Preparing the Public Sector for Climate Change

In this Edition:
- Climate Change Complexity in Canada: Assessing Governance
- Diplomatic Challenges involved in Implementing COP 21 Outcomes
- Role of the Public Service in Determining a Nation’s Climate and Economic Agenda
- The Value of “Free Agents” Inside the Public Service
**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>Article</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Message from the CEO</td>
<td>1</td>
</tr>
<tr>
<td>Climate Change Complexity in Canada: Assessing Governance</td>
<td>2</td>
</tr>
<tr>
<td>What are the Main Diplomatic Challenges involved in Implementing</td>
<td>12</td>
</tr>
<tr>
<td>the Outcomes of the 2015 Paris COP 21 UN Climate Change Conference?</td>
<td></td>
</tr>
<tr>
<td>Role of the Public Service in Determining a Nation’s Climate</td>
<td>21</td>
</tr>
<tr>
<td>and Economic Agenda: Challenges, Opportunities and Responsibilities</td>
<td></td>
</tr>
<tr>
<td>The Value of “Free Agents” Inside the Public Service</td>
<td>41</td>
</tr>
</tbody>
</table>

**Produced by CAPAM**

*The views and opinions expressed in each article reflect those of the author and do not necessarily reflect those of CAPAM. The material in this publication is based on sources that we believe to be reliable. While every care has been taken in the preparation of this publication, CAPAM gives no warranty that the sources are correct.*

CAPAM
291 Dalhousie Street, Suite 202
Ottawa, Ontario, Canada K1N 7E5
P: +1 819 956 7952 (main)
F: +1 613 701 4236
www.capam.org

**BOARD OF DIRECTORS**

- **Ing Dr Nana Ato Arthur**, Head of the Local Government Service, Ghana
- **Dr Jeannine Comma**, former Chief Executive Officer, Sagicor Cave Hill School of Business and Management, University of the West Indies (Retired), Barbados
- **Mr K. V. Eapen**, Secretary, Department of Administrative Reforms and Public Grievances (DARPG), India
- **Dr Ali Hamsa**, Pro Chancellor, University Tun Hussein, Malaysia
- **Mr Franz Manderson, MBE, Cert. Hon., JP**, Honourable Deputy Governor and Head of the Civil Service, Cayman Islands
- **Mr Graham Teskey**, Principal Global Lead for Governance, AbtJTA, Australia
- **Mr Daniel Watson**, Deputy Minister, Crown-Indigenous Relations and Northern Affairs, Canada
- **Ms Bernadette Welch PSM**, Permanent Secretary, Ministry of Civil Service, Fiji
- **Mr Paul Zahra**, Permanent Secretary, European Affairs, Office of the Deputy Prime Minister, Malta

**DIRECTORS EMERITUS**

- **The Hon. Jocelyne Bourgon**, Canada
- **Tun Ahmad Sarji**, Malaysia
- **Mr Mohan Kaul**, United Kingdom
- **Sir Richard Mottram**, United Kingdom

**ADVISORS**

- **Dr H. Ian Macdonald**, President Emeritus (York University); Professor Emeritus of Economics and Public Policy; Director of the Master of Public Administration Program, Canada
- **Mr Nick Manning**, World Bank (retired)

**CAPAM CHIEF EXECUTIVE OFFICER**

Ms Gay Hamilton
MESSAGE FROM THE CEO

Dear readers,

I would like to thank everyone who attended the CAPAM 2018 Biennial Conference in Georgetown, Guyana held 22-24 October for their contributions and enthusiastic support. Our speakers and International Innovations Awards finalists treated delegates to an informative and inspirational programme that was complemented by excursions and outings organised by the host country of Guyana. Our next edition of the Commonwealth Innovations Review (CIR) will report on the Biennial Conference and International Innovations Awards, and is not to be missed!

In this issue of the CIR, we feature articles that revolve around the theme of preparing the public sector for climate change. For some small island states, rising sea levels not only represent changes to their ways of life, but more fundamentally, a fight for continued existence. And they are not alone. United Nations Sustainable Development Goal 13: Climate Action states, “climate change is now affecting every country on every continent. It is disrupting national economies and affecting lives, costing people, communities and countries dearly today and even more tomorrow.” How public sectors address this challenge and position their countries to face the global crisis is crucial.

The November 2018 CIR provides insight into this topic from a variety of views. Ms Jennifer Kroecker-Hall, PhD (c) of Canada focuses on the machinery of government by examining climate change governance approaches, as well as their associated implications. Guyana’s Ms Dianna Rajcumar provides an international perspective by outlining the diplomatic challenges between developing and developed countries for implementing outcomes from the Conference of the Parties (COP) 21 United Nations Climate Change negotiations. Mr Gabriel Juma Okumu of Kenya reviews the roles, responsibilities, challenges and opportunities for public service professionals in determining a sometimes-conflicting climate and economic agenda. As is our custom the CIR also features innovative initiatives, and in this edition Mr Abe Greenspoon outlines a new workforce model being undertaken by the Government of Canada to create “Free Agents” that can be deployed when and where they are needed.

The public service is persistently being challenged with finding better ways of serving citizens, and global climate change presents a test that may very well decide the future of humanity. As indicated in the CAPAM 2018 Biennial Conference programme, “It is increasingly obvious that addressing climate change and nurturing economic prosperity is not an either/or proposition. In fact, the evidence is overwhelming that humanity’s wellbeing and existence is tied to changing the course upon which we are set, and creating new opportunities for growth within a sustainable context. As public service professionals, we are on this voyage together, and it is our hope that the dialogue generated during this Biennial Conference will contribute towards meaningful outcomes and innovative solutions”.

May the dialogue continue. May solutions be found. And, may we continue to work together to implement those solutions for the betterment of the citizens we serve.

Gay Hamilton
Chief Executive Officer
Ms Jennifer Kroeker-Hall, PhD (c)
University of Victoria, and CEO of Sirius Strategic Solutions Ltd., Canada
Ms Kroeker-Hall's expertise has been developed through a varied career in the public sector with forays into the academic, political, private and non-profit arenas. She has extensive experience in policy research and development; planning; organisational development; government relations; and community/stakeholder engagement. Ms Kroeker-Hall brings expertise in nonprofit, private and public sector governance with work and research focused in numerous areas such as justice, road and public safety; regulatory reform; and, governance at the intersection of private, public and non-profit arenas. She has taught criminology at the postsecondary level and is currently involved in research and teaching at the University of Victoria in the School of Public Administration. She has presented her work and ideas at conferences around the globe.

INTRODUCTION

The search for strategies to address wicked problems such as climate change is gaining urgency, and new governance and management approaches to find and implement solutions are needed.

Two such governance concepts, collaborative and multilevel, and adaptive co-management in particular, have been given more recent attention in the literature, and in practice. Canada, like many global regions, experiences both shared and unique climate challenges given its vast geography, constitutional, economic and political make-up. This makes the challenges of effective and efficient governance more complex across government systems and through a multitude of sectors and industries.

The need for new collaborative approaches to climate governance is well recognised in academic circles (Baird, Plummer & Bodin, 2015; Bauer & Streurer, 2013; Betsill & Bulkely, 2006; Pattberg & Stripple, 2008). However, successful implementation of effective governance is an emerging area, and one that is closely related to relationships among state and public administrative systems, the private sector, and civil society. In the Canadian context, climate change and the economy pose unique prioritisation and policy challenges. While Canadian governments at all levels have shown an interest in creating climate change strategies and plans, their implementation and the assessment in terms of accountability and effectiveness, is often lacking.

Within this context, nations and their public service professionals are increasingly being called upon to urgently address, mitigate and proactively manage this global transformation. Many public sectors have been organised, intentionally or not, so that their departments operate in silos with specific mandates and priorities. At times, these priorities can be conflicting, resulting in government sectors operating at cross-purposes. Thus, effective climate change governance depends on collaboration between governments and other non-governmental actors.

At the same time, the reality of ensuring strong economic growth for a nation and its citizens is all consuming. How does the public sector manage this duality? Are there policies, strategies, and approaches that account for both climate responsibility and economic prosperity? Are there examples of economic and climate changes experts working together to build cross-sector solutions, and how are relationships, outcomes and accountabilities governed? The dearth of research to answer these
questions presents a significant gap in both the literature and ultimately, practice. These questions, then, form the basis of my paper, which analyses attributes of climate change governance in a Canadian context, with a view to developing a framework for assessing progress and outcomes. Climate change governance and solutions require a collaborative approach in a multilevel and multi-stakeholder world, in order to meet local and global needs of private, public and non-profit stakeholders, and satisfy the general public. We must find effective ways to tease out accountabilities and require action that allows us to measure effectiveness in collaborative, networked and multilevel policy arenas.

**BACKGROUND**

Climate change governance, like all governance regimes, relies on clear integration of key principles such as accountability, transparency and performance measurement. While necessary, these principles are not sufficient for successful climate change mitigation and adaption strategies. This requires building management and institutional capacity and skill, as well as a wide range of steering mechanisms ranging from informal cooperation between different institutions and actors to hierarchical forms of regulation (Baird, Plummer & Bodin, 2015). Compounding this challenge is a lack of research that addresses the above questions. Many books and articles have been produced on general matters related to climate change, such as climate modelling, temperature variations, sea level rise, greenhouse gas emissions, etc., but little analysis and research has been dedicated to addressing the political, economic and social elements and their governance (Frohlich & Knieling in Knieling & Filho [Eds], 2013).

The governance of climate change in Canada, like most countries, is complex; the number of stakeholders, spheres of activity and interests affected by climate change can result in a multitude of possible impacts and effects. As a result, new approaches to governance require flexibility, adaptability and a wide variety of coordinating methods and institutional leadership (Bache, Bartle, Finders and Marsden, 2015; Henstra, 2017). Climate change policies and action need cooperation between different parties and extend across several policy and sectoral planning areas (Wejs, A., 2014). And governance of the climate portfolio needs to incorporate a multitude of structural and regulatory forms across a variety of different stakeholders, making monitoring and assessment of outcomes more challenging (Henstra, 2017). As the acceptance of climate change is shifting, climate-change policy has not kept pace (Giddens, 2009) and Orr (2009) argues that a combination of political negligence and a disdain for the wellbeing of future generations has brought global society to a crucial tipping point. So why has so little been achieved?

Research by Bache, Bartle, Finders and Marsden (2015) reveals that there is an accountability vacuum within an increasingly complex architecture of multilevel governance. They suggest that politicians may create or tolerate increasingly complex and fluid governance structures as a rational self-defence mechanism when faced with apparently intractable socio-political challenges. Bache et. al. (2015) suggest that complexity is not only accidental but designed. Accidental in the sense that climate change is a complex socio-political issue that does not respect political borders. It is the subject of debate regarding cause and effect, which intersects with a number of related global challenges such as overpopulation and resource-depletion. And finally, causes are less visible to the public, thus easier to ignore, and cannot be successfully addressed by any single actor. Design in the sense that the climate change challenge demands, at some point, that elected politicians make unpopular decisions (Bache et.al. 2009).

**THE CANADIAN CONTEXT OF CLIMATE CHANGE GOVERNANCE**

Canada's Sixth National Report on Climate Change (2014) provides a neat summary of environmental governance. Canada is a geographically large federation composed of a central federal government, ten provincial governments and three territories. Distinct powers are assigned to the
federal government and provinces based primarily on the Canadian Constitution, which does not specifically address protection of the environment. It has become an area of shared jurisdiction as governments have taken action according to their respective authorities.

Federal environmental laws are based on federal constitutional powers such as international borders, international relations, trade and commerce, navigation and shipping, seacoasts and fisheries, criminal law, and the power to legislate in the national interest (Canada Act 1982 (UK), c 11.). The federal government has responsibility for interprovincial and international trade, and the National Energy Board regulates interprovincial/international pipelines (including the largest pipelines in Canada) and energy exports and imports. In terms of environmental assessment, federal environmental assessments are focused on those major projects with the greatest potential for significant adverse environmental impacts to matters of federal jurisdiction. With respect to climate change, emissions of greenhouse gases (GHGs) are legislated both at the federal and provincial levels. Every jurisdiction has an environmental ministry or agency, but environmental responsibilities can be widely shared within each government.

Provincial environmental laws are based on provincial constitutional powers, which include authority
over municipalities and local works, property and civil rights, provincially owned (public) lands and natural resources. Natural resources, including energy, fall mainly under provincial jurisdiction. Provincial governments own the resources within their boundaries and have broad responsibility for managing resource development activities, except on some federal and Aboriginal lands. Provincial governments manage resource ownership, royalties, land-use planning and allocations as well as exploration, development, conservation and use of natural resources within their boundaries.

This brief, high-level description of the key structures dedicated to environmental and climate change management demonstrates the need for a multilevel and collaborative approach to climate governance.

Further complicating climate governance context in Canada is the federal government’s challenge of incentivising provinces and territories to align their programmes and targets with national and international commitments.

The Government of Canada is implementing a sector-by-sector regulatory approach to reduce emissions. Concurrently, provincial and territorial governments have implemented strategies to address climate change. Given the inherent challenges of governing in a complex system, we need to consider new ways of approaching climate change governance.

