

Our Common Principles: Exploring Harm Reduction Based Drug Policy as an Avenue for
Sustainable Development in Urban Contexts

by

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A thesis

presented to the University of Waterloo

in fulfillment of the

thesis requirement for the degree of

Master of Environmental Studies

in

Geography and Environmental Management

Waterloo, Ontario, Canada, 2019

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Authors Declaration:

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

Abstract:

This thesis explores the conceptual and practical relationship between the goals of sustainable development and of contemporary drug policy in Canadian provinces and municipalities. By failing to address the global issue of substance abuse, particularly in urban contexts, the sustainable development community is likely unable to achieve many of its substantial social and ecological objectives. In Canadian cities, the abuse of recreational drugs has had deep social, economic and ecological consequences that have been accelerated, or in some cases created, by traditional prohibition-based approaches to drug policy. However, a more recent policy approach may provide a viable opportunity for sustainability scholars to engage with and help address this issue: the harm reduction approach.

This thesis focuses on the exploration of this opportunity by identifying overlapping principles and objectives that exist between harm reduction and sustainable development discourses. I review the literatures of harm reduction and sustainable development in order to identify common principles and historical experiences that could help to create a foundation for future collaboration. Emphases on social justice, social cohesion, community wellbeing and quality of life are identified as shared objectives throughout the literature. In addition, through the application of a sustainability assessment tool, several Canadian federal, provincial, and municipal harm reduction policy documents (HRPD) are shown to implicitly address a variety of sustainability concerns. I find that the HRPDs maintain a focus on a multitude of issues relevant to sustainability such as health, access to services, and democratic governance. Nevertheless, the results show that these documents largely fail to engage with ecological concerns relevant to drug policy, presenting an opportunity for learning and policy improvement in future iterations through the incorporation of a sustainability perspective. By understanding these synergies and

disparities, future policy can be engaged to create co-beneficial, cross-discipline outcomes that help make progress toward more socially and environmentally sustainable communities, with an emphasis on wellbeing, inclusion and social justice.

Other contributions of this research relate to the identification of potential bridging concepts, drawing from theories in geography, environmental governance and environmental justice. The identification of these concepts enables future research to be conducted and may be able to facilitate the translation of knowledge between the currently disparate literatures. Furthermore, recommendations are offered to both policy makers and practitioners that would help to make progress toward the goals of sustainable development as well as those of harm reduction. Overall, the findings of this research offer practical and theoretical contributions that serve to help address a pressing global issue, and in doing so identify substantial directions for new research.

Acknowledgments

Foremost I would like to thank my supervisor Dr. Sarah Burch. Her guidance, support and patience throughout this thesis process has been crucial. In particular, her ability to encourage the pursuit of interdisciplinary intellectual pathways allowed me the freedom to explore my academic interests and find a research direction that fit my interests, for which I will always be grateful.

I would also like to thank my committee members, Dr. Robert Gibson and Dr. Susan Elliot, for all of their crucial feedback and insights throughout this process. Their critical and thoughtful input on my work was greatly appreciated and helped to create a much stronger thesis overall. In addition, the diverse intellectual and methodological approaches to which they subscribe gave me many insights into the process of research, in turn helping me to refine my own approach along the way.

Thank you to my family and friends, especially Oscar, Terry, Emily and Maria. This process would have been much more difficult without your love and support. Also, a special thanks to Chris Luederitz, Aravind Kundurpi, Linda Westman and all the SPROUT lab members whose advice and guidance was invaluable, and who helped to make my two years here quite memorable. Finally, a sincere thank you to my partner, Tina Alfonso, whose endless support and encouragement made all of this possible.

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1 Exploring the role of harm reduction as a catalyst toward achieving sustainable development outcomes

1.1 Introduction:

“The problem of drugs is one of the most complex of our time: it affects all sectors of society and has adverse consequences for health and well-being, families and communities, security and sustainable development.” – Antonio Guterres, UN Secretary General, 2018

Since the end of the 20th century, sustainable development and sustainability more broadly¹ have become an increasingly popular topic on the international stage. Met with varying degrees of success, the concepts have been used to incorporate a broad range of concerns have been effectively adopted by the public as a common and desirable principle (Scheirer & Dearing, 2011; van Egmond & de Vries, 2011). However, nearly half a century since the principle’s inception, the global community is still plagued by various sources of unsustainability across economic, ecological and social dimensions. The UN Sustainable Development Goals report (2017) identifies some of these pervasive challenges, in the ecological dimension alone showing for example a continuous trend of biodiversity loss, increases in global material footprint, and widespread air quality pollution in urban areas. Likewise, issues of health, poverty and inequality are still persistent throughout the globe, leaving much work to be done in order to address these

¹ While the precise definition of the terms *sustainability* and *sustainable development* have been contested, for the purpose of this paper I will use them interchangeably, with the intended understanding of sustainability as a process through which a society may improve their environmental, economic and social wellbeing for future and current generations.

challenges. While there have been some significant successes, such as reductions in global poverty, disease transmission and the rate of deforestation, there is still much progress to be made in pursuit of a sustainable global community. The reasons for these barriers to success are varied. First, implementation problems of sustainability and sustainable development arise from the significant difference between our currently unsustainable societal norms and ways of doing things, and what we would need to be doing in order to be considered sustainable. Modern industrial society has created pervasive problems for the environment and society, making the shift to sustainability a considerable task as it would require a major shift in societal norms and practices. In conjunction with this, the institutions of power that reinforce and rely upon said norms are often in opposition to sustainable progress, as it would challenge the success of their institutions.

There are also some challenges that are subtler, such as failures of the term itself. The co-opting and perversion of what it means to be “sustainable” by a variety of government and non-government actors has contributed to an inability to achieve the activation of a “collective initiative toward a sustainable future” despite a number of attempts to do so (Muringathuparambil, 2014). Furthermore, despite its original conceptualization as a integrated approach to development that spans environmental, economic and social concerns and seeks to pursue them in a mutually supportive way, it has been suggested that many interpretations of sustainability have been found to rely too heavily on environmental concerns, relegating social concerns such as health, justice and wellbeing as secondary issues (Cuthill, 2010). While in recent years, scholars have placed increasing emphasis on the social dimensions of sustainability issues (see for example Bramley & Power, 2009; Colantonio, 2009), there are still many areas to

explore. This thesis focuses on one such area, substance abuse, in the hopes of establishing a pathway to address one aspect of unsustainability within the global community.

Although health has been considered “to be of central importance to international development for 20 years”, many pressing issues are still insufficiently addressed or are overlooked within the sustainability discourse (Buse & Hawkes, 2015: p. 2) Furthermore, studies of traditional and modern health issues associated with sustainable development focus primarily on issues related to poverty, insufficient development, unsustainable resource consumption, environmental contamination, inadequate access to crucial resources and services such as clean water, affordable housing, education and health care (Corvalán, Kjellström, & Smith, 1999; WHO, 2015; WHO, 2018). This focus, while important, fails to address issues of substance abuse, an issue with increasingly significant global consequences across social, ecological and economic dimensions. Illicit drug use, and the traditional prohibition-based approach to controlling it, have had deep social consequences for communities around the globe, including high rates of mortality, disease transmission, racial and gender discrimination, mass incarceration and the ostracism of drug users from their families and communities (Csete et al., 2016). Despite efforts from the global community to prohibit and restrict the use of illicit drugs, the rates of illicit drug use and production are increasing annually. In 2016, 31 million people worldwide were reported to have substance abuse disorders, with nearly 11 million people injecting drugs. In 2015, over 450,000 people died due to drug use (UNOCD, 2018). While these statistics could be viewed as insignificant when compared to other global health issues, it is important to acknowledge the steadily increasing prevalence of drug harms, with record numbers of fatal overdose in several countries, including the United States, Canada, Germany, Sweden, the Netherlands, Spain, Lithuania and the United Kingdom (UNOCD, 2018). Concurrently, the

global production of illicit drugs such as cocaine and opium has been dramatically increasing with production jumping 65% from 2015-2017 (UNOCD, 2018), the consequences of which include the compromising of otherwise viable ecosystems (McSweeney, 2014; UNOCD, 2018) and the misuse of agricultural lands in resource scarce areas (Rolles et al, 2012; UNODC, 2018). Economically, the resoundingly unsuccessful “war on drugs” approach has cost hundreds of billions of US dollars worldwide (see for example Meija & Csete, 2016), despite not having been able to successfully reduce the quantity of drugs produced or the extent to which they are used (Chatwin, 2018). These problems present significant challenges to those in pursuit of sustainability and require novel approaches to help mitigate their associated harms.

Further still, the need for understanding the issue of substance abuse through a sustainability lens can be centered on concern for the users themselves, introducing justice considerations that are crucial to the sustainable development discourse. The intravenous drug user (IDU) community is faced with unique, intersecting vulnerabilities, including tendencies to social isolation, disease transmission and high mortality (Csete et al., 2016; Smye et al., 2011). Often overlooked in public decision-making, IDUs form a contingent of modern society that requires specialized access to resources and treatment options (Ahern, Stuber, & Galea, 2007). Despite their being frequently vilified in modern society, IDUs are members of the community who deserve consideration, and the way in which community development addresses (or fail to address) their concerns can have a significant impact on larger social dynamics, such as violent crime, homelessness and the quality of familial and community relationships (Friedman, de Jong, & Wodak, 1993; Neale, 2001, p. 104;125;134;155). The justice components of drug use are relevant to the success of the SDGs. In this thesis, justice is referred to broadly as the enabling of recognition, process, procedure and outcomes (Broto & Westman, 2017). If the form of

sustainability we mean to pursue is truly meant to be inclusive of all populations as the SDGs proclaim, then it is necessary to consider IDUs and the policies that influence them.

The harm reduction framework presents an opportunity for further understanding the role that drug policy plays in shaping sustainability outcomes. As an alternative to traditional “command and control” frameworks of drug policy, harm reduction offers a human rights-based approach to policy, focusing on reducing the societal harms incurred by illicit drug use through mitigation and care for the users themselves (HRI, 2018). As harm reduction has become an increasingly popular approach in recent years among health authorities and front-line health care providers, a number of countries have begun to adopt the approach in policy, with 86 countries across the globe implementing some form of harm reduction services such as needle exchange programs or opioid-substitution therapy (HRI, 2018). This context of novel, experimental policy approaches opens opportunities for policy refinement and collaboration across sectors to achieve multiple goals simultaneously.

In order to effectively pursue sustainable development, IDUs and the policies that influence them must be considered. While these topics remain largely within their respective research domains, this project seeks to create a bridge to connect them, and to identify opportunities for future collaboration. The aim of this Masters research has been to systematically evaluate how various approaches to drug policy contribute to or detract from sustainability and identify key overlaps between the research areas of sustainability and harm-reduction. This thesis aims to show how a systematic understanding of these concepts and processes can guide the actions of public decision-makers and support their overarching goals of achieving equitable sustainable development in an urban setting. In addition, I intend to address a gap in the sustainable development literature through creating a sustainability assessment tool for

drug policy analysis, particularly for harm-reduction applications. In doing so I hope to illuminate the importance of acknowledging public health services when considering sustainability, as well as uncover ways in which these health services can benefit from the incorporation of a sustainability perspective. The complexity of the problems we face as a society, be they opioids or environmental degradation, require novel, interdisciplinary solutions focused on the preservation and promotion of human rights. In addressing the needs of the most vulnerable, the pursuit of truly sustainable development becomes possible.

