and justice; that was her motivation for completing a university degree in human services and public relations. During the counselling process,

Laura reflected upon the communications-related role she held during university. That reflection resulted in an important self-discovery: she realized that she worked best when given a clear mandate, autonomy and empowerment to produce tangible results. As an introvert, she felt dissatisfied in a highly social, interactive support role where she could not see tangible results from her work.

### Exploring possibilities

Together, Laura and I explored her career possibilities by identifying the intersection of four important elements: a) what she loves, b) what she is good at, c) where there is a need, and d) where she can earn a





*"In a world that continues to evolve due to globalization, technological advancements and automation, it is important to equip clients with knowledge and access to resources that can help them navigate unexpected events or life changes."*

living by applying her passion and skills to solve real-world problems. We worked through the following steps:

1. First, using a values assessment, we identified what she loves and the impact she wants to have in the world. By exploring her values, it became clear that she was passionate about social justice, human rights and humanitarian relief work.
2. Next, we researched the local labour market to identify growing and emerging occupations. We accessed information about in-demand careers in Alberta and searched for emerging occupations on the government of Alberta's ALIS website.
3. Then, Laura completed a skills assessment to identify her preferred and transferable skills. She naturally plans out the details of her life and enjoys the challenge of a project with a start, an end and a tangible outcome. Through that assessment, it became clear that she had project-management skills she could build on. We discussed ways she could strengthen these skills without having to earn another university degree. Instead, she could take a course in project management. We also discussed the option of certification as a Certified Associate in Project Management (CAPM)<sup>®</sup> from the Project Management Institute.
4. Lastly, we looked at where she could build a career and make a living at the intersection of what she loves, her transferable skills and where there is a need. Laura identified that she would like to pursue a career in project management working on humanitarian relief projects at an international relief organization.

### All education and experiences are valuable

Laura felt that she graduated with a "useless" degree, but no education is a waste. The BBC recently ran an article titled, "Why 'worthless' humanities degrees may set you up for life," which emphasized the employability of and need for liberal arts graduates (Ruggeri, 2019). Because the cost of education is high, it is important to choose educational programs and work experience that develop and build knowledge and transferrable skills. However, as it is difficult to know what the future holds, it is also important to learn how to learn. A degree some may perceive as useless teaches valuable skills such as critical thinking, communication and interpersonal skills.

What you want to be when you grow up does not necessarily need to be planned, because unplanned events are a normal part of career development (Krumboltz, 2009). In a world that continues to evolve due to globalization, technological advancements and automation, it is important to equip clients with knowledge and access to resources that can help them navigate unexpected events or life changes. When clients feel anxious about the changing nature of work, career practitioners can help them view the future with curiosity and build skills of resilience. For instance, clients will benefit from skills of persistence when encountering setbacks as well as flexibility and optimism about the changing nature of work (Mitchell, et al., 1999). Career practitioners can help clients discover that taking risks to build new skills and knowledge can be rewarding.

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## Next steps

As we concluded our time working together, Laura signed a personal commitment contract outlining several activities she was aiming to complete in the next 12 months. She planned to take a project management course, prepare for and take the CAPM® exam, and continue to modify her resume to reflect her project-management skills and experience. She also identified a humanitarian relief organization

that she planned to learn more about. Lastly, I connected Laura with an individual working in the sector for an information interview. Laura was on the right path for creating a promising career.

For recent graduates who realize they need to change direction, career counselling can help clients discover their passion, their transferable skills and labour market information in order to retool when necessary and build on their formal and informal learning experiences. ■



### AUTHOR BIO

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# 10 QUESTIONS

**Senator Murray Sinclair** served the justice system in Manitoba for over 25 years. He was the first Aboriginal judge appointed in Manitoba and Canada's second. He served as Co-Chair of the Aboriginal Justice Inquiry in Manitoba and as Chief Commissioner of the Truth and Reconciliation Commission (TRC). As head of the TRC, he participated in hundreds of hearings across Canada, culminating in the issuance of the TRC's report in 2015.

Senator Sinclair was appointed to the Senate on April 2, 2016. He is currently a member of the Senate Ethics and Conflict of Interest for Senator's Committee as well as Vice-Chair of the Standing Committee on Rules, Procedures and Rights of Parliament.



## **In a sentence or two, describe why career development matters.**

A career is a life path. Career development helps us achieve our individual sense of self and it allows us to contribute to society's collective sense of self. A society and a people are strengthened when its members feel fulfilled in their life's journeys.

## **What do you do to relax and how does it help you?**

I have learned the importance of relaxing spiritually, mentally and physically through Indigenous traditions and ceremony. I attend sweatlodges, teach youth, dance when I can to the Drum and share stories with other Elders, learning from their wisdom and hopefully contributing some of mine.

## **What is the one thing you wouldn't be able to work without? Why?**

I would never be able to do what I do without the support and assistance of others such as my friends, my family and especially my staff.

## **What is the most unusual interview question you've ever been asked and how did you respond?**

I was asked once if there was one thing in my life that I could change, what would it be. I thought of the many thousands of things that needed changing, including the early loss of my mother and brothers, all of which affected me severely. But having thought it through, I said "Nothing!", because if I changed one thing in my life I could not change the others and that was an impossible choice. But more importantly, if I changed the most important, life-changing one, I would probably not have become who I am ... and I like who I am.

## **What's something you want to do in the next year that you've never done before?**

I want to take better care of myself and my wife. With her consent, I put aside her needs over the years, but the time has come to stop doing that. Love is a gift and a responsibility. I dedicate myself each day to getting her to fall in love with me.

## **Which book are you reading right now and why did you choose it?**

I love Stephen King's books but sometimes he scares me. Right now I'm reading *Sleeping Beauties* but when it scares me too much I read books about health. I recently started reading *Liver Rescue* because I have been diagnosed with a liver problem.

## **What was your first-ever job and what did you learn from it?**

I was a delivery boy on a milk truck and it taught me the importance of completing what you started and treating people with kindness and respect.

## **Who would you like to work with most and why?**

I'd sure like to work with my grandchildren so they could achieve more than I ever could.

## **Which talent or superpower would you like to have and how would you use it?**

I wish I had the power of insight to help people see their own goodness and how to use it, and how even running in sand will eventually get you where you want to go.

## **What do you consider your greatest achievement and why?**

My children. They are my most important legacy. ■



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