A CONCEPTUAL FRAMEWORK

Although many authors acknowledge the importance of governance, its consistent definition and understanding is elusive. Various authors use this term in different ways (Rhodes 1996; Frederickson 2005; Osborne 2006; Sorensen and Torfing 2007; Klijn & Koppenjan, 2016). Simply put, governance is “concerned with how and why systems of all kinds are constituted and operated” (Edwards, et al., 2012: 11). It is a multi-dimensional concept used differently depending on the frame of analysis, standpoint of the observer or participant, and a particular issue or sector.

At its most fundamental, governance generally relates to two elements: structure and process (Offe, 2009). These actions and processes may operate in formal and informal organisations, institutions or systems of any size. Conceiving of governance in this way, one can apply the concept to states, to corporations, to non-profits, to non-governmental organisations, partnerships and other associations, to business relationships, project teams, and to any number of humans engaged in some purposeful activity (Offe, 2009).

Analyses of global, national and local environmental politics have tended to take place in isolation; lacking an inter-connectedness that underpins the nature of the climate change dilemma (Bulkely & Betsill, 2005). Two key concepts are highlighted in the current literature that addresses the lack of inter-connectedness with respect to the future of successful climate governance. These concepts will be used to explore the issues of accountability and effectiveness, and in developing an assessment framework in the context of Canadian climate governance.

The first concept is collaborative governance, which focuses on the processes and structures of public policy decision making.

Collaborative Governance

Collaborative governance requires management that engages people across the boundaries of public agencies, levels of government, and the public, private and non-profit arenas. It has been defined broadly to include the processes and structures of public policy decision making and management that engage people constructively across the boundaries of public agencies, levels of government, and/or the public, private and civic spheres. These structures and processes are designed to carry out public purposes that could not otherwise be accomplished.

However, the conditions for adaptive co-management to emerge and the resulting network structures and relational patterns remain unclear in the literature (Baird, Plummer & Bodin, 2015). Adaptive governance is operationalised by way of...
adaptive co-management (Olsson et al. 2004b; Folke et al. 2005). Adaptive co-management (ACM) is generally understood as “a process by which institutional arrangements and ecological knowledge are tested and revised in a dynamic, ongoing, self-organised process of trial-and-error” (Folke et al. 2002, p. 8). It involves heterogeneous actors interacting through networks (horizontally and vertically) to undertake actions and learn through feedback (Olsson et al. 2004b; Armitage et al. 2009). In focusing on social relationships, Baird et al. (2015) identified how collaboration and adaptation emerged over time as well as how network structures and relational patterns developed. The main message from their research is that a process where actors are able to develop social ties among each other is needed to bring about collective action.

**Multilevel Governance**

The second concept, multilevel governance (MLG), builds on collaborative governance (Betsill and Bulkeley, 2006). It includes not only the structure of multilevel organisations, but also the patterns of interaction and coordination systems within and between different levels (Frohlich & Knieling in Filho & Knieling, 2013). The concept of multilevel governance suggests that “in an institutionally differentiated political system, different levels are interdependent and their decisions need to be coordinated” (Benz 2007:297). This is certainly true in the case of Canada. The view on climate change and climate policy from the perspective of multilevel governance can highlight the interwoven multilevel processes and structures regarding climate change. Multilevel governance thus includes not only the structure of multilevel organisation, but also the patterns of interaction and coordination systems within and between different levels (Frohlich & Knieling in Filho & Knieling, 2013).

The concept of multilevel governance, with its emphasis on the connections between vertical tiers of government and horizontally organised forms of governance, provides a useful starting point for understanding the ways in which environmental problems are governed within and across policy and political arenas.

This system concept has emerged given the need for collective decision-making over complex problems, and supranational, national, and sub national political arenas are interconnected through policy networks. As a result, decision-making competencies are increasingly shared between actors operating at different levels of governance. This perspective draws attention to the importance of considering how political authority and processes of policymaking cross traditional divides between state and non-state actors, domestic and international spheres.

Multilevel governance, then, provides a valuable analytical tool through which to capture and map all the actors involved at various multiple geographical scales. To begin to move beyond simplistic statements regarding the capacity of the state or the role of politicians, and instead highlight the existence of chains of authority and delegation (both vertically and horizontally), there is need for political leadership and network management, and the role of accountability mechanisms as a tool of governance.

**CANADIAN CLIMATE CHANGE GOVERNANCE**

Collaborative and multilevel governance in the Canadian context are critical. Flexibility enables governments to move forward and to collaborate with other levels of government and stakeholders on shared priorities. The collaborative frameworks established by the federal government have been carefully crafted to respect constitutional and conventional authorities, responsibilities and practices, as well as each jurisdiction’s needs and plans, including the need to ensure the continued competitiveness and viability of businesses.

When First Ministers met in March 2015, they agreed to take ambitious action in support of meeting or exceeding Canada’s 2030 target of a 30 percent reduction below 2005 levels of greenhouse gas (GHG) emissions. First Ministers issued the Vancouver Declaration...
on Clean Growth and Climate Change and agreed that a collaborative approach between provincial, territorial, and federal governments was important to reduce GHG emissions and to enable sustainable economic growth. Pricing carbon pollution is central to this Framework and is expected to reduce emissions and foster innovation, with support from business leaders across all sectors. Canada’s low-carbon economy was intended to: position it as a global leader on clean technology innovation; help ensure that Canada remains internationally competitive; and, lead to the creation of new jobs across the country.

Adopted on December 9, 2016, the Pan-Canadian Framework on Clean Growth and Climate Change (the Pan-Canadian Framework) embodied these characteristics as a plan to grow the Canadian economy while reducing emissions and building resilience to adapt to a changing climate. It is a blueprint to spur innovation and job creation.

The Pan-Canadian Framework builds on the leadership shown and actions taken individually and collectively by the provinces and territories, including through the Declaration of the Premiers adopted at the Quebec Summit on Climate Change in 2015. It was intended to help transition to a strong, diverse and competitive economy, and foster job creation, with new technologies and exports.

In implementing the Pan-Canadian Framework, federal, provincial and territorial governments would review progress annually to assess the effectiveness of collective actions and ensure continual improvement. First Ministers committed to report regularly and transparently to Canadians on progress towards GHG-reduction targets, on building climate resilience, and on growing a clean economy. Acting on climate change is expected to make Canada more efficient and competitive and allow it to take advantage of the global market for low-carbon goods and services already worth $5.8 trillion and growing by 3% per year.

To reduce emissions, meaningful action will need to be taken across all regions and sectors of the economy. Many of the things that Canadians do every day—like driving cars and heating homes—produce GHG emissions. Many activities that drive economic growth in the country, like extracting natural resources, industrial and manufacturing activities, and transporting goods to customers, also produce emissions. The policies that help drive down emissions can also help the economy to keep growing by cutting costs for Canadians, creating new markets for low-emission goods and services, and helping businesses use cleaner and more efficient technologies that give them a leg up on international competitors. A few examples reflect the government of Canada’s focus on key economic arenas.

Construction in Canada is a $171 billion industry and it employs well over a million people. New building codes are expected to spur innovation and support Canadian businesses in developing more efficient building techniques and technologies. Investments in retrofits to improve energy efficiency have been shown to be strong job creators, providing direct local benefits, creating local jobs, and reducing energy bills.

The transportation sector accounted for about 23 percent of Canada’s emissions in 2014, mostly from passenger vehicles and freight trucks. Transportation emissions are projected to decline slightly by 2030 if no further action is taken. Low-carbon transportation systems will: use cleaner fuels; have more zero-emission vehicles on the road; provide convenient and affordable public transit; and, transport people and goods more efficiently.

Canada’s industries, while a significant economic contributor, are a major source of GHG emissions. In 2014, industrial sectors accounted for about 37 percent of Canada’s emissions, the major of which came from the oil and gas sector. There are a number of opportunities to reduce industrial emissions.

---

While maintaining the competitive position of Canadian firms. The approach to the industrial sector includes three main areas of action: (1) regulations to reduce methane and hydrofluorocarbon (HFC) emissions; (2) improving industrial energy efficiency; and (3) investing in new technologies to reduce emissions. A low-carbon industrial sector will rely heavily on clean electricity and lower-carbon fuels, will make more efficient use of energy, and will seize opportunities unlocked by innovative technologies.

Forests, wetlands, and agricultural lands across Canada play an important natural role in a low-carbon economy by absorbing and storing atmospheric carbon. Actions taken by jurisdictions and woodlot owners to accelerate reforestation, to continuously improve sustainable management practices, and to plant new forests where they do not currently exist, will enhance stored carbon. Clean technology, such as lower-carbon bioenergy, and bioproducts that use feedstock from agriculture and forestry waste and dedicated crops to replace higher-carbon fuels can also reduce emissions. Continued innovation and clean technology in agriculture will build on past GHG reduction successes of decreasing emissions per unit of production. The municipal waste sector will also be a key source of cleaner fuels such as renewable natural gas from landfills.

Translating knowledge into action takes leadership, skilled people, and resources. Established in 2012, Canada’s climate change Adaptation Platform is a national forum that brings together key groups in Canada to collaborate on climate change adaptation priorities. It provides a framework for collaboration among governments, industry, and professional organisations on adaptation priorities. Building regional expertise and capacity for adaptation is intended to improve risk management; support land-use planning; help safeguard investments; and strengthen emergency planning, response, and recovery. Decision-making is to be inclusive of all stakeholders and guided by scientific knowledge. Collaboration means working with regional partners, including with Indigenous Peoples through community-based initiatives, to build regional capacity, develop adaptation expertise, respectfully incorporate Traditional Knowledge, and mobilise action.

**IMPLICATION FOR CANADIAN CLIMATE CHANGE GOVERNANCE**

Jurisdictional and institutional fragmentation is widely acknowledged as a barrier to adaptation (Eisenack, K., Moser, S. C., Hoffmann, E., Klein, R. J. T., Oberlack, C., Pechan, A., Termeer, C. J. A. M., 2014; Gupta, 2007). The nature of climate change governance is complex given that the many environmental, economic and social variables

---

4 Ibid.

with which it is associated extend beyond the scope of traditional governance processes. Effective climate change governance depends on collaboration between governments and other non-governmental organisations. Climate change governance requires a collaborative approach in order to find suitable solutions that meet the needs of private, public and non-profit stakeholders, and satisfy the general public. This requires accountability and ways to measure effectiveness in a collaborative, networked and multilevel policy arena.

Although this paper presents a high-level view about how climate adaptation is organised in Canada, it has limitations that should be addressed in future research. First, although the focus here has been on national frameworks, both collaborative and multilevel governance are relevant to a deeper study of relationships, accountabilities and effectiveness with respect to policies and actions taking place at the provincial (regional) and local levels of government. Canada's ten provinces and three territories have pursued adaptation agendas both in concert with, and independent of, federal policy activities. Similarly, municipal governments have been actively designing plans to address climate-related risks. These efforts deserve focused research attention in order to complete the picture of climate governance in Canada. Second, achieving an effective governance strategy requires collaboration and alignment of policy efforts at all levels of response, from local to global (Henstra, 2017). In the absence of hierarchical command and control, it remains uncertain which governance mechanisms are optimal for achieving this vertical coordination. Comparative analysis across multiple jurisdictions would be valuable to assess the relative strengths and weaknesses of different governance arrangements. Case studies of regions, communities, or sectors offer a means to compare the translation of regime-level policy ideas into everyday decisions and actions (Vogel & Henstra, 2015; Wejs, 2014).

Overall, analysis suggests that the Government of Canada has successfully staked out a leadership role in this complex policy field. Drawing on a range of policy instruments, the federal government has generated broad acceptance of climate adaptation policy ideas, effectively engaged relevant stakeholders in policy deliberation, and established institutional arrangements that have induced policy coordination across sectors most likely to be affected by climate change (Henstra, 2017). Moreover, Canada's collaborative governance approach is focused on building strong legitimacy, in that participants generally accept its central goals and institutional design as appropriate; coherence, as evidenced through meaningful coordination among relevant actors; and durability, since the core objectives and interest commitments have persisted despite a major economic recession and two changes of government (Wejs, 2014).

Climate change considerations, impacts and solutions do not sit neatly within one specific area of expertise or jurisdictional arena. Effective climate change governance depends on active and strategic collaboration between levels of governments and other non-governmental actors, key among them, business and industry. This variety implies that there cannot possibly be just one adequate form of governance, nor can there be just one ideological programme or one ideal policy, but rather a broad variety of approaches and solutions. This variety can “constrain the options for action, impede consensus and lead to suboptimal outcomes of negotiations” (Gupta 2007: 461). Climate change governance in Canada, then, calls for new state, economic and civil society structuring and collaboration (Knieling & Frohlich, 2013 in Knieling & Filho, 2013). In the Canadian context, political leadership requires that all levels of government, civil society and the private sector actively participate in aligning their values and actions to achieve the common goals with respect to climate change. Our future depends on it.
REFERENCES


WHAT ARE THE MAIN DIPLOMATIC CHALLENGES INVOLVED IN IMPLEMENTING THE OUTCOMES OF THE 2015 PARIS COP 21 UN CLIMATE CHANGE CONFERENCE?

INTRODUCTION
Climate change mitigation and adaptation are two agreed upon measures from the Conference of the Parties (COP) 21 United Nations Climate Change negotiations designed to cap carbon emissions and limit global temperature increases to two degrees Celsius.