1.1.1 Bridging concepts as a tool for knowledge sharing between distinct literatures

Interdisciplinary research can be utilized to gain a broader perspective on a given issue, in this case issues of community sustainability and justice. However, this is not without its challenges, such as disconnects in language, methodology and epistemology between discourses (Abernethy, 2014; Bennet & Zurek, 2007). One way to transcend these challenges is through the establishment of bridging concepts and theories between the discourses. In this context, and in line with its application by Abernethy (2014), a bridging concept is one that is able to link key discourses through the identification of common language and the alignment of mutual goals, for the purposes of knowledge exchange and action mobilization.

In identifying common values and principles that exist between harm reduction and sustainable development, I was able to propose several concepts and theories that could serve as bridging theories in future research, using the goals of social inclusion, public wellbeing and social justice as common desirable goals. While this thesis lacks the space to explore the application of these bridging theories, they are nonetheless provided for use in future research.

1.2 Context

1.2.1 *Geographic Context*

In order to draw out the relationship between sustainable development and harm reduction, I chose to explore the context of contemporary Canadian municipal, provincial and federal drug policy. This choice was motivated by a number of factors, namely the country's historical evolution of harm reduction policy, its contemporary adoption of harm reduction policy, its increasing numbers of IDUs, and the formal commitments to sustainability within the its major urban hubs.

Historically the United States and Canada have addressed drug use through prohibition-focused health policies that include strict criminalization and severe prison sentencing (Erickson, 1992). This approach to drug policy has been shown to have detrimental social impacts, including an increase in gender-based and racially discriminatory practices, the prevention of access to health services leading to otherwise preventable deaths (Csete et al., 2016) and creating financial, psychological and logistical hardships for families and communities (p. 27). As a result of these negative impacts and an increasing number of IDUs, in the late 1990's a number of Canadian cities began to adopt the harm reduction approach to drug policy, offering services such as needle exchange programs and supervised injection sites (SIS). These sites created legal, medically supervised areas for users to consume illicit recreational drugs (Kerr & Palepu, 2001). Although widely controversial, these sites achieved considerable success where implemented, significantly reducing fatal overdoses, disease transmission and in some cases providing users with access to rehabilitation programs (Ian Malkin et al., 2003). The city of Vancouver, the first city in North America to create a SIS had a 35% reduction in fatal overdose among the local community in the first two years after creation (Marshall et al., 2011). In addition, Vancouver

saw a significant decrease in HIV incidence rates after adopting harm reduction strategies to drug use, shifting from an incidence rate of 18.6 per 100 person-years to less than .38 per 100-persons years since 2008 (Urban Health Research Initiative, 2009).

Despite the controversy surrounding the issue, in 2011 the Canadian Supreme Court ruled 9-0 in favor of the continuation of Vancouver's SISs, acknowledging that the facilities save lives without any negative impacts to the government public health and safety objectives (Senese, 2014). Since that time, the harm reduction approach has been applied to varying degrees of success across Canada. Harm reduction policy documents have been created to varying extents in all 11 provinces and territories (Hyksha et al, 2017). However, the policy structures supporting harm reduction practices have been found to be weak, and require further development in order to reach the desired results (Hyshka et al., 2017). The need for this development is increasingly pressing. As of 2017, an estimated 200,000 Canadians were dependent on prescription drugs (Vashishtha, Mittal, & Werb, 2017), and an additional 100,000 inject illicit drugs, resulting in significant health and community repercussions, such as "injection-related infections, overdose, blood borne disease transmission, exposure to discarded needles, violence, property crime and sex trade" (Thomas Kerr & Palepu, 2001, p. 1). To highlight the significance of the issue, Canada experienced over 10,300 opioid related deaths from between September of 2016 and January of 2018 (Special Advisory Committee on the Epidemic of Opioid Overdose, 2019). This issue is becoming increasingly severe, with the number of IDUs and fatal overdoses increasing annually across the country (Health Canada, 2017; Hedegaard et al., 2018).

Broadly speaking, Canada has also demonstrated an increasingly serious commitment to sustainability within its major urban hubs. Montreal, Toronto, Vancouver, Edmonton, Calgary and Ottawa- being some of the largest cities in the country (Statistics Canada, 2017) all have

explicit sustainability and/or climate action related strategic plans.² In creating these plans and adopting the principles of sustainability contained within them, these cities have made sustainability an explicit objective.

Finally, this project has an explicit focus on the urban policy context. This is reflected in the selection process for documents, outlined in detail in Chapter 2. Over the past decades, both global public health and sustainability strategies have become increasingly focused on issues and solutions emerging in cities. Over 55% of the global population lives in cities, with a projected 68% living in urban areas by 2050 (United Nations, 2018). This trend is reflected within Canada, with over 80% of Canadians living in urban areas, making urban public health an increasingly significant concern in Canada (OPHA, 2003; Statistics Canada, 2015). Similarly, urban geography and planning research has indicated that urban sustainability issues – such as social and economic inequality, greenhouse gas emissions, pollution and resource scarcity – have become significant throughout the country, requiring novel perspectives and approaches to address complex issues (Keivani, 2010; SSC, 2010). In addition, the characteristics of urban space present unique health risks. Due to their confined geographic nature, urban health risks are concentrated, and in some cases present unique hazards. Deficiencies in political, social and physical environments (with poverty being the strongest determinant) have been shown to lead to health inequities among urban populations, leading to increased vulnerabilities of already at-risk groups (WHO, 2019). As defined by Corburn (2017), “health inequities are avoidable differences in the social, environmental and political conditions that shape morbidity and mortality, and disproportionately burden the poor, racial, ethnic and religious minorities and migrants”. This is particularly relevant for injection drug users, as they are found disproportionately in urban spaces

² *Sustainable Montreal 2016-2020; TransformTO; The Way We Green; The 2020 Sustainability Direction and; the greenest city action plan; and the Sustainability and Resilience plan, respectively.*

and face unique determinants to substance abuse (CRISM, 2017a; Galea et al., 2005). As such, understanding the drivers of these inequities, and how to best mitigate them, is a crucial element of modern urban research, and motivates the thinking of this thesis.

1.2.2 Conceptual framework

The need for sustainability considerations goes beyond single issues and instead speaks to a broad, and more complex, understanding of the physical environment and its role in the community and individual wellbeing across social, economic and environmental dimensions. It is possible that the efforts of the HRPDs – and perhaps harm reduction policy more broadly – cannot be fully actualized without a genuinely holistic approach. This can be most easily demonstrated through a famous example:

In the mid 20th century, researchers from the University of Michigan conducted animal behavior experiments to understand the addictive properties of drugs (such as heroin, cocaine, morphine and various amphetamines (Alexander, 2001). Such experiments were conducted as follows:

“After implantation of a needle in one of their veins connected to a pump via a tube running through the ceiling of a special Skinner box, rats could inject themselves with a drug by merely pressing a lever. By the end of the 1970s, hundreds of experiments with apparatus of this sort had shown that rats, mice, monkeys, and other captive mammals would self-inject large doses of heroin, cocaine, amphetamines, and a number of other drugs” (Woods, 1978).

In some cases, the animals in these experiments would consume increasing amounts of the drug in lieu of food, often leading to adverse health consequences or death. Scientists of the time

(such as Goldstein, 1979) viewed this experiment as evidence of the severe addictive potential of drugs. In response to these experiments, a psychologist by the name of Bruce K Alexander at Simon Fraser University conducted his variation of these experiments in 1978, seeking to debunk the common misconceptions of drugs and their addictive qualities (Alexander, 2001). In this new variation of the experiment (now colloquially known as the "rat park" experiment) Alexander created two cages: one, with an isolated rat, set up in a cage similar to the one found in the original Michigan experiments; and a second, where the researchers created a simulated "natural" environment, complete with other rats, plentiful space, a "scenic" view and comfortable areas for the rats to rest (Alexander et al., 1978). The results of this experiment differed greatly from previous experiments: While the rats living in cage 1 continued to consume morphine to a level of detriment, the rats in cage 2 (the "rat park") showed little interest in morphine. (For a full explanation of the experiment, see Alexander et al., 1985.) Despite various attempts to entice the rats in the "rat park" to abuse the morphine, they remained disinterested, and more importantly, addiction free.

The results of the rat park experiment challenged common understandings of drug addiction and raised questions about the drivers of drug abuse and addiction. Since the rat park experiment, the results of Alexander's research have been extended by others (e.g., Schenk et al., 1987). In more recent years, addiction research has continued to validate these experiments, showing how an enriched environment leads to a reduction in sensitivity to addiction and neurological degradation (Bezard et al., 2003; Xu et al., 2007). It is worth noting that the results of this study are not suggesting that the physical environment is the *only* determinant of drug addiction and health. As is widely seen throughout the literature (e.g., Sajjadi et al., 2015; Saxon et al., 2009; Spooner and Hetherington, 2004) addiction and health are driven by a wide variety of socio-

ecological determinants. To address issues of drug abuse and addiction, these determinants must not be addressed as isolated concerns but instead as interactive components of a holistic, considered response. To this end, the inclusion of physical environmental and social concerns into the harm reduction discourse is essential for achieving the health goals of harm reduction, thus further justifying the pursuit of this study. The synergies between harm reduction and sustainability concerns (such as ecological integrity and social justice) have potential to help create healthier, and therefore more sustainable, communities. Examples of co-beneficial societal characteristics include increased access to greenspace (Nutsford et al., 2013), biodiversity (Fuller et al., 2007) and improved social cohesion (Lehtonen, 2004), all of which present benefits for the objectives of both sustainability and harm reduction advocates in creating healthier and more just communities.

Though the literature discussing drug policy and harm reduction is not addressed within this section (as it is done extensively in Chapter 3), the information presented here provides a sufficient foundation for explaining the driving conceptual framework of this project. *In summary, my conceptual framework is as follows:* This thesis approaches the issues discussed through lens of systems thinking, understanding that socio-ecological issues are driven by a variety of interconnected factors. As such, it is necessary to approach these issues from a variety of perspectives, making interdisciplinary research a useful tool for identifying solutions. In this context, issues of health, justice, and governance are viewed as interacting forces that have a variety of social and environmental outcomes. However, as interdisciplinary research faces some challenges related to knowledge translation and transference, it is useful to first identify bridging concepts and theories to help facilitate this exchange. As a basis for identifying common

interests and values in the disparate literatures, this thesis seeks to identify some potentially applicable bridging theories in Chapter 3.

The bridging of knowledge and ideas between seemingly disparate literatures can lead to knowledge sharing and improved performance for both areas. In this project, harm reduction and sustainable development have three fundamental common interests (social inclusion, public wellbeing and health, social justice) that serve as foundations for bridging the two literatures together. As a result, I propose the use of three specific concepts that can be used in future research as bridges: good governance, therapeutic landscapes and just sustainability.