In this paper the author argues that negotiations between developing and developed countries for climate change adaptation under the financing clause present a diplomatic challenge to: achieving political consensus under the United Nations Framework Convention on Climate Change (UNFCCC); and, investment in greener technologies, as two outcomes of the Paris Agreement.

To support this assertion the following issues will be examined:

• The diplomatic challenge of climate change negotiations is fractured along the global dimension of developed countries’ support for mitigation financing and developing countries negotiating for adaptation financing given they are net emitters in climate change, which transcends political borders.

• The Paris Agreement has no enforceable mechanism under the UNFCCC nor COP 21 for developed countries to comply with the financing clause.

• Negotiations for climate financing are not formalised under the UNFCCC institutional framework for developing countries to fast track their Intended Nationally Determined Contributions (INDCs) in implementing the 2015 Paris Agreement.

• The UN system has executed its responsibility to manage the emerging threat to human security under the UNFCCC, where 174 countries signed the Paris Agreement.

• The nexus between climate change and economic prosperity presents a policy concern.

• A role exists for public service professionals in devising policies for the preservation of the environment and economic development, for human prosperity.

The paper has been structured along the fractured climate financing negotiations between the developed and developing counties using a case study of the Caribbean Community (CARICOM) region as vulnerable Small Island Developing States (SIDS), and considers the negotiating challenge to implement...
the INDCs in climate change adaptation. In the context of this argument and for implementing the financing mechanism Art. 59 of the Paris Agreement, mitigation polices are defined, from a political point of view, “as addressing the causes of climate change” as “greenhouse gas emissions are indeed the primary cause of the acceleration of global warming in recent decades” and in contrast “adaptation practises aim to soften the consequences of climate change” (Feld et al, 2015, p.9). The former is a preferred policy option of developed countries to deal with lowering carbon emissions and the latter is the policy alternative for developing countries to a deal with the consequences of climate change, in particular vulnerable SIDS (ibid). There are already difficulties to reach the two degree temperature target, even with the Paris Agreement (2015).

**NEGOTIATIONS BETWEEN DEVELOPED AND DEVELOPING COUNTRIES ARE FRACATURED ALONG MITIGATION AND ADAPTATION FINANCING, RESPECTIVELY**

The UNFCCC negotiations have evolved to reflect the changes in the national and economic circumstances of countries, resulting in the Paris Agreement. But this shift is not parallel to the mobilisation of “climate finance, which remained too mired in an increasingly antiquated North-South, developed-developing countries dichotomy.” This fractured dimension affects countries’ diplomatic ability to negotiate finances for the mitigation and adaption process in implementing the Paris Agreement (Ha et al, 2016, p.1).

Mitigation is a global public good that affects the global populace, and the largest five developed countries account for more than 60 percent of global emissions, which transcend political borders. Hence, both developed and developing countries should share developed countries’ reduction in greenhouse gas emissions externality.

But herein lies the dilemma, “developed countries are better prepared to cope with climate change and have stressed the importance of mitigation” to limit temperature to two degrees Celsius (Feld 2015). The preferred diplomatic practise has been that “developed countries could receive credits towards their domestic targets by investing in lower cost emissions in developing countries” (Ha et al, 2016, p.2). The diplomatic challenge with this is that the cost effectiveness of mitigation measures exists, but policies on adaptation are virtually new to the climate change agenda. The Paris Agreement created the Green Climate Fund (GCF), an institutional body to mobilise US 100 billion annually until 2020 for climate financing to flow to developing countries, mostly for adaptation measures. It must be pointed out though, that developing countries have historically contributed little to carbon emissions but are at the receiving end of the trans-border impact of climate change manifested in their economies by flooding, hurricanes, droughts, landslides, and inter-alia. In the context of the case study, CARICOM SIDS, as a region, has contributed less than one percent of global carbon emissions. The diplomatic negotiating challenge for the region now is to secure adaptation financing from developed counties to invest in greener technologies, such as afforestation, to contribute to mitigate developed countries emissions by forests’ carbon absorption capacity, across political borders (Field 2016).

From an economic policy analysis “greenhouses gas emissions are a negative externality. Gases expands through the atmosphere across political borders.” Hence, developed countries emissions affect developing countries with no cost imposed on developed countries (Field, 2015, p.9). The Paris Agreement has factored in this cost in the GCF for disbursement to developing countries who are historically net emitters. With reference to CARICOM SIDS, they have been recognised by the UNFCCC as amongst “the most vulnerable countries in the face of the effects of climate change” given their vulnerability to the immediate impact of extreme weather and
rising sea levels. But while they face serious diplomatic challenges in negotiating with developed countries, SIDS have “been enthusiastic and contentious contributors” (Hoad, 2015, p.2) to the COP 21 and predecessor climate negotiations.

The question is then; can CARICOM SIDS implement the modalities of NDCs given their resource constraints? The CARICOM diplomatic agenda for adaptation to climate change includes Reaffirmation of the contribution of Reducing Emissions from Deforestation and Degradation (REDD Plus) for mitigation efforts, with adequate incentives and institutional and financial support for its implementation. The implementation of climate funding requires government monitoring capacity, as well as efforts to maintain that forests be verifiable for mitigation project financing through international assistance and compensation. Poor infrastructure, market imperfections, and institutional barriers are impediments to financial transfers from the North to the South (Eyckmans 2016). CARICOM’s embryonic Caribbean Community Climate Change Centre (CCCCC) has managed to secure technical assistance from the UNFCCC for its climate change strategic plan. Financing through aid should lead to development growth, with the outcome ultimately dependent on the institutions and policies in developing countries. CARICOM institutional strength in negotiating with and securing funding from the GCF for climate adaptation will require the diplomatic commitment made at COP 21 by developed countries (CARICOM Report 2016).

**THE PARIS AGREEMENT HAS NO ENFORCING MECHANISM UNDER THE UNFCCC NOR COP 21 FOR DEVELOPED COUNTRIES TO COMPLY WITH THE FINANCING CLAUSE**

The UNFCCC multilateral programme facilitates both developed and developing countries under the same forum for negotiating climate change mitigation and adaptation measures in COP 21 and its predecessor – Copenhagen Accord (2009) and COP 16 (2010), but climate financing is not enforceable in this institutional framework (Hannam et al, 2015, p. 1). The resultant likelihood is that structured negotiations for climate financing, which are critical to developing countries’ INDCs to cut back on the trend of global warming, will be ad hoc. In addition there exists no enforcement mechanism (ibid) for developed countries to comply with the financing commitment of GCF under the Paris Agreement.

The Paris Agreement (2015) Article 59 states “that the Green Climate Fund and the Global Environment Facility – the entities entrusted with the operation of the Financial Mechanism of the Convention, as well as the Least Developed Countries Fund and the Special Climate Change Fund, administered by the Global Environment Facility, shall serve the Agreement.” There is consensus in principle but there is no obligation under the UNFCCC for developed nor developing countries to engage in climate financing (Ha, et al, 2016, p.1). And, while the UNFCCC has the institutional mechanism for climate financing, negotiations, and capacity building for developing countries (Hannam et al, 2015, p. 3), the mobilisation of US 100 billion per annum was agreed upon at predecessor negotiations – Copenhagen Accord (2009) and COP 16 (2010). Given this precedent and with no enforcement mechanism for climate financing in the Paris Agreement, what is the likelihood of developed countries honouring this commitment now? (Eyckmans 2016).

The implication of this is looming disaster if developing countries are not afforded aid to enhance adaptation policies, in particular CARICOM SIDS.

Research hypothesis on the externalities of climate change consensus is clear. “The potential damage of climate change is most heavily concentrated in low tropical regions and low coastal states such as Latin America and the Caribbean” (Feld, et al 2015, p.2). CARICOM recognises this as an impediment for the region whose livelihood is under threat from the consequences of climate change.
change, and has now focused its diplomatic engagement to secure adaptation financing from the GCF. From a cost-benefit analysis for project funding, CARICOM has a comparative advantage in conservation and management of forests, which are large carbon sinks. It has articulated its diplomatic challenge to secure aid assistance and compensation from the GCF in its mitigation contribution to the absorption of greenhouse gases globally, albeit from developed countries. But its immediate need is to implement INDCs for adaptation to the vagaries of climate change even in the stark reality that its contribution to global warming is less than one percent (CARICOM Report, 2016).

CLIMATE FINANCING NEGOTIATIONS IS NOT FORMALISED UNDER THE UNFCCC FOR DEVELOPING COUNTRIES TO FAST TRACK THE IMPLEMENTATION THEIR NDCS

Climate finance is probably the most contentious issue in the UNFCCC negotiations as its diplomatic discussions are fractured along a North-South distributional conflict, a zero-sum political game (Ha, et al, 2016, p.2). One of the core objectives of the UNFCCC is to marshal resources for climate resilient economies. The mobilisation by developed countries of US 100 billion annually to finance mitigation and adaptation measures in developing countries has long been on the diplomatic agenda. This is in tandem with the new multilateral institution established by the Paris Agreement – the GCF – for financing flows to developing counties. But herein lies the diplomatic negotiating challenge that “even if the money is mobilised and if the GCF and other institutions can effectively channel it, a wide gap remains between what is available and what is needed (Ha et al, 2016, p.1).

To close this gap, China opted not to participate in the GCF but to go the route of a South-South Climate Fund (SSCF), outside of the UNFCCC framework. China’s policy move “represents further fragmentation in the institutions affecting the climate finance regime” (Hannam et al, 2015, p. 2). This lack of coordination between developed and developing countries’ financing rules can adversely affect countries’ mitigation and adaptation measures to lower carbon emission and investment in greener technologies. Hannam et al (2015) asserts that for climate finance to best achieve its goals, diplomatic negotiations should be carried out under the UNFCCC framework for negotiating the rules on climate finance. The SSCF should be tracked within the UNFCCC framework to coordinate with “existing institutions to progressively green all financial flows” (Ha, et al, 2016, p.2). All countries engaged in climate finance should begin reporting their activities to the UNFCCC Standing Committee on Finance (ibid p. 5).

It must be recognised though, that South-South cooperation is legitimised under the UNFCCC Framework. But the UNFCCC should make its task multilateral and leverage its role as international coordinator for climate financing (Hannam et al, 2015, p.3). South-South cooperation for climate financing should be complementary to developed countries’ commitment to mobilise US 100 billion in climate finance annually. The Paris Agreement (2015) Art. 65 states that “the institutions serving the agreement to enhance the coordination and delivery of resources to support country-driven strategies through simplified and efficient application and approval procedures and through continued readiness support developing country parties, including the least developed countries and Small Island Developing States, as appropriate.” For Latin America and the Caribbean region as a whole, the South-South Climate Finance Flow in 2013 amounted to US 3 billion (Ha, et al, 2016, p.3) but this cannot suffice the mobilisation of finances needed for adaptation measures given these countries’ increasing and immediate vulnerability.

The literature has underscored the ethical dimension of climate financing flows to developing counties from a procedural and
distributional justice lens “on how climate finance may support an optimal outcome, arguing that international adaptation transfers could help address the perceived unfairness with historical emission” (Eyckmans, 2016, p. 3). It is well established that SIDS have contributed little or nothing to the climate change problem, and while developed countries have “included absolute or economy-wide emission reduction” in their NDCs, SIDS NDCs are a “direct proportion to the precariousness of their plight” to the challenges of financial constraint and lack of technical capacity.

Nonetheless, the issue of fairness is enshrined in countries’ NDCs and the GCF has provisions for the SIDS climate conditional financing support for adaptation (Hoad, 2015, p.2).

SYNTHESIS

Are mitigation and adaption measures compliments or substitutes? Can reduction in the cost of one (adaptation) reduce the demand for mitigation? And/or a reduction in the cost one measure will increase the demand for both (Eyckmans 2016, p.3). Given the existing literature and the negotiation outcomes of the Paris Agreement, it can be assumed that adaption measures in developing countries will reduce the demand for mitigation measures, since adaption as a tool to deal with the consequences of climate change is new to the climate agenda. This is because developed countries have been dealing with the causes of climate change through mitigation policies and adaption measures have only occupied the climate change diplomatic agenda in the last decade because of the recognition of the consequences on developing countries.

There is a school of thought which posits that the financing of adaptation and mitigation measures in developing countries (SIDS) can encourage negligence on the part of developed countries to violate their NDCs. This is because if SIDS are complying with afforestation and mitigation that aids in the global absorption of greenhouse gases, and there
is no enforcement mechanism for countries such as China and the United States if they violate their INDC (Eyckmans, 2016), it will present a challenge for implementing the outcomes of the Paris Agreement.

The polarised climate discussions between the North and South have been abated by the SSCF, which emerged to fill this gap. There are diplomatic challenges on how the UNFCCC will coordinate the financing flow in the traditional climate fund from developed to developing countries. The diplomatic challenge then is how to incorporate “China as the most active developing country providing active climate finance on a bilateral basis” within the UNFCCC framework (Ha, et al, 2016, p.4).