My goals for this project and the research gap I seek to address can be described as follows: Sustainable development is a holistic approach to development that addresses the needs and concerns of the entire population across generations for the purpose of facilitating long-term wellbeing. As a global concern, the issue of drug use (and perhaps more significantly, abuse) is scarcely addressed in sustainable development literature and practice, thus causing sustainable development initiatives to neglect or inadequately address a dire social need. Similarly, harm reduction attempts to address some, quite specific social needs but fails to incorporate sustainability concerns, leaving the concept underdeveloped and vulnerable to negative repercussions, specifically those related to social and environmental determinants, and obscuring possibilities for more effective pursuit of multiple gains through broadly conceived responsive and preventative initiatives. By more explicitly incorporating sustainable development principles, harm reduction advocates and policy makers can create comprehensive policy that leverages synergies into ideal long-term outcomes for the population in question. Although not directly stated, harm reduction shares many underlying goals with sustainability, presenting an

opportunity for co-beneficial policy integration that leverages the synergies of both sustainable development and harm reduction policy to reach common goals.

1.3 Research objectives

1.3.1 Identifying linkages, exploring opportunities

The primary goal of this research project has been to explore the relationship between harm reduction policy in the Canadian context and sustainable development objectives as outlined by the Sustainable Development Goals and the corresponding body of literature. Within that broad goal exist four specific objectives:

- understand the philosophical and historical alignment that exists between the two concepts;
- explore to what extent contemporary Canadian harm reduction policies address issues parallel with sustainable development goals and targets;
- identify potential bridging concepts and theories that could enable future knowledge sharing between the two bodies of literature; and
- develop a foundation for future research projects that engage with linkages between sustainability and drug policy.

These three objectives are pursued through an integrative literature review and a policy analysis of Canadian HRPD. The objectives are addressed through the development of two manuscripts, which are centered on two primary research questions and two sub-questions. These questions are as follows:

1) What overlaps exist between the foundational philosophies of sustainable development and harm-reduction?

1a) How can these overlaps be explored for future policy integration?

1b) What concepts or theories could be used to bridge the two discourses and enable knowledge sharing and action mobilization?

2) How are sustainable development goals and targets addressed in Canadian municipal, provincial and federal drug policy?

2a) In what areas can these policies be better integrated with urban sustainability goals?

1.4 Thesis Roadmap

- Methodology

Chapter 2 outlines the methodological approach applied throughout the following chapters. In particular, the chapter outlines the rationale and process for the use of various qualitative methods, such as an integrative literature review, interpretive policy analysis and the application of a sustainability assessment tool.

- Literature review – *Our common principles: An exploration of the philosophic and historical underpinnings of harm reduction policy and sustainable development*

The chapter 3, the literature chapter, precedes the manuscript in order to provide a solid foundation on which to bridge the concepts of harm reduction and sustainable development.

This chapter utilizes an integrative literature review, a form of literature review aimed at integrating knowledge from different fields to synthesize relationships, in this case between insights from the literatures from both harm reduction and sustainable development scholarship

to identify common themes that exist between the two domains. In particular, commonalities are identified within their historical foundations, as well as their ethical alignments and practical objectives. These commonalities were previously overlooked, and present opportunities for future collaboration and research. Using these observations as a foundation, I then propose a number of concepts and theories from a variety of literatures that could be potential bridging theories to be explored in future research. This chapter seeks to answer research questions 1 and 1a, and in doing so, helps to shape the argument that informs the manuscript.

- Manuscript – *Synergies of justice: Exploring the co-beneficial sustainability dimensions of Canadian Harm Reduction Policy*

Chapter 4 presents the results of a policy analysis of 17 Canadian harm reduction documents. To conduct the analysis, I designed a sustainability assessment tool that is contextualized for application to Canadian drug policy. The analysis is conducted through the lens of this sustainability assessment tool, in order to comprehend the extent to which contemporary harm reduction policy contributes to sustainable development objectives. This chapter seeks to answer research questions 2 and 2a.

- Conclusion – The long road ahead: Concluding thoughts and opportunities for the future

This chapter presents a summary of the findings from chapters 4 and 5, synthesizes concluding remarks and offers a number of suggestions for future research and policy opportunities. The suggestions related to research focus on opportunities to further explore the relationship between the two concepts, and how to leverage their similarities into co-beneficial outcomes. The policy recommendations presented identify areas for future iterations of HRPDs to improve, in order to help further sustainability objectives as well as better serve their target community.

2 Methodology

2.1 Introduction

The objective of this research is to reveal the parallels between harm reduction-based drug policy in Canada and sustainable development in order to facilitate future policy integration and coherence within urban contexts. Admittedly, what it means to be a sustainable society varies by culture and context, and as stated by Roseland (2005), each community needs to determine what sustainability means for itself. However, for the purpose of this thesis I will use the SDGs as a framework for idealized sustainable progress, as well as the sustainability perspective brought in by Gibson (2005). In order to identify parallels, I utilized two main forms of qualitative methods –an integrative literature review of literatures pertinent to the research questions, as well as an analysis of Canadian harm reduction policy documents using a contextualized sustainability assessment tool. This chapter will seek to provide a rationale for the approaches selected, as well as provide a description of the methods used for data collection and analysis.

2.2 The literature review: Integrating knowledge and identifying overlaps

This project required an integrated review of the literature for use within chapter 3. Building from the results of this review, chapter 3 went on to demonstrate the results of this process, reviewing and assessing the scholarship pertaining to public health, drug policy and harm reduction with the intention of generating novel shared perspectives. An integrative review seeks to "review, critique and synthesize representative literature on a topic in such a way that new frameworks and perspectives on the topic are generated (Labaree, 2009). This particular

form of review was selected due to the ability for integrative reviews to incorporate diverse methodologies in order to “capture context, processes and subjective elements” of the research focus (Whittemore and Knafl, 2005). This is in contrast to other review methods, such as systematic review or meta-analysis, that require the use of common methodological approaches (Greenhalgh, 1997). In the case of this particular review, the literature review was focused on three variables: historical context, philosophical underpinnings and practical themes and objectives that exist within each movement and identify the relationships that exist between them.

When conducting a literature review (or qualitative research more generally), it is crucial to identify potential areas of bias that could influence the researcher's findings. Integrative reviews in particular have been criticized for bias and lack of rigour (Whittemore and Knafl, 2005). To mitigate bias, I identified the criteria for inclusion and exclusion of documents as well as keyword selection, project boundaries, and scope of the project (Winchester & Salji, 2016) (Table X). Furthermore, in order to increase the rigour of the review process, I followed an explicit multi-stage review process, a combination of the 5-stage process described by Whittemore and Knafl (2005) and the 4-stage process outlined by Jabareen (2005). This process, which is illustrated in Figure 1, includes a problem identification stage, literature search, data evaluation, data analysis and presentation.

Through this review I was able to develop a comprehensive conceptual framework that encompassed the relationships that exist between the two domains and informs the rest of my research project. Furthermore, by conducting this literature review in a systematic manner, I was able to more effectively fine tune my assessment tool more effectively to address relevant issues in Chapter 4.

Figure 1: Integrative literature review process

Stage 1: Problem Identification

An informal review of the sustainability literature displayed a lack of formal empirical or theoretical research regarding drug use or drug policy. This motivated the search for a review for health and sustainability

The lack of drug policy research then motivated the exploration of various drug policy models, including harm reduction and prohibition based policy

Stage 2: Literature Search

Having a specific focus on integrating drug policy and sustainability research, a boolean search was conducted using databases including Google Scholar and the University Library database. Following the use of a keyword search, reports were included or excluded. Documents were excluded if they were 1) published in a language other than English, 2) were not peer reviewed, 3) based explicitly on outdated policy or 4) contained insufficient evidence of a valid methodological approach

Stage 3: Data Evaluation

The literature found contained both empirical and theoretical research, both of which was important for understanding the desired relationship. Theoretical data was more productive for the purposes of this study, particularly when discussing ethical and policy imperatives.

Stage 4: Data Analysis

The data was then extracted from relevant documents and summarized within an annotated bibliography. The information contained within the summary included Author, date published, journal, hypothesis, key findings, methods, location of study, results and major conclusions

Stage 5: Presentation

The data was then synthesized into a full review found in Chapter 4

2.3 Policy analysis

To answer my second research question, I conducted a policy analysis of select Canadian municipal, provincial and federal harm reduction policy documents. For the purpose of this thesis, I will define policy as it is defined by Cochran and Malone (2014: p.3): Public policy refers to “the overall framework within which government actions are undertaken to achieve public goals, with a good working definition of public policy, for our purposes, being the study of government decisions and actions designed to deal with a matter of public concern. Policies are purposive courses of action devised in response to a perceived problem.” By extension, policy analysis can be defined as “a process of multidisciplinary inquiry aiming at the creation, critical assessment and communication of policy-relevant information.” (Dunn, 2015: p.2). The rationale for my selection of policy analysis as a method is driven by its flexible and pragmatic nature. As stated by Dunn (2015), the methodology of policy analysis is unique in that it is not “confined by the analytical routines of specialized social science fields – for example, benefit cost analysis in economics...because none of these holds a privileged place in policy inquiry” (p.3). Instead, policy analysis is “methodologically eclectic”, allowing for a wide range of methods so long as they yield reliable results.

The multi-disciplinary nature of this project makes policy analysis a useful approach. Free from strict disciplinary guidelines and driven by the practical application of its results, policy analysis is well suited for multi-disciplinary research that deals with complex phenomena, thus requiring complex solutions (Dunn, 2015). The relationship between harm reduction and sustainable development is indeed complex, and in order to understand their relationship within the policy sphere the analytical tool used needed to allow space for the

necessary nuance. To facilitate the policy analysis, I created a sustainability assessment tool, contextualized for application within Canadian harm reduction policy documents.

2.3.1 Sustainability assessment

The application of sustainability-based evaluation criteria, which are meant to further our understanding of the world we live in for the purpose of pursuing lasting wellbeing, creates many opportunities for evaluating the extent to which an activity or action contribute or detract from overarching sustainability objectives (Gibson, 2017). By developing an understanding of the contributions to sustainability a particular action or activity will have, and weighing this action against alternative approaches, decision-makers become better equipped to make informed and considered decisions to best achieve their desired outcomes. The range of applications for this process is therefore highly valuable for interdisciplinary research. Sustainability assessment is applied to a wide variety of cases, including agricultural and energy systems (Gaudreau, 2016); infrastructure, such as wastewater treatment systems (Balkema et al., 2002; Sahely et al., 2005) natural resources, such as biomass crops or forests (Volk et al., 2004; Mendoza et al., 2000) and social policy initiatives, such as poverty and homelessness reduction policies (Colantonio, 2009; Hugé & Hens, 2009). While the research foci of these examples vary significantly, the assessment criteria for each case are contextualized for use within their particular setting. I selected to conduct a sustainability assessment due to some of the characteristics of my research problem. According to Gibson (2017) there are five common distinguishing characteristics that suggest potential openings for the application of sustainability assessment: recognized need, opportunity to act, desirable conditions for use of sustainability's strengths, potential for influence and potential for significant gains. As is evident from a cursory review of the literature,

the concept and application of harm reduction practices in the Canadian context possess most of these characteristics. With harm reduction becoming an increasingly common approach to drug policy within the Canadian context, harm reduction policy documents require a comprehensive analysis tool that incorporates attention to a variety of issues and values, particularly as provincial harm reduction policy by itself has already been shown to be conceptually anemic (Hyksha et al., 2017). In addition, the rapid adoption of the harm reduction approach in response to increasingly prevalent health risks throughout North America represents an ideal opportunity for researchers and policymakers to pursue a deeper understanding of the concept, as well as its relationship to and with other social, economic and environmental concerns. The historic approach to drug use throughout Canada has been centered on prohibitionist policy, making the harm reduction approach a significant change in practice and policy approach (Kerr & Palepu, 2001). Finally, the potential for influence and/or significant gains from conducting a sustainability assessment for harm reduction lie in the potential co-benefits of policy integration. As will be demonstrated through this research, viewing harm reduction policy through a lens of sustainability and adjusting it to better incorporate sustainability principles in future policy iterations will help address multiple societal concerns simultaneously, including (but not limited to) issues of social cohesion, inclusive governance and, naturally, public health.