**THE UN SYSTEM – MANAGING EMERGING THREATS TO HUMAN SECURITY UNDER THE UNFCCC**

The UN system responds to the demands of its Member States and has always reflected its time by adapting to the changing international environment, since 1945. And while the “UN Charter was a product of wartime internationalism,” (MacKenzie, 2015, p.489) the UN system is functioning in tandem with addressing contemporary threats to economic security such as climate change. This is grounded in the UNSG 2004 report under the theme, *An effective United Nations for the 21 Century*, which reaffirmed that “the United Nations was never meant to be a utopian exercise. It was meant to be a collective security system that worked” (Schlichtmann 2010, p.1). Weiss & Roy (2016) posits that there is a normative advance for sustainable development that “consists of a new law of international cooperation and protection of natural wealth and resources beyond the limits of national jurisdiction” (Weiss & Roy 2015, p. 1152). And in this context, they referred to the *tragedy of the global commons* because of global environmental threats that govern the human environment. The UN system executed its responsibility to manage this emerging threat to human security under the UNFCCC where 174 countries signed the 2015 Paris Agreement, which stipulates climate change mitigation and adaptation measures to sustain the environment for economic and human security. This highlights that the universal membership of the UN gives the GA a legitimate role in building global consensus, in this case, on global security – sustaining the environment for economic development and future generations.

Critics, such as Weiss & Roy (2016) argue that the UN’s elaborate multilateral debates, negotiations and operations have not delivered the financing required for developing countries in particular, including the right to economic and social development.

While Mackenzie (2015) argues that the only constant in the UN system is its sweeping mandates and global efforts in an ever-changing environment, and its functionality is being judged by concrete accomplishments such as climate change deliverables. Added to this is the reluctance of some member states to pay their dues. Hence, this line of argument should not be taken too far given that the recent UN Climate Change Agreement (2015) has established the Green Climate Fund (GCF) under the UNFCCC to provide US 100 billion annually in climate financing to developing countries for climate change security. This illustrates the functionality of the UN system in managing threats to economic and development security through the UN system of resolutions, offices, funds and programmes and specialised agencies concerned with economic and social development.

**THE NEXUS – CLIMATE PRESERVATION AND ECONOMIC DEVELOPMENT**

The nexus between climate change and economic prosperity is a recognised policy concern for states, in particular for developed economies. This was reflected in the negotiations of the 2015 Paris COP 21 UN climate change conference. Diplomats negotiating on climate action in the UNFCCC are now cognizant that “conservation and protection ran into economic concerns and therefore became about sustainable use as a resource” (Bamsey Lecture,
In effect, climate change diplomacy is now emerging to accommodate the economic nexus that the economy belongs to the environment and that international negotiations need to be framed to protect the environment to allow human to prosper (Ibid) for future generations.

The framing of climate change negotiations in the conservation and protection of natural resources and its sustainable use with the economics nexus that natural resources generate wealth (Ibid) is reflected in the Paris Agreement. At the COP 21 negotiations, climate change mitigation and adaption emerged as two diplomatic measures to meet the two degree limit for carbon emissions. Adaptation measures for the conservation and protection of forests in developing states is virtually new to the climate agenda. This is because the institutional infrastructure for climate diplomacy – the UNFCCC, with state diplomats and non-state actors (NSAs) who have considerable resources and technical competence in this area, posits that human action is responsible for the depletion of natural resources. And this is inexorability linked to economic development for wealth creation. Hence, a concerted diplomatic attempt was made at COP 21 negotiations for developed economies to commit US 100 billion annually for climate adaptation measures in developing states. The rationale behind this is that developed economies’ climate change actions are more suited to mitigation measures since they have depleted their natural resources, such as forest conservation, and for the most part less developed economies have sustained these resources. This equity framing of the climate negotiations is unprecedented with states’ universal obligation vis-à-vis their INDCs. This correlates with the fact that developed economies, as greater emitters of greenhouse gases, will have to commit to greater INCDs; and also to the climate financing of US 100 billion for the GCF. This is intended to fund developing states adaptation measures for the sustainable use of forest conservation and reafforestation, since they are net emitters of greenhouse gases but are the most heavily affected.

The nexus of environment preservation and economic development is now framing climate negotiations. Diplomatic negotiations are now centred on the possibility that if developing states go down the path of heavy industrialisation they would damage the environment, and that the efforts to protect the environment would be at the expense of developing states (Ibid). This is somewhat of a paradox, given that developed states have advanced economically with resulting damage to the environment through high-pollution greenhouse gases. Climate change is a global public good where greenhouse gases are not confined to territorial boundaries. Its consequences are felt in other states and this requires a collective political action to manage the economic development-climate sustainability equilibrium, for the good of all. Hence, the economic theory of dependence framed climate negotiations such “that wealth needs to be transferred form the rich to the poor in order to compensate for the need to protect the environment” (Ibid). The GCF established by the Paris Agreement is in place for diplomats from developing countries to negotiate climate financing for adaption projects for the sustainable use of their forest, which will have a global effect of mitigating the emissions of developed economies. This theorising of climate change negotiation has resulted in “common but differentiated responsibilities” for states vis-à-vis their INDCs and commitment to the GCF to realise the link between the sustainability of the environment and economic development.

Climate change negotiations framed in the dependency paradigm are fractured in the North-South blame sharing dilemma about who is responsible for the depletion of the environment and who should appease whom. There has always been a recognition that developed economies need to transfer wealth to the poorer economies in the South, given that the South has contributed little or nothing to climate change (Ibid). To some extent though, environment
diplomacy at COP 21 managed to tilt the burden-sharing framing of negotiations to “economic change as an opportunity for innovation” (Ibid) with the GCF for green growth for economic development. In effect, the international climate change commitments from both the developed and developing states have recognized that there is economic prosperity to be harnessed from sustained used of resources. The argument is if all resources are depleted, then economic development will naturally take a downward spiral. The realisation of this though, requires states to commit the Paris Agreement INDCs and the GCF for developing countries, albeit there is no binding clause holding them accountable for adherence to the agreement.

THE RESPONSIBILITY OF PUBLIC SERVICE PROFESSIONAL IN CLIMATE CHANGE POLICY

As public service professionals in the machinery of government, our responsibility is to present analysis and evidence for climate change as a top economic policy priority. It is imperative for the sustainability of the environment and for the survival of all present and future generations. The question is; how can public service professionals support governments in their climate change mandates? We can achieve this through the machinery of government’s soft infrastructure of systems and procedures to implement the government’s diplomatic commitment at COP 21 – their obligation at INDCs in tandem with states’ climate change mandates.

Max Weber in the study of public administration outlined this responsibility of a public official in government service

“… there is a clear relationship of accountability and responsibility… To advise the political leadership on the development, review and implementation of policy, and to manage its own resources so that policy may be implemented. Each public servant is technically accountable through the hierarchical structure of the department, to the Cabinet and eventually to the people of the country.”

Policies for mitigation are aimed at reducing greenhouse gas emissions to stabilise their concentration in the atmosphere. Public polices in this context “entail developing initiatives to implement more efficient process of production, as well as to use more efficient processes of production and less polluting inputs and cleaner energy sources, but they also involve the increased use of carbon sinks, such as forest” (Feld, 2015, p. 10). Most governments have focused on mitigation policies since climate change was recognised as a threat. The Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report defined adaptation as the “adjustment in ecological, social or economic systems in response to actual or expected climatic stimuli or other effects or impacts” (Smit et al. 2001, 879).

The estimates of cost-effectiveness are different for mitigation and adaption. The effectiveness of a determined mitigation policy is measured by the amount of greenhouse gas emissions reduced by its implementation. Whether this translates into avoided global warming is yet to be seen; but it has allowed researchers and politicians to rank mitigation policies in relation to their cost effectiveness. There is no such estimate for adaption, “mostly because policies for each sector translate into different kinds of avoided damages that must then be monetised in order to harmonise the results and allow for their cost-effectiveness” (Feld, 205, p. 10). If it is that the cost-benefit ratio matters when comparing mitigation with adaptation polices, this difference may still delay prioritisation of which policies should be put into practice.

Researchers have argued, “poor countries’ lack of resilience to the effects of climate change is rooted on their dependence on agriculture and other weather sensitive activities and their lack of nationwide access to basic infrastructure” (World Bank 2010). The correlation then is that climate and extreme events such as droughts, floods and hurricanes, etc., would have more disastrous effects in poor states
than in developed states. An effective policy measure would be to “increase poor states’ resilience to climate change and enhance the well-being of their populations even in the absence of global warming” (Ibid).

This is the reason these policies are called “no-regret” policies and states are “encouraged to implement them independently of any global agreement to reduce emission” (Ibid).

CONCLUSION

In this paper, I have argued that climate change mitigation and adaptation are two measures emanating from the Paris Agreement (2015) but the diplomatic challenge in implementing the financing clause for policy action is inherent in the fractured climate financing negotiations between developed and developing countries.

The comparative advantage of SIDS’ low-cost adaptation measures in afforestation can reduce global warming and the mitigation measures by developed countries to put a cap on carbon emissions is a public good, which outcome is a collective good for all. This solidifies the argument that climate change transcends the political borders of countries and the externality from the financing of adaptation measures will realise the outcome of political consensus and investment in greener technologies for the two degree temperature target in implementing the Paris Agreement. This since the absorption of and greenhouse gases and mitigation of carbon emission span is international.

The UN System has responded to the emerging threats to human security under the UNFCCC and the 2015 Paris Agreement. Weiss & Roy (2016) referenced that there is a normative advance for sustainable development of a new law of international cooperation and protection of wealth and resources, which are not limited to a state’s border.

Scholarship is needed to explicate policy formation and analysis in climate financing, especially in adaptation policy measures since it is new to the policy agenda; as well as the implications of distributional justice for vulnerable SIDS who have historically contributed little to global warming but yet face challenges in accessing the GCF. In fact, climate financing in adaptation measures is probably the most immediate policy action to realise the two degrees temperature limit given that forests have an absorptive capacity to mitigate carbon emissions. And this is the responsibility for public service professionals in the machinery of government to devise evidence-based policies in preserving the environment for economic development, a future on earth.

REFERENCES


Hoad, D, 2015, ‘Reflections on small island states and the international climate change negotiations COP21, Paris,’ Island Studies pp.259-262.


ROLE OF THE PUBLIC SERVICE IN DETERMINING A NATION’S CLIMATE AND ECONOMIC AGENDA: CHALLENGES, OPPORTUNITIES AND RESPONSIBILITIES

Mr Gabriel Juma Okumu
Deputy Director Governance and PhD student at Dedan Kimathi University of Technology, Kenya

Mr Juma holds a Master of Education Degree in Planning and Economics of Education from Maseno University, (2004), and a Bachelor of Education Degree from Moi University, (1992). In March 2004, the Kenya Public Service Commission appointed him Chief Examinations Officer where he rose through the ranks to the position of Director Examinations. In 2013, Mr Juma was appointed Deputy Director Training and Development, and later redeployed to head the Governance Unit in the Compliance and Quality Assurance (C&QA) Directorate in April 2016. He has published various papers in renowned journals, attended and presented papers in various local and international conferences in Kenya, Malaysia, South Africa and the United Kingdom, and received various commendations. Mr Juma is currently pursuing a Doctorate Degree in Leadership and Business Administration at Dedan Kimathi University of Technology.

INTRODUCTION

Climate change (CC) has been a global agenda for decades, various countries have made efforts to domesticate the adaptation and mitigation efforts to avert effects of climate change (Makena, 2017).

Mitigating the impacts of climate change is a complex dilemma that cannot be solved from just one angle. Literature on climate has noted, in abundance, that the climate crisis has vast developmental implications. Not a sector of any economy, whether agriculture, water, health, energy, infrastructure, and so on, will be spared the damaging ramifications of climate change. Economic and human development progress cannot be sustained if the ecosystems on which they depend are irreparably damaged, and if gross inequity leaves our societies unstable and lacking cohesion. It therefore requires a heterogeneous approach involving both public and private sector players.

Climate change is a change in the statistical distribution of weather patterns when that change lasts for an extended period of time (i.e., decades to millions of years). It may also refer to a change in average weather conditions, or in the time variation of weather within the context of longer-term average conditions. The term “climate change” therefore is often used to refer specifically to anthropogenic climate change (also known as global warming), and is caused by human activity, as opposed to changes in climate that may have resulted as part of Earth’s natural processes (Hulme, 2016). Within scientific journals, global warming refers to surface temperature increases while climate change includes global warming and everything else that increasing greenhouse gas levels affect (Smith, 2013). Climate change is caused by factors such as biotic processes, variations in solar radiation received by earth, plate tectonics, and volcanic eruptions. Certain human activities have been identified as primary causes of ongoing climate change, often referred to as global warming (America’s Climate Choices, 2010).

Over the past 40 years, what began as a simple concern for the environment has matured into a widespread apprehension that is causing people from government to private enterprise to act (Higgins, 2013). Going forward, the environment and development challenges of the 21st century are likely to be more difficult; of a different order of magnitude and generality than those of the past. Some scholars have attributed the over exploitation of environmental resources to policy mismanagement and market
failure, rather than resource scarcity per se.