In the case of this research, I used a combination of Robert Gibson's (2005) assessment criteria and the Canadian Harm Reduction Policy Project (CHARPP) coding frameworks to create a contextualized sustainability assessment tool for use in Canadian drug policy analysis. By integrating the CHARRP coding framework into the eight sustainability assessment criteria, my goal was to create an assessment tool that could effectively assess the ways that sustainability is addressed within harm reduction policy documents (**Appendix A**). By adopting these criteria

as a basis for defining what is required to deliver contributions to sustainability in this particular case and context, I was able to design a sustainability assessment tool that could be used to assess the extent to which a policy or project (and alternatives to them) may contribute to sustainable development. While there are numerous approaches to sustainability assessment, the above criteria (first developed in Robert Gibson's book *Sustainability Assessment* (2005)) were selected due to their broad applicability. Intentionally generic, these criteria were designed in such a way to "accommodate the wildly diverse realities and possibilities of application" (Gibson, 2017:13). The initial criteria categories are *socio-ecological system integrity; livelihood sufficiency and opportunity; intergenerational equity; intragenerational equity; resource maintenance and efficiency; socio-ecological civility and democratic governance; precaution and adaptation; and immediate and long-term integration*. Considering the unconventional nature of applying sustainability assessment to health policy, the generic categories allowed for a more flexible application. Similar assessments have been used to analyze social components of development in the past, such as policies addressing poverty and homelessness, highlighting the methods effectiveness and applicative breadth (Colantonio, 2009; Hugé & Hens, 2009). There are many ways to approach policy assessment, as well as sustainability assessment. However, this particular framework provides a flexible foundation for a proper contextualization of interdisciplinary research. The flexibility of the approach is reinforced by Bond et al. (2011), who claim that sustainability assessment "can be directed to any type of decision-making, can take many forms and is fundamentally pluralistic." By using this in combination with the CHARPP coding framework, a useful and inclusive assessment tool was created. The developed framework can be seen in **Appendix A**.

The primary function of sustainability assessment is to serve as an “organized approach to deliberation and decision making”, with the overarching objective to “enhance our prospects of lasting wellbeing” (Gibson, 2017: p. 1, 16). Through the process of sustainability assessment, researchers are able to identify the components of a wide variety of processes, plans, initiatives, and projects to understand their role in contributing to, or detracting from, sustainability. By specifying and elaborating the criteria based on the context of harm reduction, there is an opportunity for researchers, public officials and stakeholders in the public health and sustainable development domains to better understand the dynamics, needs and concerns of the communities they serve.

2.3.2 HRPD Selection

In order to identify relevant documents for analysis, I first began with a comprehensive search for HRPDs at the national, provincial and municipal scale. Within the Canadian contexts, drug policy and law are shaped and carried out in different ways across federal, provincial and municipal levels. At the federal level, the government is responsible for setting the national principles for the countries health system via the *Canada Health Act*, as well as providing funding to the provinces and territories and providing services for specified groups of people (such as indigenous groups and veterans). The provinces are in charge of administering health insurance plans, distributing funding for services and facilities, and planning and implementing health promotion activities and health recovery services (Health Canada, 2019). Municipal governments, while playing a comparatively smaller role, help to co-fund opportunities and programs, deliver services and employ health professionals and often are better able to address the needs of specific communities (Jacek, 2017). Broadly speaking, illicit drug law is covered

federally by the *Food and Drug Act* and the *Controlled Drugs and Substance Act*. These laws provide guiding principles for provincial and municipal law and policy throughout the country (Marchildon, 2013). However, each province (and often major cities) maintain their own unique strategies to deal with illicit drug use, which is displayed in their policy documents and strategy papers. As per the urban focus of this research, provincial and municipal policy documents were most desired and relevant for comparison. However, as the Canadian federal drug law and policy shape the direction and strategy for provincial policy, I deemed it necessary to include federal level policy documents for contextual accuracy (Marchildon, 2013). Provinces were selected for analysis based on relevant factors such as their burgeoning urban populations, increasingly severe drug abuse issues and their requests to the federal government for approval to implement harm reduction services within their province. These requests and approvals are publicly documented on the Health Canada Website (Health Canada, 2017). The provinces that were selected for analysis are Ontario, British Columbia, Alberta and Quebec. As seen in **Table 1**, these provinces have high rates of annual fatal drug overdoses and have requested permission from the federal government to implement harm reduction services such as supervised injection sites. The municipalities selected within these provinces were Toronto, Ottawa, Calgary, Edmonton, and Montreal. Aside from being the major urban hubs of the country, these municipalities have also made explicit efforts to incorporate harm reduction services within their boundaries (Health Canada, 2018). Although not necessarily representative of the country as a whole, an analysis of the major urban hubs and their guiding drug policy documents can be revealing for smaller municipalities throughout the country, and perhaps signify a shift in national attitude toward drug policy and urban health.

Table 1: Population and fatal overdose by province

Province	Population size (2017)	Number of fatal overdose (2017)	Federal request for harm reduction services?	Services currently available?
British Columbia	4,290, 988	1,470	Yes	Yes
Ontario	12,764,195	1,263	Yes	Yes
Quebec	7,692,736	759	Yes	Yes
Alberta	3,514,031	181	Yes	Yes
Nova Scotia	935,071	65	No	No
Saskatchewan	1,002,048	46	Yes	No
New Brunswick	745,407	37	No	No

Sources: Health Canada, 2018; Special Advisory Committee on the Epidemic of Opioid Overdoses, 2018; Statistics Canada, 2018)

Boolean searches were conducted using an internet search engine (Google) and a variety of keyword search terms. This process identified publicly available harm reduction policy documents (HRPDs) in each province, as well as several documents on the federal level. To fortify these findings and to identify any missing (and potentially crucial) documents, I reviewed the Canadian Harm Reduction Policy Project (CHARPP) database, where I identified useful follow-up documents and updates (CRISM, 2017). The initial search identified 145 documents, which I then screened for relevance. Building from the inclusion criteria used by Hyksha et al. (2017) for the development of the CHARPP database, I defined relevant policy documents as harm reduction policy texts that were (1) issued by and representing a municipal, provincial or federal government or (2) issued by a municipal, provincial or federal health authority; (3)

mandated future action; (4) “addressed harm reduction services and interventions addressed harm reduction services and interventions, defined as one or more of the following: syringe distribution, naloxone, supervised injection/consumption, safer inhalation kits, low-threshold opioid agonist (i.e., methadone) treatment, buprenorphine/naloxone (Suboxone), and drug checking services; or (5) was produced as either a stand-alone harm reduction policy or as part of a strategy document guiding services for substance use, addiction, mental health, and/or prevention of blood-borne or sexually transmitted infections”(Hyksha et al. 2017, p.4). A total of 51 provincial and municipal documents were left over following the initial scan, as well as four federal documents.

The second scan for relevance required a more detailed review of the documents and was refined using more stringent inclusion and exclusion criteria. As per the focus on policy frameworks and not necessarily public health practice or law, legal documents and recommendations for best practice were excluded from this study. Furthermore, documents focused exclusively on one aspect of harm reduction or issue area were excluded. These exclusions were motivated by a desire for precise focus, as well as a lack of personal legal expertise on the side of the researcher, making me seemingly unqualified to assess legal documents. However, this reduction process left the project with limitations, which I address in section 5.2.2.

This research project is aimed to understand how HRPDs contribute to sustainability objectives, making broad HRPDs most relevant for analysis, rather than their more specific or applied policy counterparts. In addition, documents from Quebec were removed from the study due to issues with analysis. The majority of the Quebec documents identified were written in French and lacked official English translations. In order to avoid a misinterpretation of the data, I

elected to exclude Quebec as a focus province. Finally, for ease of review, I categorized documents into "historical" or "current." Based largely on the categorization used by Hyksha et al. (2018), documents were considered current if they: 1) were published in 2018 or later; 2) the most recent version that has not been replaced by newer documents or; 3) had no stated end date. Historical documents were not included in the final analysis. In sum, I identified 17 documents as relevant for analysis: British Columbia (n=5), Alberta (n=5), Ontario (n=6). A federal document, a public consultation document, was also included within the analysis. Although it is not a policy document, it was included due to the lack of federal level harm reduction policy, while still meeting much of the selection criteria outlined above. The document selection process is illustrated in **Figure 2**.

Following the screening process described above, I was left with seven policy documents for analysis. These documents were comprised of Ontario (n=6), British Columbia (n=5), Alberta (n=5) and the federal government (n=1). The documents were published within a range of 2004 to 2018, and had a mean length of 30 pages, with the longest being the *Toronto Drug Strategy* (n=108) and the shortest being *The Four Pillars Strategy* (n=6) from Vancouver. Table 2 provides the full list of documents, as well as their publication date, author and page count.

Figure 2: HRPD selection process

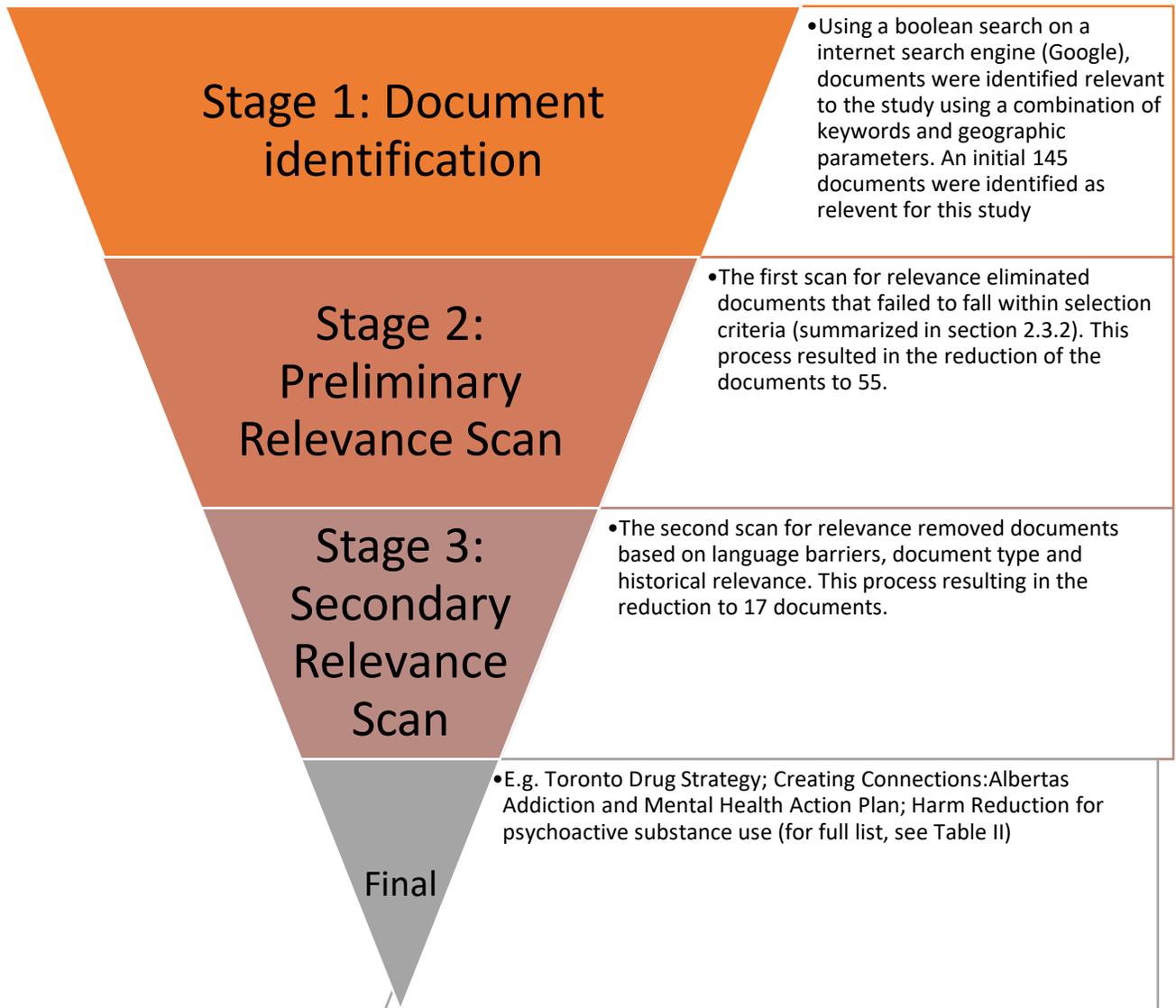


Table 2: Full list of HRPD

Province	Title	Author	Level	Pages	Publication Date
ON	Substance use prevention and harm reduction guide 2018	Ministry of Health and Long-term care	Provincial	27	2018
ON	Toronto Drug Strategy (TDS)	Toronto Public Health	Municipal	108	2005
ON	TDS: Status Report	Toronto Drug Strategy Implementation Panel	Municipal	39	2016
ON	Open Minds, Healthy Minds: Ontario's Comprehensive Mental Health and Addiction Strategy	Government of Ontario	Provincial	26	2011
ON	Ottawa Integrated Drug Strategy	Health, recreation and social services committee	Municipal	11	2006
ON	Report for Action: A Public health approach to drugs	Toronto-Medical Officer of Health/Board of Health	Municipal	10	2018
AB	Ministers Opioid Commission Recommendations	Opioid Emergency Response Commission	Provincial	10	2018
AB	Supervised Consumption: A Report for Calgarians	Calgary Coalition of Supervised Consumption	Municipal	15	2018
AB	Creating Connections: Alberta's Addiction and Mental Health Strategy	Alberta Health and Wellness; Alberta Health Services	Provincial	56	2011
AB	Creating Connections: Alberta's Addiction and Mental Health Action Plan	Alberta Health and Wellness; Alberta Health Services	Provincial	40	2011
BC	BC Harm Reduction Strategies and Services Policy and Guidelines	Harm reduction Strategies and Services Committee	Provincial	24	2014
BC	Harm Reduction: A BC Community Guide	BC Ministry of Health	Provincial	30	2005
BC	The Four Pillars Drug Strategy	City of Vancouver	Municipal	6	2019
BC	Every Door is the Right Door: A BC Planning Framework to Address Problematic Substance Use and Addiction	Ministry of Health	Provincial	95	2004
BC	Healthy Minds, Healthy People: A Ten-Year plan to Address Mental Health and Substance Use in British Columbia	Ministry of Health	Provincial	40	2010
AB	Harm Reduction for Psychoactive Substance use	Alberta Health Services	Provincial	12	2013
FED	Public Consultation on Strengthening Canada's approach to Substance Abuse Issues	Health Canada	Federal	35	2018

2.3.3 HRPD Analysis

To help guide deductive document coding and allow for comparison between HRPDs, I developed a comprehensive sustainability assessment tool. The application of sustainability-based evaluation criteria, which are meant to further our understanding of the world we live in, to

pursue lasting wellbeing, creates many opportunities (Gibson, 2017). By developing an understanding of the contributions to sustainability a particular action or activity will have, and weighing this action against alternative approaches, decision-makers become better equipped to make informed and considerate decisions to best achieve their desired outcomes.

To develop a practical sustainability assessment methodology adapted to harm reduction policy documents (HRPD), I developed a checklist intended to assess a wide range of sustainability concerns throughout each document. This checklist is comprehensive and is used to examine not only the content of the harm reduction policies but also the preparation, proposed policy measures and planned/ implemented activities involved in the policy (such as supervised injection sites or needle exchange programs). As seen in the context of poverty reduction papers by Huge and Hens (2009), I applied this checklist to the 17 HRPDs and explored how the results of the checklist could be used to improve future policy.

The checklist was developed based on a variety of multi-disciplinary literature, identified through the literature review. Using the eight core sustainability assessment criteria categories set out by Gibson (2005) as a structural guide, I was able to create a 48-question list that addressed a broad range of sustainability concerns (**Appendix A**). While the original generic criteria from Gibson (2005) comprised of eight categories, I elected to eliminate two of the categories (resource maintenance and efficiency and inter-generational equity) and instead represent considerations related to these categories through the questions provided within the other categories. For example, questions related to intergenerational equity are contained within category 4 and 6 (e.g. Q# 4.1; 6.2; 6.3; 6.4; 6.5). In addition to Gibson's (2005) sustainability assessment criteria, I included criteria from Canadian Harm Reduction Policy Project (CHARPP) to help design and guide the checklist questions (See Hyshka et al., 2017, p. 5). The use of the

CHARRP assessment criteria helped me to incorporate policy features that are essential within the Canadian context. Furthermore, an analysis of the sustainable development goals and targets was conducted to help shape relevant questions to drug policy. Representing a guiding principle to many within the sustainable development community, the Sustainable Development Goals provide a helpful suite of key sustainability considerations for engaging with the complex issues of sustainable development.

To produce the questions, I went through multiple iterations of quality testing to ensure relevance and avoid significant overlaps between the questions. What began as eight categories with 12-15 questions per category was eventually shaped into the six categories with 48 total questions. In order to create an assessment tool relevant to HRPDs, I sought to specify the generic assessment criteria set out by Gibson for the case and context of Canadian HRPDs. To do so, I included criteria from the Canadian Harm Reduction Policy Project (CHARPP) to help design and inform the checklist questions (See Hyshka et al., 2017, p. 5). The use of the CHARRP assessment criteria helped me to incorporate policy features that are essential within the Canadian health policy context, and relevant to questions of harm reduction and health policy assessment. Furthermore, an analysis of the sustainable development goals and targets was conducted to help shape relevant questions to drug policy. Representing a widely agreed upon set of goals and indicators within the sustainable development community, the SDGs provide a helpful framework for engaging with the complex issues of sustainable development. As such, I reviewed each of the goals and targets and highlighted the potentially relevant issues to drug policy. These SDGs (found in **Appendix B**) informed many of the questions. In combination with the CHARRP framework, the SDGs helped me to create an initial list of questions (n=102)

that I felt were relevant to both the context of harm reduction and to the objectives and targets of the SDGs.

Finally, I identified some common variables of the social and environmental determinants of health identified within the literature to help guide question development. Dating back as far as the “Lalonde Report” (1974) written by the Canadian Department of Health, the country has produced and maintained a long tradition of policy documents addressing these issues (Bryant et al, 2011). In recent times, there have been a variety of interpretations of the social determinants of health (see, for example Bryant et al, 2011 p.3), but for the sake of this project I elected to use the determinants as defined by Health Canada. The variables provided by Health Canada (1998) are as follows: income and social status; social support networks; education; employment and working conditions; physical and social environments; healthy child development; health services; gender; and culture. These determinants were incorporated into questions for the assessment tool, in order to capture the important variables in regard to drug policy.

Upon creating the initial list of questions, I evaluated each question, with the goal of either aggregating or eliminating questions that were either 1) overly simplistic; 2) overly complicated (and thus difficult to answer through the coding process) or 3) overlapping significantly with other questions. In some cases, where questions were overly complicated, they were revised for clarity, helping to avoid inattention to key sustainability considerations. Combining or eliminating overlapping questions was particularly helpful for reducing the number of questions contained within the assessment tool, a process that was necessary in order to feasibly code each question for each document. As it was, coding for over 40 themes in each document was a painstaking process, and the aggregation of similar questions made the process both more thorough and replicable. Finally, once I had reduced questions to (n=70) by using the

above three criteria, I attempted to apply the questions to three HRPDs (documents 1, 7 and 10). In doing so, I was able to further understand the language used by policy makers within this field and revise my questions accordingly, as well as eliminate questions that seemed redundant or irrelevant. This process led me to the final 48 questions, which I felt were relatively evenly weighted in significance while still covering all the relevant sustainability considerations. I explicitly attempted to ensure that each of the 48 questions was roughly equivalent in terms of importance to contributing to sustainability in order that the scores could be tallied and remain comparable.

As shown by the question list (**Appendix A**), the process of elimination left an uneven number of questions per category, ranging from six to ten questions per category. This imbalance is significant in that it makes the analysis of cross-category comparisons more difficult. In order to account for this, I calculated the category scores so that they would be proportional to the number of questions in each category, as will be seen in section 5.4. To that end, when considering the results of the analysis, the question imbalance was taken into account as to not skew the inferences drawn.

Using this assessment tool, the content of the HRPDs was analyzed using a deductive coding framework based on the 48 questions contained within the checklist. Through multiple rounds of coding, I was able to break down data into meaningful clusters and thus improve my ability to address my research questions (Cope, 2010; Saldana 2013). Using Nvivo as an analytic tool, I first conducted various text queries to highlight potentially important keywords throughout the selected documents. The keyword search was an iterative process, with additional words being searched and identified throughout the analysis period. Following the keyword search, I conducted a more thorough analysis of each document, using the 48 questions from the

assessment as a coding framework. Both the keyword search and the coding helped to identify relevant segments of text for the final review, the “scoring” stage. Following the coding of each document, each checklist question was then answered on a 0-2 scale with the total document score being the total points allocated. In this regard, 0 stood for ‘no mention of the issue’; 1, ‘the issue is mentioned but not elaborated’; 2, ‘the issue is elaborated.’ This scoring system was adapted from the checklist system used by Huge and Hens (2009). Upon completion, the section and total scores were tallied and presented in the form of a document score summary table (**Table 3**). The use of this scoring method makes the data accessible to present in identifiable figures. However, this evaluation criteria fails to assess the extent of commitment to addressing these issues, setting the scoring criteria at a fairly low hurdle for engagement. This is reflected in the subsequent chapters, and as a result is able to only identify whether or not a particular issue is addressed or discussed, and not the extent to which it is committed or the quality of its elaboration.