**CLIMATE CHANGE AND DEVELOPMENT ECONOMICS**

Climate change and development are inextricably linked. On the one hand, actions to address climate change can have major implications on development, and on the other hand, the achievement of global climate change objectives will depend on development decisions (EC, 2016). Understanding the interactions between economic growth and environmental protection is crucial to development in all countries, but especially in poor ones. Careful environmental management is a critical ingredient of any viable path to poverty reduction. Bad environmental management results in environmental degradation, poor health and lost economic output. Poor people are the primary victims of these trends, though it should be recognized that poverty also contributes to them (Pearce & Warford 1993).

*Climate change is the most significant challenge to achieving sustainable development. It creates uncertainties for policy makers trying to shape the future and threatens to drag millions of people into grinding poverty (Kyte, 2014).*

In a heterogeneous world, an understanding of different regional conditions and priorities is essential for mainstreaming climate change policies into sustainable development strategies. Region- and country-specific case studies demonstrate that different development paths and policies can achieve notable emission reductions, depending on the capacity to realise sustainability and climate change objectives. Mainstreaming requires that non-climate policies, programmes and/or individual actions take climate change mitigation into consideration, in both developing and developed countries.

The Brundtland Commission on Environment and Development, defined Sustainable Development as “development which meets the needs of current generations without compromising the ability of future generations to meet their own needs” (Brundtland et al., 1987). According to Fankhauser & Stern (2016) the Sustainable Development Goals (SDGs), agreed in September 2015, provides a common platform for the next phase of the fight against poverty. The SDGs make it clear that we are entering a new phase in economic development, one where poverty reduction, development and the environment are at the forefront and increasingly intertwined. Thirteen of the 17 SDGs are directly concerned with the natural environment, climate or sustainability. Goal 13 – taking urgent action to combat climate change – is closely linked with policies and actions to achieve other Goals and driven by the need to avoid reversing development progress, which could occur because of temperature increases and other climate related risks (Granoff et al., 2015).

In industrialised countries, climate change continues to be regarded mainly as a separate environmental problem to be addressed through specific climate change policies. Priority mitigation areas for countries in this group may be in energy efficiency and renewable energy. However, low-emission pathways apply not only to energy choices. In some regions, land-use development, particularly infrastructure expansion, is identified as a key variable determining future greenhouse gas (GHG) emissions. On the other hand, developing countries that are in the stage of rapid industrialisation are projected to increase their emissions at a faster rate than the industrialised world. For these countries, climate change mitigation and sustainable-development policies can complement one another. For most other developing countries, adaptive and mitigative capacities are low and development aid can help to reduce their vulnerability to climate change.

While it is certain that the climate will change, there is great uncertainty as to what the local or regional impacts will be and what will be the impacts on societies and economies. Coupled with this is often great disagreement among policy makers about underlying assumptions and
priorities for action. It is well recognized that even moderate amounts of climate change can pose risks to development. What is less appreciated is the extent to which the rapid development that many developing countries are undergoing, for example along urban coastlines (Hanson et al. 2011), and how this shapes their future vulnerability to climate change. The pace of development means that the greatest opportunities for achieving climate resilience lie in influencing these trends.

Many decisions to be made today have long-term consequences and are sensitive to climate conditions – water, energy, agriculture, fisheries and forests, and disaster risk management. What matters is not only that a ‘good’ choice is made at a certain point in time, but also that the initial policy is sustained for a long time – sometimes several decades – to really have effects. It is often not one policy decision, but an array of decisions that are needed to influence emissions. This raises the issue of coordination between policies in several sectors and at various scales (Kyte, 2014).

There is a widely-held theory that resource management practices and policies that protect the environment are most likely to harm the economy and reduce employment opportunities. Some scholars hold the view that the links between the economy and the environment are manifold: the environment provides resources to the economy, and acts as a sink for emissions and waste. Poor environmental quality in turn affects economic growth and wellbeing by lowering the quantity and quality of resources or due to health impacts, etc. Other scholars opine that economic and environmental performance must go hand in hand. The natural environment is central to economic activity and growth, providing the resources we need to produce goods and services, and absorbing and processing unwanted by-products in the form of pollution and waste.

While economic growth has produced many benefits – raising standards of living and improving quality of life across the world – it has also resulted in the depletion of natural resources and the degradation of ecosystems. There has been much debate over whether it is possible to achieve economic growth without unsustainably degrading the environment, and a growing realisation that economic growth at the current rate of depletion and degradation of environmental assets cannot continue indefinitely. For example, the increase in CO₂ levels in the atmosphere because of human activity means that the world is already locked into some climate change and faces a major challenge to keep global temperature rises to below two degrees. In the context of environmental resources more generally, the Millennium Ecosystem Assessment (2003) found that 15 out of the 24 ecosystems services it examined were being degraded or used unsustainably, and the use and consumption of natural resources such as minerals and metals continues at an increasing pace.

Some hold the view that the finite resources of the Earth place limits on the extent to which economies can keep expanding in the long-term (Meadows et al., 1972). Others believe that using environmental resources sustainably is consistent with continued economic growth, with the costs of inaction likely to be far greater than the cost of acting now. However, the real issue is whether we can grow our economy and sustain our planet - or whether these two are mutually exclusive.

According to Higgins (2013), to grow, the economy also feeds on natural resources and emits waste that pollutes the air and threatens the delicate climate on which life relies. Behind the scenes are other reinforcing loops created by the unlimited use of natural resources such as oil and gas that facilitate economic growth and by technological advances that extract the last dregs of energy from the earth. These counterbalancing forces undermine the foundation upon which economic growth is built and, over the long term, create a sinkhole that will swallow up the economy, environment and society.

Environmental assets contribute to managing risks to economic
and social activity, helping to regulate flood risks, regulating the local climate (both air quality and temperature), and maintaining the supply of clean water and other resources. This underpins economic activity and wellbeing, and so maintaining the condition of natural assets is a key factor in sustaining growth for the longer term. Correspondingly, economic growth contributes to the investment and dynamism needed to develop and deploy modern technology, which is fundamental to both productivity growth and managing environmental assets (Everett et al., 2010).

The 2015 climate change agreement should be seen in the broader context of promoting climate resilient and sustainable development in all countries. This calls for coherence between climate change and development policies, including between the climate agreement and the 2030 Agenda and the Sustainable Development Goals (SDGs adopted by the United Nations in 2015), the Addis Ababa Action Agenda (AAAA) and the Sendai Framework for Disaster Risk Reduction (EC, 2016). The development community is increasingly aware of the risks of climate change (e.g., World Bank 2010, 2012, 2016). However, it has yet to respond to the threat with sufficient purpose and scale.

CLIMATE CHANGE AS A GLOBAL PROBLEM AND ITS EFFECTS

Climate change is a growing humanitarian crisis that cannot be ignored. The Earth’s climate is changing, and the scientific consensus is not only that human activities have contributed to it significantly, but that the change is far more rapid and dangerous than thought earlier (IPCC, 2007).
Climate change is different from past environmental problems in terms of its scale, the magnitude of risks it poses and the urgency of action. Additionally, climate change is different in terms of its complexity and the difficulty of identifying a “solution”. It is a potent threat-multiplier for other urgent concerns, such as habitat loss, disease and global security (IPCC, 2014) and puts at risk the development achievements of the past decades (World Bank, 2016). If unchecked, climate change could fundamentally redraw the map of the planet, and where and how humans and other species can live (Fankhauser & Stern, 2016).

The world economy continues to rely heavily on cheap oil, a non-renewable resource and major contributor of greenhouse gases. The fact that fossil fuels - oil, coal and natural gas - continue to power world industry despite the availability of technically feasible alternative “green” energy technologies brings this dilemma into sharp focus (Annette, 1998). Therefore, the main driving forces within the inherently complex and chaotic system that is the Earth’s climate change start and end with people. Human activity, through extraction and combustion of fossil fuels, destruction of forests, or agricultural activities contributes to the emissions (“or flow”) of greenhouse gases. The increased flows lead to increased quantities (“or stocks”) of greenhouse gases in the atmosphere, and with it an increase in the amount of heat energy trapped by the atmosphere. As the heat energy increases so does the average global land and sea temperature. With higher temperatures and more energy there is increased intensity and variability within the global climate system, leading to fluctuations or changes in local and regional weather patterns. The implications of this complex casual chain are difficult to comprehend in their entirety and the specifics cannot be predicted with certainty. However, the effects in terms of human lives and livelihoods are potentially severe (Oxfam America, 2009).

The main factor in anthropogenic climate change is the increase in the concentration of carbon in the atmosphere over time. This increased concentration has been caused by the emission of GHGs because of economic activities, including energy, industry, transport, and land use, many of which rely upon fossil fuels. The most important GHG, carbon dioxide, CO₂, currently constitutes 77 per cent of the global warming potential. In support of this, Stern (2007) observed that during the last two centuries concentration of CO₂ alone has increased by some 100 ppm. Other contributors are methane (from agricultural sources), and land use change such as deforestation. GHG emissions have contributed to warming in the range 0.5-1.3°C from 1951 to 2011 (DCED, 2016).

The implications of climate change are visible around the globe across sectors, population groups and countries, may lead to very different impacts in different countries, depending on local/regional environmental conditions, and is likely to undermine the sustainability of livelihoods as well as development.

Even with aggressive efforts to reduce emissions, the consequences of climate change will be severe; increased temperatures, rising sea levels, and more intense droughts, floods, and storms threaten the existence of many communities - especially in developing countries. (Oxfam America, 2009).

Scientists are warning that a domino effect will kick in if global temperatures rise more than 2°C above pre-industrial levels, leading to “hothouse” conditions and higher sea levels making some areas on earth uninhabitable Hot temperatures could result in rise in sea level up to 60m from today’s shorelines, swamping coastal populations and forcing communities inland (Mckirdy, 2018).

The World Bank (2012) anticipates a significant risk of “unprecedented heat waves, severe drought, and major floods in many regions, with serious impacts on human systems, ecosystems, and associated services”, exacerbating and compounding other threats like habitat loss, stability and disease (IPCC, 2014). From the United States to Asia dozens of people have died in wildfires, while heat waves have killed dozens in Japan, Australia, India and South
Korea (Mckirdy, 2018), giving the world an insight into what could lie ahead. In addition, in China and India, close to two million people die each year because of poor air quality while the Middle East has experienced severe drought (New Climate Economy, 2014). Specifically, California struggled in 2018 to contain its largest-ever wildfire, has been impacted by severe drought, torrential rains and flooding.

Therefore, climate change is emerging as one of the greatest security threats, if not the biggest. In support of this view, former US national security advisor Richard Clarke observed that climate change is the greatest single risk to the entire United States and that rising seas will likely provoke chaos around the planet, potentially displacing millions of people (Clarke, 2017). Moving forward heat waves, heavy precipitation events and intense tropical cyclone activity will become more common and it is further predicted that more areas would be affected by drought (DCED, 2016).

Developing countries are particularly vulnerable to risks posed by climate change and are less resilient to its impacts, as their economies tend to depend more on climate-sensitive natural resources and sectors, such as agriculture, forestry and fisheries. This is partly because of their geographical location; their weak coping capacities, and in part because of more vulnerable social, institutional, and physical infrastructures (Banuri & Opschoor, 2007). In addition, many developing countries face severe economic, social and ecological threats from energy, food and water insecurity to climate change and extreme weather risks. They also face risks from premature deaths due to pollution, poor water quality and diseases associated with a changing climate (OECD, 2012; World Bank, 2016). The World Bank estimates that 44 million people recently fell into poverty on the back of increasing food prices caused by natural disasters (World Economic Forum, WEF, 2012). In addition, Kyte (2014) opines that climate change increases the costs of development in the poorest countries by between 25 and 30 percent.

**Although Africa is the continent least responsible for climate change, it is particularly vulnerable to its effects. There is consensus that climate change is a critical issue for Africa and its greatest challenge in the 21st century, along with poverty.**

Climate change is likely to disproportionately affect the continent’s development trajectory, as most African countries are characterised by undiversified economic structures, poor infrastructure, fragile governance structures and institutions, poor human development and most importantly, the heavy reliance on agriculture for most of the population. The threat to economic growth, which is central to development and poverty reduction, is among the most significant consequences of climate change. The impact of climate change is a threat to Africa’s aspirations for growth and poverty reduction directly through the effects of changing water availability, loss of biodiversity, declining or volatile agricultural yields, climate-related humanitarian disasters (including floods and droughts), increased incidence and prevalence of vector-borne diseases, weakened infrastructure, political instability due to heightened conflict over resources, and movement of people, as well as through the secondary effects of these phenomena. The effects of climate change are more severe for vulnerable and disempowered groups in the community, including women and children who have the potential of being strong actors in current and future development (UNCC, 2010).

Climate change affects Africa’s growth and poverty rates in a variety of ways such as prolonged and intensified droughts in eastern Africa; unprecedented floods in western Africa; depletion of rain forests in equatorial Africa; and an increase in ocean acidity around Africa’s southern coast. Vastly altered weather patterns and climate extremes threaten agricultural production and food security, health, water and energy security, which in turn undermine Africa’s ability to grow and develop. It also affects tourism, an important source of
foreign currency, and productive factors (land, labour, and capital). Also, confronting the challenge of climate change will affect the ability of the State to sustain sound macroeconomic policies and make the necessary growth-enhancing public investment, deliver services and undertake poverty-reducing social spending. By weakening the capacity of the State to deliver services and maintain a sound institutional environment, climate change is likely to have a negative impact on capital flows, private investment and development finance (Besada & Sewankambo, 2009).