Table 3: Document total score (out of a possible 96)

Province	Document Title	Score
ON	Substance use prevention and harm reduction guide 2018	33
ON	Toronto Drug Strategy (TDS)	64
ON	TDS: Status Report	30
ON	Open Minds, Healthy Minds: Ontario's Comprehensive Mental Health and Addiction Strategy	45
ON	Ottawa Integrated Drug Strategy	31
ON	Report for Action: A Public health approach to drugs	29
AB	Ministers Opioid Commission Recommendations	23
AB	Supervised Consumption: A Report for Calgarians	17
AB	Creating Connections: Alberta's Addiction and Mental Health Strategy	46
AB	Harm Reduction for Psychoactive Substance Abuse	33
AB	Creating Connections: Alberta's Addiction and Mental Health Action Plan	39
BC	BC Harm Reduction Strategies and Services Policy and Guidelines	30
BC	Harm Reduction: A BC Community Guide	51
BC	The Four Pillars Drug Strategy	23
BC	Every Door is the Right Door: A BC Planning Framework to Address Problematic Substance Use and Addiction	53
BC	Healthy Minds, Healthy People: A Ten-Year plan to Address Mental Health and Substance Use in British Columbia	61
BC	Public Consultation on Strengthening Canada's approach to Substance Abuse Issues	48

3 Our common principles: An exploration of the principles and historical underpinnings of harm reduction and sustainable development

Abstract

For all its merits, the sustainability discourse is not without its flaws. As a globally recognizable concept aimed at improving and preserving an array of social, ecological and economic dimensions, the concept has not been used to engage with some critical global issues. One such issue is the abuse of recreational drugs, a global concern that has deep social, economic and ecological consequences. These consequences have been accelerated, or in some cases created, by traditional prohibition-based approaches to drug policies, yet the sustainability discourse largely fails to engage with the subject. However, a more recent policy approach may provide a viable opportunity for sustainability scholars to engage with and address these issues: the harm reduction approach. By conducting an integrative literature review of the sustainable development and harm reduction literatures, this paper highlights the significant overlaps that exist in the historical and ethical foundations of the two concepts. The most notable overlaps identified are a common interest in promoting and preserving social justice, public wellbeing and quality of life, and social inclusivity. With these fundamental principles linking the two domains, opportunities for future research and policy cooperation, as well as theories that could be used as bridging concepts between the two fields, are identified.

3.1 Introduction

In an increasingly complex world, innovative and interdisciplinary solutions are required for our most pressing challenges, such as environmental degradation, poverty, and global injustices. The pursuit of sustainable development offers one such response to these global challenges – offering a politically agreeable and conceptually holistic solution to a wide array of global concerns. The Sustainable Development Goals set out by the United Nations cover 17 focus areas, ranging from water quality to public health. How are we to ensure that in our pursuit of a sustainable society, we do not ignore communities most in need? Sustainable development research has been historically inclined to neglect its holistic commitments, leading to an increased focus on economic and environmental impacts at the expense of social dimensions, such as health, leaving these areas insufficiently addressed (Scheirer & Dearing, 2011). By failing to acknowledge sufficiently the role of health in sustainable development, large social concerns are ignored, and progress toward sustainable development delayed. While the SDGs make progress in this regard, there is still much to be done in terms of the variety of health issues being addressed.

The Sustainable Development Goals (SDGs) set out by the United Nations in 2015 comprise 17 goals aimed at improving global wellbeing. Topics ranging from the preservation of aquatic and terrestrial resources (goals 14 and 15) to poverty reduction and gender equality (goals 1 and 5) are set out in hopes of achieving development that accommodates a wide scope of global needs, economic, environmental and social alike. Though well-meaning, the SDGs and the literature that surrounds them are not without flaws. For example, the failure of sustainable development literature to sufficiently address social dimensions of sustainability (e.g., Scheirer & Dearing, 2011) and differences in opinion on the extent to which sustainability should be

pursued (e.g. Ayres et al., 2001) all plague the sustainability discourse. While these issues are being steadily addressed, there is still much to uncover and explore. The subject of this paper focuses on one such apparent gap, the failure to address one particular issue, and presents an opportunity for addressing it.

Despite an explicit emphasis on health within the SDGs, the relationship between sustainability and drug use, an increasingly severe concern on the global level, is underdeveloped. These concerns span ecological, social and economic dimensions. In regards to the social dimensions, the UN World Drug Report (2018) highlights the significance of this concern: Globally in 2016, over 250 million people used illicit drugs, with over 11 million people using injection as their route of administration. In the same year, a reported 450,000 deaths were attributed to drug use, with causes ranging from disease to overdose. The fatalities are rising , with overdose deaths rising to record numbers in several countries, including the United States, Canada, Germany, Sweden, the Netherlands, Spain, Lithuania and the United Kingdom (UNODC, 2018). In turn, the dire consequences of these fatalities ripple across communities, influencing not only drug users themselves, but also the families and communities of which they are a part of (Csete et al., 2016).

Regarding ecological impacts, record high levels of illicit drug cultivation have been shown to place undue pressure on (and eventual damage to) otherwise viable ecosystems (McSweeney et al, 2014; UNODC, 2018). Furthermore, Rolles et al. (2012) suggest that drug cultivation in global south countries frequently prevents the use of essential farming areas for traditional agricultural uses, further threatening the stability of already vulnerable communities. An example of this is the complex relationship with drug crops in the Middle East, where economic and ecological prosperity is heavily influenced by opium production, which (despite

considerable efforts by the United States) has increased since 2001 (HPA, 2015; Meija and Csete., 2016). These issues related to drug production seem to be increasing in severity, with global drug production jumping 65% between 2015 and 2017 (UNODC, 2018). Finally, although the total economic cost of the “war on drugs” is likely incalculable, some recent figures do well to demonstrate its significance. For example, in the United States alone, over 78.5 billion USD were spent on drug enforcement, healthcare and other associated costs in 2018 (NIDA, 2019). Similarly, and despite their lower per capita drug-related incarceration rates, the EU member states have been estimated to spend 7.8 billion USD annually on drug war costs (Meija and Csete, 2016). These costs fail to capture the true extent of the costs of the drug war. For example, the finances of the illicit drug market, valued conservatively at 330 billion USD annually, are controlled mainly by criminal enterprises and used for corruption of state and local governments (Meija & Csete, 2016). These impacts, no matter the sector, are significant and undermine efforts towards a sustainable society. As will be demonstrated in this paper, understanding the relationship between sustainable development and drug policy may prove to be essential in making progress toward the Sustainable Development Goals.

A growing approach to drug policy called harm reduction may be a viable step towards addressing the current global drug issue. The harm reduction approach seeks to challenge the norms of contemporary global drug policy, creating an environment that reduces the harm associated with drug use and improves the lives of users and their communities. For sustainable development, understanding the role of public health policy in promoting or hindering the creation of sustainable communities is vital. One of the explicit pledges of the Sustainable Development Goals is that “no one will be left behind” (HPA, 2015; United Nations, 2015). To achieve this objective of inclusivity, drug users and the policies that influence them must be

considered. Thus, policy coherence between sustainable development and drug policy is essential. Drug users have historically been vilified by the rest of society, stigmatized as second-class citizens and criminals (Ahern, Stuber &, 2007). The harm reduction approach seeks to change these perceptions, bringing drug users back into the fold of community and helping to reduce the physical, mental and societal harms that are incurred through the use of drugs (HRI, 2019). As they stand, traditional models of drug policy conflict with the ideologies of sustainable development, with harm reduction serving as a much-needed alternative.

This conceptual paper is intended to identify and clarify the commonalities that exist between the concepts of harm reduction and sustainable development through an analysis of their respective histories and scholarly underpinnings. This paper asks:

- 1) What overlaps exist between the foundational philosophies of sustainable development and harm-reduction?
 - a. How can these overlaps be explored to create co-beneficial efforts to achieve sustainable development and harm reduction goals?
 - b. What theories or concepts could serve as bridges to enable knowledge transfer between the two fields?

In addressing these questions, this paper will illustrate the significance of these overlaps and discuss future opportunities for co-beneficial research and practice that would be able to simultaneously make progress toward sustainability and harm reduction objectives. That will provide a basis for conceptualizing the importance of this relationship for making progress toward the Sustainable Development Goals, toward addressing the global drug crisis, and toward the creation of a coherent and integrated policy approach for sustainable development. Finally,

based on the common themes that arose, this paper proposes some concepts that that could be useful in future research as bridging tools.

3.2 Methods

An integrative literature review was employed, reviewing both the field of sustainable development and harm reduction. An integrative review seeks to "review, critique and synthesize representative literature on a topic in such a way that new frameworks and perspectives on the topic are generated (Larabee, 2009). In the case of this particular review, the literature review focused on three themes: historical context, philosophical underpinnings and practical objectives that exist within each movement. It also identifies their relationships. This methodology required making inductions, deriving concepts from literature and constructing hypotheses intended to understand the relationships between concepts (Jabareen, 2008; Patton, 2002 p.454).

When conducting a literature review (or qualitative research more generally), it is crucial to identify potential areas of bias that could influence the researcher's findings. Forms of bias common to literature reviews include selection bias (the failure to include a representative sample of the information available, or 'cherry picking'), information bias (the failure to ensure the quality of the data used) and confounding bias (the distortion of the measure of association between two variables) (Almeida and Goulart, 2017). To mitigate bias, I identify the criteria for inclusion and exclusion of documents (Table 5) as well as keyword selection, project boundaries, and scope of the project (Almeida and Goulart, 2017; Winchester & Salji, 2016) (Table 4).

In order to increase the rigour of the review process, I utilized a combination of the four-stage process set out by Jabareen (2009) and the five-stage integrative review process identified by Whitemore and Knafl (2005). The Jabareen process consisted of: (1) review the existing

literature in harm reduction and sustainable development; (2) recognize common patterns within both fields; (3) synthesize categories of similar meanings and themes; and (4) conceptualize a theoretical framework that draws connections between harm reduction and sustainable development based on shared principles. However, I felt the need to increase the rigour of this process, thus including dimensions of the integrative review process set out by Whittemore and Knafl (2005). This process, illustrated in **Figure 1**, includes problem identification, literature search, data evaluation, data analysis and presentation. This method was designed specifically to address the potential challenges that can arise when conducting a mixed method review. In combining the essential elements of the two review processes, I was able to create a more rigorous and systematic end result.

This process allowed me to identify the different principles of sustainable development and harm reduction, and further extrapolate the common themes and foundations between them. The benefit of an integrative literature review, in this case, is its ability to identify the existing theories in each field, as well as the relationships between them (Labaree, 2009). A review of the literature can also help the researcher identify areas where theoretical grounding is limited, or areas where further contributions would be beneficial (Cooper, 1988). However, like most inquiries, the review was an iterative process, with additional key terms arising during various stages of the review. For example, after the first round of review, it became evident that a deeper exploration of the social sustainability literature would be of use, thus necessitating the reapplication of the five stages with different search criteria. The project scope and keywords, as well as the inclusion and exclusion criteria for this review, are presented in **Table 4** and **Table 5**.

Table 4: Literature objectives and scope

Objectives & Scope	Sources	Keyword Selection
The objective of the review is to identify examples of common values based on three broad categories: Justice, wellbeing and social inclusivity. The review spans a diverse literature including sustainable development and harm reduction as well as occasionally their peripheral literature, such as health geography, environmental governance, public health and sociology	To conduct the review, search terms were entered into Google Scholar, JSTOR and SCOPUS	Harm reduction <i>or</i> sustainable development; health; community; justice; wellbeing; history; ethics; values; urban; drug use; drug abuse; determinants

Table 5: Literature inclusion and exclusion criteria

No.	Inclusion Criteria	Reason for inclusion
1	Review and historical studies	The inclusion of these studies gives perspective to larger conceptual dynamics as is required to understand the values and themes of each movement.
2	Studies ranging from 1975-2019	The review is meant to be comprehensive, but historically relevant
3	Articles focusing on the US, Canada, Mexico.	The literature review is focused on the North American context.
4	Studies focused on sustainability and health; studies focused on sustainability and cohesion; studies focused on sustainability and justice	Focus of review
4	Studies focused on harm reduction and values; studies focused on harm reduction and health; studies focused on harm reduction and values	Focus of review
No.	Exclusion criteria	Reason for exclusion
1	Articles are written in a language other than English	To avoid translation misunderstandings
2	Articles that contain the search terms, but are otherwise unrelated	To eliminate articles unrelated to study
3	Articles discussing service methods	To avoid overly technical documents

3.3 Key findings: Principles, priorities and histories

Q1: What overlaps exist between sustainable development and harm-reduction?

Upon completing the literature review of harm reduction and sustainable development I derived some important commonalities that merit observation. This section will examine these findings concerning the research questions. The literature enabled me to answer the first research question, and in doing so, identify two significant areas of overlap: historical context and guiding principles.

3.3.1 Historical context: Responding to the failures of the status quo through social movements

The historical similarities that exist between the two concepts are based mainly on the social and historic contexts in which they arose. Gaining significant traction in the late 20th century, both of these concepts arose in response to failures of contemporary policy to address dire social concerns, driven predominantly by the momentum created by their respective social movements. While the human predilection for environmental and resource preservation has a lengthy history (see for example Du Pisani, 2006), the term sustainable development did not gain popularity until the latter fifth of the 20th century. Similarly, although harm reduction was introduced in the early 1900s, the concept failed to gain popularity until the latter fifth of the 20th century (Hilton et al., 2001) due to a mix of barriers, such as religious and cultural beliefs, a lack of public knowledge about drug policy, and a prevailing sense of idealism within government, policymakers and the public that led to unrealistic expectations for what was possible when addressing substance abuse issues (Riley & O'Hare, 2001). Thus, while the motivations for the creation of the concepts differed, they were created in an environment where their supporters

saw an urgent need for change. Both were pragmatic responses to a growing awareness among the public of the problems of their times, combined with a general failure of government organizations to react sufficiently (Sneddon, Howarth, & Norgaard, 2006; Hine, 2004; Hilton et al., 2001).

i. Sustainable development and the environmental movement

Sustainable development, essentially an outgrowth of the broader environmental movement and anti-poverty movements of the mid 1900's, was first introduced as a response to the rapid environmental degradation, poverty and global injustices that were being proliferated via rapid industrialization and growth following the second world war (Du Pisani, 2006). As stated by Du Pisani (2006), people were then becoming "aware of the threats which population growth, pollution, and resource depletion posed to the environment and their survival as humans." This concern for the environment among the public had been building for much of the 20th century. In North America, the early 1900's saw environmental advocates becoming increasingly vocal in their demands for more conscious interaction with ecological systems. These demands came from different perspectives, with some more interested in preserving natural resources for their economic value (see for example Pinchot, 1908) and others seeking to protect nature for its own sake, as a natural, spiritual and cultural icon (see Muir, 1901).³ Despite the differing motivations, this interest in preserving the environment gained traction over time, culminating perhaps most significantly in the 1960s, which could be seen as the birthplace of the environmental movement we know today. The reason for the rapid growth of the movement during this period is multi-faceted. Historian Adam Rome (2003) suggests that there were three

³ This debate is reminiscent of contemporary debates around "worldview" of environmental activism. In contemporary terms, Gifford Pinchot's view of environmental conservation would likely be considered anthropocentric (or "human centered") while John Muir's views would be likely be considered bio-centric.

primary factors that sparked the movement: 1) the unprecedented levels of affluence following the second world war that challenged the common rhetoric of ‘progress requires pollution’, 2) the creation of new and more severe environmental hazards (such as nuclear energy and chemical pesticide use) and 3) the popularization of ecological ideas among the general public through conservation groups (e.g., the Sierra Club) and environmental publications (most famously, Rachel Carson’s condemnation of the chemical pesticide DDT in *Silent Spring* in 1962.) This growing public concern for the environment, as well as the growing environmental degradation in developed countries worldwide, led to the eventual creation of the first global environmental conference (International Environmental Conference in Stockholm) in 1972, kick-starting the environmental movement on a global level. Today, hundreds of thousands of organizations seek to address various aspects of environmental, social and economic sustainability, tackling issues such as “social and environmental justice, corporate responsibility, restoration of ecosystems, and government reform” (Assadourian, 2010.) Though the environmental movement has now taken many forms, its roots began with the public.

Building from this concern for the environment, sustainable development stemmed from the public concern for the environment being matched with a growing awareness of the failures of traditional growth models, following the global economic recession and oil crisis in the mid-1970s. This recession led many people to reflect on the concept of growth, inspiring widespread consideration of potential alternative approaches (Du Pisani, 2006). For the first time since the transition to an industrial society in the mid 19th century, the idea of uncontrolled technological and economic growth was challenged on a broad scale, which in part led to the proliferation of the concept of sustainability among policy makers, government officials and the public. Likewise, pervasive issues of global poverty motivated the origination of the sustainable

development concept. Despite decades of growth and development assistance, little progress had been made in relation to global poverty, therefore necessitating a more comprehensive approach. First introduced as a significant political concept by the World Commission on Environment and Development (WCED) in 1987, its supporters saw sustainable development as a necessary alternative to the traditional growth models of development for purposes of preserving the environment and successfully reducing global poverty. While prior development philosophies focused on unbridled growth and success (Du Pisani, 2006), sustainable development sought to create an alternative that "meets the needs of the present without compromising the ability for future generations to meet their own needs" (Brundtland et al., 1987).

ii. Harm reduction: in pursuit of good health

The motivations and catalysts leading to the rise in popularity of sustainable development mirrors the circumstances of the beginnings of the harm reduction movement. Just as sustainable development arose as a response to the failures of traditional development, the persistence of many of the 'harms' that harm reduction initially sought to address are the result of the failures of traditional approaches to drug policy, commonly referred to as the "prohibition" model of drug policy. The prohibition approach to drug policy is fairly simple in theory. It "relies heavily on criminal law to control drug supply and to punish offenders," forbidding the use, sale, and production of particular drugs (Erickson, 1992: p.239). As a concept, the prohibition approach to drug policy began to gain popularity in the early 1900s, serving as a way to address the rising use of opium and its derivatives that were becoming increasingly damaging in western societies following the opium wars of the late 19th century (Wodak, 2007). Over time, the policies and methods of enforcement of prohibition intensified on a global scale; by mid-century, dozens of countries employed a "war on drugs" policy approach modeled after the United States (Wodak,

2007). This approach has been shown by the literature to incur high socioeconomic costs (Erickson, 1992), and is ineffective in addressing drug use on a global scale. These failures are demonstrated succinctly by contemporary reports by the UN Drug Commission on annual drug use, which show a steady increase of drug use and its harmful effects (such as overdose deaths and epidemics of HIV and Hepatitis C) across the globe (UNOCD, 2018; Wodak, 2007). This failure of prohibition to address the harms associated with drug use, and the recognition of this failure by the concerned public, was a driving force behind the evolution of harm reduction as a policy approach.

While prohibition has undoubtedly been ineffective at addressing the increase of illicit drug use, there are other factors that contribute to this phenomenon. In the North American context, it has been suggested that the influx of cheap opiates from South America paired with the expansion of the prescription opioid market helped contribute to the number of drug users and abusers throughout the continent (Lisa, 2018; Vasilev, 2016). These drivers, paired with the various socio-ecological determinants of drug use such as physical and social environment, life experiences and trauma, all contribute to the rise in opioid use throughout the continent. As a result, a multi-faceted response is required, of which harm reduction is likely a component.

Although there are reports of practices similar to harm reduction dating back to the early 20th century, it did not gain popularity on the world stage until the 1980s with the AIDS/HIV crisis (James, 2007; Hine, 2004; Stoker, 2010). Injection drug users are particularly at risk for the spread of HIV/AIDS, and as such, the proliferation of the disease during the 1980s led to a rapid increase in mortality among injection drug users (WHO, 2014; James, 2007). This spike in disease transmission and death necessitated a more effective strategy to mitigate these harms

than what was currently employed. The harm reduction approach served as a strategy to reduce the proliferation of HIV/AIDS throughout the injection drug user community through the creation of health services such as needle exchange programs (James, 2007; Stoker, 2010). Over time, the concept began to encompass a broader scope of issues surrounding drug use, such as fatal overdose, violence and crime. During this time, stakeholders, including policy makers, public health workers and the concerned public, were becoming increasingly aware of the pitfalls of the traditional prohibition-approach to drug policy and recognized a need for policy and approach reform (Wodak, 2007). Researchers of the time confirmed the failure of conventional approaches to curtail drug use, as well as the resulting negative social impacts that were often worse than the effects of the drugs themselves (Riley and O'Hare, 1999; Hine, 2004; Stoker, 2010). In the North American context, issues including “violent crime, gang warfare, prison overcrowding and police corruption” that stemmed from prohibition drove the public to demand viable alternatives (Riley, 1999: p.3). However, a slow response by government officials and policy makers to address these issues forced the concerned public to take action on their own, such as the creation of informal needle exchange programs, user support and information groups, and injection sites established by private users and NGOs in countries including the United States, the Netherlands, Argentina, and Canada (Friedman, 2007; James, 2007). While these programs have now been mostly replaced by government sanctioned services for drug users in these countries, these informal groups were essential for setting the precedent for what is needed within the drug user community, making the user themselves the key agents of change. As stated by Friedman (2007: p. 2), “Agencies like syringe exchanges can provide risk-reduction supplies, information and counselling, but users themselves – individually and in groups – take the decisive actions.” Today, the public voice is still essential to the harm reduction movement.

While its philosophies have begun to be adopted in a multitude of countries, NGOs and user groups still help to establish legitimacy, scholarship and to fill the service gaps not yet addressed.

In summary, although they seek to address starkly different issues, the historical similarities between sustainable development and harm reduction merit acknowledgment. Foremost, sustainable development and harm reduction grew from a dire need for change from the status quo, essentially becoming responses to the evident failures of contemporary policy and practice in development and drug policy. In conjunction with this, both concepts arose from the bottom up, gaining traction first among grassroots groups and eventually progressing to the government and policy levels. These similarities lay the beginnings of a common foundation for the two concepts, born of pragmatism and a concern for societal wellbeing.