Similarly, climate change presents challenges for the Kenyan economy, which is reliant on natural resources (KEPSA, 2014). In the recent past, Kenya has experienced erratic weather patterns causing prolonged drought and frequent floods. The combination of climate variability and deterioration of forest cover in watersheds have had severe impacts, including loss of human life and livestock, damage to infrastructure, poor crop yields, famines, wildlife migrations, and human migrations and displacements due to major flooding events, all of which have had adverse impacts on livelihoods and the national economic performance. According to the most recent IPCC report on climate change (IPCC, 2014), the frequency of occurrence and intensity of episodes of climate variability in East Africa can be expected to increase significantly over the decade (Ongugo et al., 2014).

Kenya's National Climate Change Action Plan 2013-17 (NCCAP) provides that the key CC impacts for Kenya are drought and water scarcity, flooding and sea level rise. These climate changes have many adverse impacts on hydropower generation, agricultural production, forestry, wildlife and tourism (KEPSA, 2014). In recent years, flooding has resulted in severe damage in many parts of the country, such as the Budalangi floods (along River Nzoia) in western Kenya arising from the Cherangani Hills, and the Kano Plains (along Nyando River) in Nyanza Province, arising from the Nandi Hills (GoK 2013). In addition to floods, Kenya has recently experienced prolonged and more frequent droughts, whose impacts are perceived to be increasing in severity with time as forest cover has declined. These include the La Niña events of 1999–2001 and 2006. Interactions between extreme climatic events and land-use change (such as deforestation) have already resulted in loss of human life and livestock, damage to infrastructure, diminished crop yields, alterations to wildlife migration patterns, and human displacements. Climate change is costing Kenya up to US$0.5 billion each year and is projected to escalate to an annual loss of 2.6% of GDP by 2030 (NEMA 2007).

The area of closed canopy forest cover in Kenya is very low (less than 2%), compared with 9% for sub-Saharan Africa and 21% for the rest of the world (FSK, 2006). The continuing decline in Kenya's forest cover is attributed to the following main drivers of deforestation: uncontrolled timber harvesting, conversion of forests to farms and pastures, increased needs of the population, road construction, fires and other related mortality factors (Mahapatra & Kant, 2005).

From the afore-mentioned, climate change does not only add a further layer of complexity and challenges to our development work. It also jeopardizes the achievements of earlier efforts, poses a direct threat to individuals, communities and the private sector; and may lead to reversals in poverty reduction (Oxfam, 2009).

**ROLE OF PUBLIC ADMINISTRATION AND THE PRIVATE SECTOR IN MANAGING CLIMATE CHANGE**

Globalisation with the revolution of information technology has been dramatically changing human behaviour, management of corporations, and governance of states much more than the industrial revolution transformed the agricultural society. Markets and trade are borderless, communication is much easier via the Internet and mobile instruments, and the world is getting much closer. While globalisation is dramatically
dividing the world into powerful and powerless countries with regard to information technology, trade, and economy, the winner and the loser inevitably happen in the global marketplace. Public administration systems in both developed and developing countries tend to respond differently to the challenge of global forces such as global warming (Kim, 2008). The reality of global warming thus leads inevitably to questions of public policy: how can governments, both across the international system and within individual nation states, regulate activities to help mitigate those factors contributing to global warming? (Gerber, 2014).

Addressing climate change requires efforts from actors distributed by many sectors and regions, and this increases public administrators' responsibilities.

They are expected to adjust planning accordingly and anticipate actions that respond to unpredictable scenarios where extreme events, such as droughts and floods, heat waves and cold snaps, will be increasingly frequent and more intense. Further, adaptation planning demands government to play a leading role because governments are the ones who have conditions to orchestrate the different actors involved in the play through public policies that include production and dissemination of information, exchange of best practices and dissemination of technologies, establishment of norms, regulations, economic instruments and public investment decisions (Safatle, 2016).

In addition, governments are expected to provide essential services such as provision of water, health care and sanitation and act as guardians of public assets (national parks, provision of important ecosystems), which can all be affected by climate change. Governments are also in charge of investing in public assets associated with adaptation such as fostering research and development, monitoring climate, and providing weather forecasts (Safatle, 2016).

Therefore, public administration is key in managing climate change. This paper therefore recommends that climate change should be inserted into development agendas, because often adaptation and development issues go hand in hand and reinforce each other. The paper also recommends that governments should support research, promote dialogue and linkages between research centres and government experts and build knowledge networks between the private sector and academia. Further, strategies should be put in place to raise awareness of private sector and the public about the risks posed by climate change. This will not only require production of reliable data but also providing guidance and support to the private sector in understanding, assessing and planning actions to reduce the private sector’s vulnerability to climate change.

On the other hand, the private sector is also expected to play a significant role in tackling climate change and supporting green growth economy (KEPSA, 2014). The private sector is a key driver of job creation and economic growth, and risks to it are risks to wider well-being and poverty reduction (DCED, 2016). Currently, the private sector represents close to 75 percent of global climate finance flows. The Climate Action Network (CAN) (2013) recognizes that private capital is essential to scale up climate finance in light of restricted public resources. The report further observes that the private sector accounts for approximately 86 percent of all investment worldwide and up to 90 percent of the population in developing countries depend on the income generated by the sector. For the private sector to make sustainable investment that will yield meaningful results, it requires an appropriate policy framework and an enabling environment (CAN, 2013).

According to KEPSA (2014) the climate change is real for the private sector in Kenya, and KEPSA is playing a leading role in assisting the private sector manage climate change. KEPSA has developed the Climate Business Information Network (CBIN), which aims to help the private sector understand the risks and opportunities associated with CC. In addition, KEPSA was engaged in the development of the National Climate Change Action Plan 2013-2017 (NCCAP). NCCAP sets out actions to enable Kenya to reduce vulnerability to climate
change and improve the ability of the country to take advantage of the opportunities that CC offers (KEPSA, 2014).

The government therefore recognises that the private sector can act on adaptation and mitigation measures that are aligned with core business strategies. Various levers have been used by the private sector to advance the climate change agenda in Kenya. These include:

i. Businesses transforming their operations through actions that reduce greenhouse gas emissions, including increased energy efficiency and the use of renewable energy alternatives. Safaricom has turned to solar energy to power some of its cell towers located in regions that receive abundant sunlight.

ii. Secondly, Kenyan firms are producing, assembling and distributing energy efficient products such as improved cookstoves and efficient lights, as well as sustainable energy technologies such as solar and wind.

iii. Thirdly CC innovation is also supported through government and donor programmes. The Climate Innovation Centre (CIC) at the Strathmore Business School in Nairobi provides business acceleration and market development support to companies for innovative green technologies in the areas of renewable energy, agriculture and water supply (KEPSA, 2014).

MANAGING THE DUALITY - SUCCESSFUL CASE STUDIES

On both sides of the Atlantic, electricity generation from renewable sources has grown substantially over the past decade with Germany and the United States having embarked on an exciting historic venture in their energy systems. In both countries, diverse factors are motivating the transition away from the burning of fossil fuels, which enabled rapid human and economic development in the 19th and 20th centuries, toward a cleaner energy system. Among these factors are the desires to mitigate climate change, improve energy security, respond to rising energy prices, reduce air and water pollution and their related negative health impacts, stimulate technological innovation, and create new markets and jobs (Ochs & Friedeburg, 2014).

Germany’s energy transition designates a significant change in energy policy from 2011, when the country pioneered an epochal transformation called the energiewende — an energy revolution that scientists believe all nations must one day complete if a climate disaster is to be averted. Germany has been called “the world’s first major renewable energy economy”. Renewable energy in Germany is mainly based on wind, solar and biomass. Wind parks and solar plants are located all over the country hence preventing energy bottlenecks through severe weather conditions (Morris, 2014). Renewables now generate 27 percent of the country’s electricity, up from 9 percent a decade ago. The change accelerated after the 2011 meltdown at Japan’s Fukushima nuclear power plant, which led Chancellor Angela Merkel to declare that Germany would shut all 17 of its own reactors by 2022. Nine have been switched off so far, and renewables have more than picked up the slack. (https://www.nationalgeographic.com/magazine/2015/11).

In the past seventeen years Germany has reduced its CO² emissions by approximately 22.2 percent, bringing its total emissions today toward 9.5 metric tons per capita. Since 1990, the production of greenhouse gases has been reduced by 220 million tons. With those numbers Germany has achieved its climate goals set in 1997 in Kyoto (The goal was 21 percent by 2012) four years earlier than expected. The government has also committed to having all public buildings become role models in energy efficiency. This shows a serious commitment to decreasing greenhouse gases to maintain Germany’s leading position in the renewables sector. By 2011, Germany was one of the world leaders in wind, solar and bioenergy and by the year 2020 there will be estimated investments of over €200 billion into the
renewable sector and 500,000 jobs could be created by 2020 (Morris, 2014). Germany is eager to end its dependence on fossil fuels and stop emitting greenhouse gases to prevent the consequences of global warming. Similarly, Sweden hopes to become a carbon-free zone while European countries aim to boost the use of non-fossil sources of power and while Finland hopes to eliminate oil as an energy source by 2030 (Longmuir & Alhajji, 2007).

The United States (US) has also made substantial and promising progress toward a cleaner energy system over the past decade with individual states and municipalities being the key drivers of change. In the US energy efficiency and renewable generation capacity have grown enormously, and these trends are expected to continue, despite challenges. Sustainable Energy’s Rapid Growth Global clean energy production has grown at an unforeseen pace over the past two decades, and improvements in energy efficiency have made substantial progress as well. Renewable energy technologies, such as solar photovoltaics (PV) and wind turbines, have become mainstream markets. Global investment in renewables—totalling USD 254 billion in 2013—is now roughly equal to investment in fossil fuel and nuclear technologies combined (Ochs & Friedeburg, 2014). The share of renewable energy (including hydropower) in electricity generation has grown only modestly over the last two decades, from 11.8 percent in 1990 to just over 12 percent in 2013. However, the pace has accelerated, with renewables accounting for 49 percent of all new electric power capacity added in the country in 2012.

Even though 8 out of 17 German nuclear plants have been closed prematurely, intermittent wind and solar power now provide nearly a quarter of the nation’s electricity over the year, thus making Germany’s electricity supply among the world’s most reliable. The country reported an average of fewer than 16 minutes of outages in 2012, compared to a reported 214 minutes in the United States. Overall, Germany has established itself as a net exporter of electricity, sending abroad 33 terawatt-hours (TWh) in 2013, up from 23 TWh in 2012 (Morris, 2014).

Both Germany and the United States have taken important steps toward sustainable energy systems and higher energy efficiency. These have delivered not only environmental benefits, but also substantial social, economic, and security benefits. Renewables have become a competitive, affordable, and reliable source of energy, as well as a substantial creator of jobs (Morris, 2014).

**PROPOSED STRATEGIES FOR MANAGING CLIMATE CHANGE - OPPORTUNITIES FOR THE PUBLIC SERVICE**

The difficulty of developing sound strategies for responding to climate change, and of building public support for such strategies, stems in part from the inherent complexity of the issue. Some of this complexity relates to the physical science of climate change; but understanding and responding to climate change also raises many social, economic, ethical, and political challenges. Governments around the world are thinking seriously about how the climate can be manipulated to slow or even stop runaway climate change. There are four ways in which the world can limit the negative impacts of climate change. These include, reducing:

i. the flow of emissions – that is the amount of CO\textsuperscript{2} added to the atmosphere (relative to ‘business as usual’);

ii. the consequences of climate change through adaptation;

iii. concentrations, or the stock of CO\textsuperscript{2} in the atmosphere, by removing CO\textsuperscript{2} directly from the atmosphere, a process also known as carbon geoengineering;

iv. temperatures by blocking some incoming solar radiation, also called solar geoengineering.

The primary focus of climate negotiations has always been on the first approach – reducing emissions. But because these efforts to limit emissions have failed, increasing attention has been given to the second approach –
adaptation. Both approaches are on the agenda for COP 21 in Paris. Presumably, the harmfulness of some of these can be minimized through adaptation. Adaptation efforts reflect the unavoidable fact that though the situation is already bad enough, countries must dramatically reduce the greenhouse emissions that will cause warming in the future and work to save lives. Investing in adaptation strategies, (e.g. migrating vulnerable populations as sea levels rise, flood defences, and efficient irrigation systems) lessens the impact of future natural disasters, drives economic growth by strengthening infrastructure and spurs the development of modern technologies. These strategies can help reduce the risk of harm to vulnerable communities by building resilience to the impacts of climate change (Stern, 2016).

Though the main goal of the Paris Agreement – limiting global warming to 2°C, if not 1.5°C – is admirable, it’s unlikely that this aspirational goal can be reached with voluntary greenhouse gas emission reductions alone. Climate engineering techniques have been proposed by some scholars as viable solutions for reducing the impacts of global warming (Pluijm, & Brasseur, 2017).

Many scientists opine that there is need to consider geoengineering or climate engineering as part of a solution to avoid dangerous levels of climate change and on climate change of keeping the amount of atmospheric warming well below 2°C, let alone meeting the more ambitious targets of a 1.5°C limit. According to them, climate engineering has unquestionable potential to limit global warming when coupled with currently available technologies. They believe that because climate change is now out of control current actions will be too slow and ineffective, and that there is need for a plan B, which to them is adoption of geoengineering (Pluijm, & Brasseur, 2017).

However, geoengineering methods are not yet proven to work on a large scale, can have unintended negative impacts on the environment, and discourage efforts to reduce greenhouse gas emissions. Consequently, climate engineering remains highly controversial (Pluijm, & Brasseur, 2017; Conway, 2014) while the scientific, social and ethical dimensions of implementation are not sufficiently examined.

Other scholars such as Conway (2014) opine that geoengineering is not a cure. At best, it’s a band-aid or tourniquet; at worst, it could be a self-inflicted wound. By itself, hacking the climate system won’t fix the way society manages the planet, and in fact it can de-incentivize [effective management]. He further argues that if geoengineering is perceived as a “silver bullet” that offers the illusion of consequence-free carbon pollution, then there’s no incentive to control emissions that are the
root cause of the problem. Other scientists view geoengineering as terrible ideas, and that further tweaking of the climate should not be allowed (www.coolaustralia.org/geoengineering-secondary/). Further, new research published in Nature Ecology & Evolution has come to the counterintuitive conclusion that attempts to fight climate change using technological remedies may well inflict greater damage to global biodiversity than global warming itself (cosmosmagazine.com/technology/geoengineering-could-cause-more-harm-than-climate-change).

To address the paradox between economic growth and sustainability, the paper recommends for development of alternative energy sources (Higgins, 2013). Green growth proponents advocate for use of natural resources (OECD, 2012). According to them, large potentials for clean energy generation remain untapped and will need to be utilised to help prevent disastrous climate change (Morris, 2014).

Following the launch of the “Sustainable Energy for All” (SEA) initiative by the United Nations, 77 countries, mostly from the developing world have opted to pursue the objectives of SEA. The initiative’s second objective of increasing energy supplied by renewable sources from 18% to 36% has been well taken by stakeholders. Almost all developing countries are considering renewable energy as one of their main resources for increasing energy supply in urban areas and combating climate change (Boampong & Phillips, 2016). Further, renewable energy projects in many developing countries have demonstrated that renewable energy can directly contribute to poverty alleviation by providing the energy needed for creating businesses and employment. Renewable energy technologies can also make indirect contributions to alleviating poverty by providing energy for cooking, space heating, and lighting.

According to former United Nations Secretary General Ban Ki-Moon, sustainable development is not possible without sustainable energy. He envisioned a world with universal energy access, a doubling of the global rate of improvement in energy efficiency and a doubling of renewable energy use by 2030 (UNDP, 2012).

Makena (2017) opines that Kenya’s economy is largely dependent on its natural resource base thus CC cannot be ignored. The country has made major strides in climate change, especially developing a climate change law and developing a policy and institutional framework around CC. CC has also been integrated into the country’s development agenda at both the national- and county-government level. County governments are the implementing agents of the national development agenda and are best placed to implement programmes and projects that are aimed at responding to the effects of CC.

In Kenya, interest in renewable energy has risen due to renewed initiatives in rural electrification and environmental concerns about global warming and air quality. Although Kenya is well endowed with renewable energy resources, only geothermal, wind and co-generation (generation from bagasse) have been seriously exploited and connected to the national grid. The country remains a market leader in geothermal technology in Africa. Further, The Least Cost Power Development Plan (LCPDP) has identified renewables as a major upcoming development with a plan to use geothermal generation for base load (GOK, 2011), and the government hopes that geothermal energy will account for over 26% of total electric power in the country by 2030 (Boampong & Phillips, 2016).

In addition, the country’s proximity to the equator makes solar energy to be of enormous potential. Indeed, Kenya remains the third largest market for domestic solar systems after India and China. However, compared to Germany and the US, the existing solar PV market remains small (Kimuyu & Mutua, 2015). According to Bounagui, (2015) as cited in Boampong & Phillips (2016) Kenya has pledged to cut greenhouse gas emissions 30 percent below her “business usual levels” by 2030. The government plans on meeting
this target by expanding the use of solar, wind, geothermal generation and increasing the forest cover while reducing the over-reliance on wood fuel. To fully exploit solar energy, the government has developed Solar Water Heater (SWH) regulations to promote uptake and guide the incorporation of low temperature SWH systems in industrial, commercial and residential buildings. Consequently, new commercial and residential building owners are expected to install SWH systems to save electricity. The Energy Regulatory Commission (ERC) (Boampong & Phillips, 2016) is enforcing this regulation.

The country has also put in place the regulatory and policy framework to promote the use of adequate, quality, cost-effective and affordable supply of energy to meet development needs while protecting the environment. These include the Sessional Paper No. 4 of 2004 and the Energy Act No. 12 of 2006 (Ministry of Energy, 2004; 2013; ATPS, 2014). In addition, the Kenya Vision 2030 sets a target of developing 2036 MW of wind power by 2030 to meet the energy requirements of the country. To achieve this the government has initiated large scale wind projects including, the Lake Turkana Wind Power Project (LTWP), Kipeto Wind Farm, Kinangop Wind Farm, Isiolo Wind Project and Baharini Electra Wind Farm. It has zero-rated import duty for wind energy equipment and removed the Value Added Tax on imported renewable energy equipment and accessories (Ministry of Energy, 2013; GOK, 2007).

**THE ETHICS OF INTERVENTION**

Climate change has been described as a “perfect moral storm” because it involves serious ethical issues, especially in its global, intergenerational, and ecological dimensions. It therefore brings together three major challenges to ethical action in a mutually reinforcing way (Gardiner, 2011a). The first challenge stems from the fact that climate change is a truly global phenomenon. Once emitted, greenhouse gas emissions can have climate effects anywhere on the planet, regardless of their source (IPCC, 2007). This is often said to result in a prisoner’s dilemma or tragedy of the commons structure played out between nation states: although collectively all countries would prefer to limit global emissions to reduce the risk of severe or catastrophic impacts, when acting individually, each still prefers to continue emitting unimpeded (Soroos, 1997, Helm, 2008, Gardiner, 2011a).

Secondly, current emissions have profound intergenerational effects. Emissions of the most prominent greenhouse gas, carbon dioxide, typically persist in the atmosphere for a long time, contributing to negative climate impacts for centuries, or even millennia (IPCC, 2007). This too seems unfair, especially if future negative impacts are severe and cumulative. In addition, the temporal diffusion of climate change gives rise to an ethical collective action problem that is even more challenging than the traditional tragedy of the commons both in its shape and because normal kinds of cooperation do not seem to be possible across generations.

The third challenge to ethical action is that theoretical tools are underdeveloped in many of the relevant areas, such as international justice, intergenerational ethics, scientific uncertainty, and the appropriate relationship between humans and the rest of nature (Jamieson, 1992). For example, climate change raises questions about the (moral) value of nonhuman nature, such as whether we have obligations to protect nonhuman animals, unique places, or nature, and what form such obligations take if we do (Jamieson, 2003; Palmer, 2011). In addition, the presence of scientific uncertainty and the potential for catastrophic outcomes put internal pressure on the standard economic approach to environmental problems (Sagoff, 2007; Stern, 2007; Gardiner, 2011a), and play a role in arguments for a precautionary approach in environmental law and policy that some see as an alternative (Sunstein, 2005; Whiteside, 2006). At the same time, there are skewed vulnerabilities: at least in the short-to medium-term, many of the most vulnerable countries and people are those who have emitted the least historically, and whose emissions levels continue to be relatively low. This appears to be seriously
unfair and casts a notable shadow over both practical and theoretical efforts to secure global cooperation (Rotman, 2013).

The magnitude of climate risks and the lasting impact of policy choices on lives and livelihoods, both today and in the future, raise issues of equity and justice that are more severe and more difficult than is usually encountered in policy analysis. There are different ethical approaches to guide the actions of individuals and communities, but they all provide consistent normative support for strong action. The ethics discourse in economics has, for the most part, focused heavily on technical issues, the intergenerational question of discounting and the intra-generational issue of burden sharing, or dividing up the remaining carbon space has made little accommodation or room for the wider philosophical, ethical and religious perspectives (Stern, 2007, 2015).

According to Gardiner (2016) climate change presents a severe ethical challenge, forcing us to confront tough questions as individual moral agents, and even more so as members of larger political systems. The real climate challenge is ethical, and ethical considerations of justice, rights, welfare, virtue, political legitimacy, community and humanity’s relationship to nature are at the heart of the policy decisions to be made. We do not “solve” the climate problem if we inflict catastrophe on future generations, or facilitate genocide against poor nations, or rapidly accelerate the pace of mass extinction. If public policy neglects such concerns, its account of the challenge we face is impoverished, and the associated solutions quickly become grossly inadequate. Ongoing political inertia surrounding climate action suggests that so far, we are failing the ethical test.

Despite challenges owing to underdeveloped theories and pragmatic issues, there is an important initial consensus concerning the need for, and the overall shape of, serious action and the relevance of key ethical concerns, such as fairness and responsibility.

Climate ethics is an emerging field that has much to offer, but within which much more work remains to be done. Any action on climate change confronts serious ethical issues of fairness and responsibility across individuals, nations, generations, and the rest of nature.

Some of the ethical concerns include the following:

i. From the perspective of future generations and some vulnerable species it would be better if emissions were substantially reduced quickly to minimize future climate damages. However, this may be costly for the current generation while having only minimal benefits for them, which may seem unfair.

ii. Poorer people and nations who have not emitted very much may argue that it is unfair to demand that they minimize their emissions for the sake of future generations, especially if future people are likely to be better off, and if many present high emitters are already much richer than the future poor are likely to be (Posner & Weisbach, 2010, Harris, 2010).

iii. Climate change threatens nonhuman animals and nature in potentially devastating ways. For example, though the present generation has an immediate obligation to protect coral reefs to preserve biodiversity, fragile and unique ecosystems and the sentient beings living in such reefs, over the long term, climate change will also bring new species into existence and change ecosystems around the world. It is unclear how the present generation should manage such changes (Palmer, 2011).

iv. Would it be ethical to intentionally manipulate (i.e., engage in geoengineering) the global climate with the aim of minimizing its impacts? (Jamieson, 1996; Gardiner 2011a; 2011b)

v. Should developed countries be held accountable for at least some historic emissions since the present inhabitants of developed
nations have benefited in many ways from the emissions of past inhabitants?

vi. Should the present inhabitants of developed countries be held responsible for past emissions given that many of those responsible are now dead? (Caney, 2005, Posner & Weisbach, 2010)

vii. Should Global cooperation about managing climate change remain a matter of choice for each country?

The UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, which was ratified by 182 state parties as of 2008, articulates several principles and values that appear to be generally accepted. Controversy remains with respect to the precise way in which the protocol enshrined differentiated responsibilities among states. Thus, the ethical challenge of climate change lies in creating an opportunity to establish a productive dialogue between states and other relevant agents. Therefore, ethics remains a core and necessary element of any debate about climate change (UNESCO, 2010). Despite global efforts to shift the sustainable development trajectory towards cleaner energy systems, vested fossil fuel interests remain dominant in policy in many countries both developed and developing (Morombedzi, 2017).

**RECOMMENDATIONS AND POLICY PROPOSALS**

It is crucial that the climate challenge is well integrated into sustainable development plans and strategies (EU, 2016). The Paris Agreement – negotiated at the end of 2015 – provides an international platform through which global climate action can be advanced and coordinated by all countries – developed and developing – to make significant commitments to address climate change. The Agreement sets out a process through which the rise in global mean temperatures may be curtailed to “well below” 2°C above pre-industrial levels and perhaps as low as 1.5°C. However, meeting the Paris objectives requires sustained action over many decades and reorientation of investment. It demands a reshaping of the global economy towards cleaner forms of production, not just in energy, but also in industry, transport and land-use and reorientation of investment (Fankhauser & Stern, 2016).

The SDGs and the Paris Agreement of 2015 reconfirm that growth and development cannot continue without all countries tackling climate change and boosting environmental sustainability. The Agreement requires all countries – developed and developing – to make significant commitments to address climate change. Countries responsible for 97% of global emissions have pledged their Nationally Determined Contributions (NDCs) on how they intend to address climate change. Transitioning from the current development pathway to a low-carbon, climate resilient one will require significant investment and innovation and a shift in the way governments and the private sector makes decisions (OECD, 2016). Implementation of policies that address the impact of global warming on the world’s most vulnerable communities and can drive the market toward innovation and stimulate economic growth are critical (Oxfam America, 2009). Moving forward, new investment decisions in buildings and urban infrastructure, roads, railways, ports and into new energy systems should be taken with climate change in mind.

Climate policy requires deep structural and systemic change, implemented over many decades, both to reduce emissions and adapt to remaining climate risks (EC, 2016). One of the major challenges in developing a National Climate Change Strategy and Policy, that informs and supports the current development thrust, is the existence of an uncoordinated policy and institutional framework governing climate change issues. Added to this is the existence of multiple and diverse organisations working on climate change. To this end, policy responses to the country’s development challenges and its links to climate change has tended to be fragmented and concentrating on single issues without much coordination between the government and other stakeholders, and more
importantly, across sectors. The fact that climate change policy is implied rather than stated poses a development challenge as implied positions do not provide clear guidelines on how broad development strategy and programmes contribute to, or undermine, climate change adaptation and mitigation. Further, lack of sufficient funds and technical capacity to undertake policy relevant research, and conduct any long-term planning, undermine the development of a national climate change strategy and policy.

The challenge for development policy is to guide economic decisions in this new direction. Even if it is beneficial, structural transformation is never easy. Policy makers will have to tackle fundamental market failures not just in relation to greenhouse gases, but also in networks, capital markets, clean innovation, the provision of information and with respect to the local, regional and global environment (OECD, 2015).

Climate change mitigation and adaptation need to be mainstreamed into all development policies, programmes and activities, and funding decisions to achieve sustainable development. The first step in mainstreaming climate change is to understand how it is linked to the development challenges of the sector under consideration (Agarwal & Perrin, 2008).

Policy responses have been led by international negotiation but have been qualified or indecisive at the national level, and so far, largely ineffective, despite strong international agreement on the matter. Although climate change agreements emphasising carbon emission reduction have been reached through international approaches, the policy measures to meet the obligations and objectives set by such agreements have been implemented at the national or regional level. Here they are supplemented by policy instruments such as efficiency standards and incentives to invest in infrastructure that does not give rise to carbon emissions. Pricing carbon emissions is seen as putting a price on a major external cost from energy production and transformation.

The principal forum for international climate change action has been the United Nations, which has led to the Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. However, more recently other international approaches have been put in place, the Asia Pacific Partnership and agreements under the G8, starting with their 2005 meeting in Gleneagles, UK. In December 2015 the Paris agreement consolidated years of negotiations with agreement among 188 countries to limit carbon dioxide emissions.

It is estimated that by 2050 two-thirds of the world’s population will be living in cities. Helping developing country cities access private financing and achieve low-carbon, climate-resilient growth and avoid locking in carbon intensive infrastructure is one of the smartest investments we can make. Every dollar invested in building creditworthiness of a developing country city will mobilise $100 dollars in private financing for low-carbon and climate-resilient infrastructure. To feed 9 billion people nutritiously by 2050 there is need to make agriculture resilient and more productive in changing landscapes, and aggressively reduce food waste. Making agriculture work for the people and the environment is one of the most pressing tasks at hand (Kyte, 2014). Further, Clarke (2017)...
believes that the changing climate will require huge investments in flood control and the reconstruction of infrastructure. Policies geared towards managing these will need to be developed.

However, the US withdrawal from the Paris Agreement undercuts the foundation of global climate governance and upsets the process of climate cooperation, and the impacts are manifold. The withdrawal undermines the universality of the Paris Agreement and impairs states’ confidence in climate cooperation; it aggravates the leadership deficit in addressing global climate issues, sets a bad precedent for international climate cooperation and reduces other countries’ emission space and raises their emission costs. Further, refusal to contribute to climate aid makes it more difficult for developing countries to mitigate and adapt to climate change (Zhang et al., 2017; Morombedzi, 2017). The US withdrawal is informed, at least in part, by the powerful interests of the fossil fuels lobby seeking enhanced profits from their investments in fossil fuels (Morombedzi, 2017).

CONCLUSION

The human enhancement of global warming leading to climate change is seen as a worldwide problem. Climate change is a growing humanitarian crisis, representing one of the most serious and far-reaching challenges facing humankind in the twenty-first century, that cannot be ignored the world over. If not checked, climate change has the potential to reverse the hard-earned development gains of the past decades and impede the progress toward achieving the Sustainable Development Goals (SDGs). Developing innovative ways to adapt to its impact is a necessity. Reducing climate risks requires strong cooperation from all countries, developed and developing, to reorient their economic systems away from fossil fuels and harmful land-use practices, though such cooperation can be hard to secure as witnessed by the United States withdrawing from the Paris Agreement. This reorientation is urgent. Aggressive climate targets are still within reach if countries enact a virtuous cycle of ever more aggressive climate actions as outlined in the Paris Agreement.

The paper recognises that while the Paris Agreement does not “solve” climate change, it allows the global community to start the next wave of global climate actions, creating a virtuous cycle for more aggressive action in the decades to come. The Paris agreement therefore allows governments to start the next wave of global climate actions and ensures that the national pledges are the floor – not the ceiling – of ambition. It spurs countries to undertake even deeper cuts before 2030 and mobilise resources to help countries implement even stronger domestic reforms thus putting the world in a safer trajectory and highlighting the path forward. Murombedzi (2017) opines that the Agreement should identify mechanisms to compel countries to reduce dependence on fossil fuels, by reducing fossil fuels subsidies and incentives. However, according to UNEP (2015) the pledges submitted ahead of Paris, if fully implemented, still puts the world on an emission path that is closer to 3°C warming than the Paris objective of well below 2°C.

“If we fail to reduce emissions and build our capacity to cope with impacts, over the long term, climate change will result in more disruption, more instability and more displacement as impacts intensify. The world will be less stable, less secure … We must redouble our efforts or this story will have a dramatically different ending”. UNFCCC Executive-Secretary Patricia Espinosa

UNFCCC Executive-Secretary Patricia Espinosa
References


KEPSA, (2014). Climate change and the Kenyan private sector. Climate change and your briefing Note series.


Rotman, D. (2013). The effects of global warming will persist for hundreds of years. What are our responsibilities and duties today to help safeguard the distant future? That is the question ethicists are now asking.


UNDP, (2012). Reducing dependence on fossil fuels essential for progress in SIDs (Small Island Developing States).


WEF, (2012). The inextricable links between poverty and the environment.
**THE VALUE OF “FREE AGENTS” INSIDE THE PUBLIC SERVICE**

The federal public service has been experimenting with a new workforce model of free agents, who can be called to work at a range of departments. This article was also published in *Policy Options*.

Mr Abe Greenspoon  
*Talent Manager for Canada's Free Agents*  
Through his work to design and launch Canada's Free Agents, Abe is helping build a movement towards more human-centred HR in the Government of Canada. Abe has over 12 years of professional experience working in both the private and public sectors where he has held numerous leadership positions including with the Federal Youth Network (Regional Co-Chair) and the Institute for Public Administration of Canada (Vice-Chair, Strategy). Abe holds a Master of Arts degree in Political Science (University of Western Ontario).

In today’s world, Canada’s federal public service is asked to solve increasingly complex and rapidly evolving challenges. To respond effectively, Canadians need an agile and flexible workforce. However, our public service continues to rely heavily on a workforce model built for a different era. With an emphasis on a largely permanent workforce, the public service often addresses change by creating new departments and agencies. Moreover, these actions tend to be reactive, creating new, permanent structures that are modelled off the hierarchical structure of their predecessors.

The public service has recently been experimenting with a new workforce model that may provide an answer. In 2016, at Natural Resources Canada (NRCan), we launched a small pilot called Canada's Free Agents. This new workforce model, which emphasizes worker mobility and autonomy, was inspired by a 2012 report by Deloitte called *GovCloud: The Future of Government Work*.

In this model, a segment of the workforce exists in a “cloud” and, as with cloud computing, it can be drawn upon as needed and returned to the cloud once work is completed.

Canada’s Free Agents recruits public servants based on a set of 14 attributes that are internationally recognized as useful for public sector problem solving, such as empathy, action orientation, team orientation, resiliency and outcomes focus. Free Agents are offered lateral deployments to new positions across a group of “home” departments. From these positions, they have complete autonomy to find and select project-based work that matches their skills and interests. While Free Agents are on assignment, we recover their salary plus an additional administration fee. Free Agents can remain in the programme as long as they wish and they complete assignments until they decide to leave for a permanent job. If there is downtime between projects, they are assigned work by their “home” department until they are able to find their next project. After two and a half years running this programme, we have had less than two percent downtime – a clear demonstration of the demand.
Since 2016, we have hired 60 Free Agents who have worked on over 125 projects across more than 35 departments and agencies. They are a diverse group: they work across many domains, such as policy, communications, information technology, programme management, and scientific research; they span a broad range of experience from early- to late-stage career; they live and work mainly in the National Capital Region, but also across Canada from Comox, BC to Charlottetown, PEI; and, they reflect the rich diversity of the public service, including broad representation from official employment equity groups and beyond.

**EXPLORING THREE BROAD QUESTIONS**

As an experimental model, Canada’s Free Agents was established to gather insights about how the public service could modify its approach to workforce mobility. The objective has been to explore three broad questions:

1. What human resources benefits might this model provide for the public service?
2. How might employees benefit from a model that emphasizes worker autonomy and mobility and provides dedicated talent management support?
3. How might this model support innovation and problem solving in the public service?

On the question of the model’s benefits, early results have been very positive. We can deploy Free Agents to work on projects in a matter of days, and we have created a mechanism that makes it simple for managers to access the talent they need. We take care of the human resources processes so that managers and Free Agents can focus on the work.

More than 90 percent of managers report being satisfied with their experience hiring a Free Agent and 84 percent indicate they would hire a Free Agent again.

The vast majority identify speed and ease of hiring as being the main benefits. Hiring permanent employees can be time consuming and high risk for what are often temporary needs. Hiring consultants can be much more expensive, and their expertise is often lost when a project ends. For short-term project needs, Free Agents provide a rapid, lower-risk option for managers and the public service retains their knowledge.

Free Agents also see significant benefits in a model where they are free to choose work and move quickly across the public service. We regularly survey them and often 100 percent indicate that they enjoy the autonomy and mobility the programme provides.

On top of exploring these three broad objectives, we are also interested in creating and testing separate systems within the programme that might influence the broader public service culture. Studies have shown that dedicated Talent Manager who provides administrative support, career advice, tailored learning opportunities such as mentoring and coaching, and performance feedback. In addition to their overall satisfaction, Free Agents have reported experiencing greater support for innovation, initiative and new ideas than in the rest of the public service.

Once we have established a foundation that allows us to answer the first two questions outlined previously, we plan to explore the third question more deeply. We want to understand the potential for this model to contribute to innovation and problem-solving methods and practices. As mentioned, Free Agents are hired for a set of attributes that have been shown to drive creative ideas, interesting pilots and experiments that can be translated into actions that create value for the public. These attributes have the potential to increase the likelihood of successful problem-solving activities and improve innovation capacity. We are tracking the frequency with which Free Agents display these attributes and the value they provide to the teams they work with.

**BEYOND A PROGRAMME**

On top of exploring these three broad objectives, we are also interested in creating and testing separate systems within the programme that might influence the broader public service culture. Studies have shown that
psychological safety is one of the most important factors for high-performing teams, so we are creating internal systems that promote psychological safety, such as informal conflict resolution and manager commitments. We also know from internal surveys that employees feel they don't get enough support for career advancement, so we are creating structures for talent management. Finally, literature on workplace productivity has often demonstrated that greater autonomy leads to greater happiness, which leads to greater productivity. So we are prioritising autonomy of work to allow people to find jobs that are aligned with their passions and where they can deliver better results for citizens.

Imagining, designing and building a new system from within an existing system is an incredibly challenging task. I don't want to give the impression that everything is going smoothly. Most Canadians regard the public service as a single entity. The truth, however, is that there is a surprising amount of variability across departments and agencies in terms of the management of corporate services. This creates a number of headaches for workers who change departments frequently. The system wasn't designed for this volume and frequency of movement. If we can continue to demonstrate the value of the Free Agent model, our next challenge will be to find space within the existing system or to design a future system that allows for this degree of mobility.

No matter what the future holds, we are learning an incredible amount about our workforce needs. In our formative period, hearing from our primary stakeholders has added to our understanding of their challenges and interests. As new evidence arises, we are making changes to better meet their needs. The design of the programme is constantly evolving, but our central goal is to influence how the public service supports autonomy and mobility to meet current and future workforce challenges.

As Deloitte wrote in its GovCloud paper: “The world is full of experts who attempt to predict the future – and fail. Instead of endeavouring to predict the future, governments can choose to create a flexible workforce that can quickly adapt to future work requirements.” If nothing else, Canada's Free Agents is demonstrating one possible model that could help achieve this goal.
MEMBERSHIP AT CAPAM
CAPAM represents an international network of members including senior public servants, leading academics and researchers to define and promote the practical requirements of good governance. The association is guided by international leaders who believe in the value of networking and knowledge exchange across borders and through diverse local and national experiences.

CAPAM’s members are located in over 50 different countries representing every region of the world.

For more information about becoming a CAPAM member, please contact capam@capam.org.

INFORMATION ON THE COMMONWEALTH INNOVATION REVIEW
The Commonwealth Innovations Review (CIR) focuses on CAPAM’s two main objectives: (1) knowledge exchange, and (2) networking. The publication, which is available to all members and subscribers, provides a space where expertise and research in the field of public administration and management may be shared with our membership. It is a forum for different voices and diverse public service priorities. The CIR also serves as a platform to report on CAPAM events, and to announce upcoming learning programmes and conferences as well as calls for presentations and articles.

ABOUT CAPAM
Promoting the practical requirements of good governance, just and honest government across Commonwealth countries and beyond, CAPAM provides a forum for the active exchange of innovations, knowledge and practice in citizen-centred service delivery, leadership development and growth, and public service management and renewal. We serve our members as a centre of excellence in good governance and endeavour to build a more responsive and dynamic public service.