3.3.2 Priorities and principles:

Aside from a similarity in historical context, the literature review also revealed various shared principles and priorities that exist between harm reduction and sustainable development. In particular, both concepts place heavy emphasis on the preservation and proliferation of social justice, community wellbeing and social cohesion.

i. Social justice and human rights

Social justice is a diverse and complicated subject, one that (like sustainability) has been appropriated and redefined by a plethora of scholars and disciplines for their own purposes and applications (see for example Boyles et al., 2009). Normally relegated to discussions within the “social” realm of sustainability, justice is seen as crucial and has been suggested as both a potential bridge between environmental and social sustainability concerns (Boone, 2010; Ferris et al., 2001) and a policy principle that requires public actions to be equitable to all groups

(Agyeman & Evans, 2004). The distribution of equitable, positive outcomes for current and future generations can be pursued in a variety of ways, such as the establishment of democratic governance architectures (Earth System Governance Project, 2018), thus empowering individuals as “active participants” in shaping their own development outcomes (Gibson, 2005). In this capacity, the sustainable development goals set out by the United Nations may prove important, providing a foundation for justice-oriented development that considers varied needs and concerns of vulnerable populations (Hector et al., 2014).

Although the principles of sustainable development have been thoroughly debated, the general ethic derived from the Brundtland report is that "sustainability is synonymous with human dignity [maintained in perpetuity]", a sentiment which is reflected by the comprehensive and socially inclined nature of the SDGs (Hoven, 2016; van Egmond & de Vries, 2011). Sustainable development is, and always has been, rooted in conceptions of justice “in the domain of human – nature relationships and view of the long-term and inherently uncertain future.” (Janez, 2012: P.5). Furthermore, nearly all conceptualizations of social sustainability emphasize the role of social justice, considering it a fundamental feature of a sustainable society (Agyeman & Evans, 2004; Barry, 1997; Cuthill, 2010; Dempsey et al., 2011). Goal 5, 10 and 16 of the SDGs concern themselves with issues of justice, focusing on the needs of the underprivileged and ensuring the equitability of the goals as a whole (Rosa, 2016). According to Salamat (2016: p.4), there is a "growing and shared understanding that environmental degradation violates human rights," thus requiring further engagement with the poverty elimination and social justice discourses that initially motivated the sustainable development discourse.

This concern for justice and human dignity is mirrored within the principles of harm-reduction. According to the Harm Reduction International home page, their fundamental

principles include "dignity and compassion" as well as "universality and human rights" (HRI, 2018). The philosophies and programs associated with the approach seem to be grounded in the concept that drug users deserve better treatment than they currently receive, and their wellbeing matters more than political rhetoric. Through an analysis of over 900 drug policy documents, Jurgen et al. (2010) identified dozens of human rights violations that are being perpetrated on a global scale, as a result of prohibitionist drug policies. The harm reduction approach presents a human rights focused alternative that aligns with the Sustainable Development Goals perception of individual rights, as well as the human rights frameworks presented by the UN (upon which the SDGs are predicated). Unlike previous approaches to drug policy, harm reduction considers the social consequences that result from such policies. The literature of harm reduction seeks to address other human rights and social justice violations as well. Prohibition-based policies have had harmful consequences, including being a venue for racial discrimination (Csete et al., 2016), mass incarceration (Drucker, 1999) and the denial of health services (Pauly, 2008). Harm reduction seeks to remediate these harms by focusing on the consequences of the policies themselves, and by addressing issues in a way that considers short and long-term effects of drug policy. Overall, both concepts seek the creation of a more just and inclusive society, based on human rights and eschewing harmful practices. Two specific overlapping areas of human rights concerns between the two concepts are social inclusivity and personal wellbeing.

ii. Social inclusivity and coherence

There is a considerable focus on inclusivity that is present throughout the harm reduction and sustainable development literature. The pursuit of inclusivity seems to speak to a larger goal that is inherent to sustainable development: social coherence. While there is no conclusive definition

of social coherence, the OECD (2011, p.53) definition considers a society to be cohesive if it "works towards the well-being of all its members, fights exclusion and marginalisation, creates a sense of belonging, promotes trust, and offers its members the opportunity of upward social mobility". Other possible definitions provided though the literature (and at different scales) include the definition agreed upon for use by the Social Cohesion Work Plan (1997), a program mandated by the Canadian government. Their definition is: "the ongoing process of developing a community of shared values, shared challenges and equal opportunity within Canada, based on a sense of trust, hope and reciprocity among all Canadians." Similar to the OECD definition, cohesion is viewed as a way to incorporate all members of a society with the overarching goal of creating positive outcomes for all.

If using the OECD definition, social coherence can be measured by analyzing the social capital, inclusivity, and mobility within a society (OECD, 2011). *Social capital* can be defined as the "benefits and resources produced through social resources and networks" (Jeanotte, 2003). The role of social capital in maintaining an equitable and cohesive society is significant; high levels of social capital in a society lead to "positive social, economic and democratic outcomes, which contribute to community wellbeing" (Cuthill, 2010: p.367). Without social cohesion, collective action toward change will not occur. Similarly, *social inclusivity* holds a variety of definitions, to the extent that it has been referred to as a "protean" concept (Clifton, Repper, Banks, & Remnant, 2013; Davey & Gordon, 2017); suggesting that it may be impossible to land on a commonly agreed upon meaning (See Allman, 2013 for historical use of the word). Despite this, inclusion can be measured through its inverse (e.g., social *exclusion* such as "poverty, inequality and social polarization"), making inclusion focused on socio-economic equality and social inclusion (OECD, 2011: p.53). Finally, put simply, *social mobility* refers to "the

movement of individuals, families and groups among stratified social positions” (Rytina, 2011). This refers mostly to the ability for members of the community to move upward (and downward) in their communities.

Within the Sustainable Development Goals, cohesion is an overarching goal and viewed as an important part of fostering sustainable communities (Dale & Onyx, 2010). Onyx (2010) refers to aspects of cohesion such as social capital as essential to sustainable development, due to ability to enable collective action. Improved social cohesion serves to improve the mental health of individuals, as well as improve community relationships, and can serve as a catalyst to bettering community employment opportunities and activities (Fone et al., 2014; Jeannotte, 2003). Improved cohesion also serves to reduce the cost of interaction between individuals in a community, which is essential for collective action on environmental and social issues (Rydin & Holman, 2004). As stated by Ostrom (1990) and Olson (1971), a primary barrier to large scale collective action is the costs that face individuals. To reduce these costs would enable more significant action, toward sustainability and beyond (Rydin & Holman, 2004). This is illustrated through the inclusion of such concerns within the Sustainable Development Goals and throughout the sustainable development discourse. Goals 5 and 10 (gender equality and reducing inequalities, respectively) both seek to foster inclusive societies (Rosa, 2017). Furthermore, issues of democratic governance and participatory methods arise consistently within sustainable development research, in efforts to pursue just practices when making decisions for development. This is particularly important when working in global south countries where there are significant histories of manipulation and exploitation. Creating an inclusive and non-discriminatory society is essential for the vision of global sustainability, as social capital and institutions are linked to environmental outcomes (Lehtonen, 2004).

The emphasis on inclusion and community cohesion is also prevalent throughout the harm reduction literature. In particular, this is discussed concerning stigmatization faced by drug users. For much of the past century, drug users have been seen in the public eye as “second class citizens,” with the traditional policy approaches of heavy enforcement and prohibition leading to stigmatization and social isolation of users (Csete et al., 2016). This has led to decades of repression and social control, with policy language focusing on fear and risk rather than care and rehabilitation (Paton, 2010; Souleymanov & Allman, 2016). The stigmatization and discrimination faced by drug users has been shown to have detrimental effects on mental and physical health (Ahern et al., 2007). One of the main goals of harm reduction is to reduce this stigma and help drug users to reintegrate with their communities in a meaningful way, regardless of their habits.

Together, the emphasis on social cohesion, made up of social mobility, capital and inclusivity, help to illustrate a clear vision for a united and cohesive society. Conversely, by ignoring the cohesion of a society during discussions of sustainable development, developers run the risk of creating social instability, risking the integrity of the very society they sought to improve (OECD, 2011).

iii. Wellbeing and quality of life

Another shared objective revealed through the literature review is the focus on improving individual, as well as collective, wellbeing. To define what constitutes the basic needs and wellbeing of an individual would be somewhat presumptuous, but this does not remove the possibility of identifying some common foundations for what most people need to live a good life. Throughout the literature, and in particular regard to sustainability, the maintenance of

public health and access to housing are foundational concepts in creating a community that meet the basic needs and satisfies the wellbeing of its occupants. While public health and wellbeing can hold a wide variety of meanings depending on the context, within the development community it is generally referring to the “quality of people’s experience of life” (OECD, 2013). This is often assessed via three dimensions, the relational, the material and the “dimension related to personal experiences” (OECD, 2013).

The sustainability literature places a heavy emphasis on promoting the welfare of individuals, with several of the Sustainable Development Goals directed at addressing the health of individuals on a global scale. For example, goals 3 and 16 aim to "ensure healthy lives and promote wellbeing for all ages" and "Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels", both speaking to the improvement of wellbeing for individuals and communities worldwide (Rosa, 2017). Unlike the preceding Millennium Development Goals, the Sustainable Development Goals include new target issues such as substance abuse and mental health and are generally better suited to address issues of health with issues of sustainable development (WHO, 2015), with Goal 3 specifically focused on the reduction of substance abuse as a target of interest for 2030, (though its propositions remain rather vague) (Rosa, 2017). The emphasis on health in the Sustainable Development Goals suggests both its centrality to sustainable development and the need for an international approach to addressing the health concerns of marginalized communities (Buse & Hawkes, 2015).

In addressing these goals, sustainable development advocates have seen it essential to identify means of addressing the “determinants of ill health” and to further integrate a rights-based approach to public health and sustainable development (Buse & Hawkes, 2015). Despite

the apparent importance of health within the SDGs, some researchers view the sustainable development literature as lacking in health research (McMichael, 2006). While works on health and sustainability do exist (see for example Corvalán, Kjellström, & Smith, 1999; McMichael, 2006), these studies are rare – especially when compared to the prevalence of other subject areas found throughout the research (McMichael, 2006). To some, for example McMichael (2006), health should be considered the "bottom line: for sustainable development, as the system is meant to focus on the promotion of population wellbeing, not "economic regimes of iconic animals." The World Health Organization (WHO) views health and the Sustainable Development Goals in much the same light, suggesting that it is essential to acknowledge health as an interdependent and linked concept within all of the SDGs (WHO, 2015). This emphasis on health should be unsurprising, considering the scale at which health is threatened on the global stage. The health risks that face the global population are plentiful, including climate change, air pollution, disease (both non-communicable and communicable), fragile and vulnerable settings and weak primary health care (WHO, 2019), likely making the pursuit of sustainability impossible without first addressing the various determinants of health.

As a domain of public health, harm reduction maintains a heavy focus on the physical and mental wellbeing of drug users. Much of the research conducted in the field explores the health benefits of the harm reduction approach to drug policy when compared to prohibition policies. Some examples of the health benefits touted by harm reduction scholars are the reduction of fatal overdose, disease transmission and offering safe treatment alternatives (Riley and O'Hare, 1999; Hine, 2004; Stoker, 2010). In an attempt to reduce the harms associated with drug use, mental and physical health issues such as social exclusion, depression, addiction, overdose and the transmission of HIV and Hepatitis are all discussed throughout the harm reduction literature

(HRI, 2018; Kerr & Palepu, 2001; Jozaghi & Anderson, 2013; Malkin et al., 2013). As the literature largely views health as a multi-faceted and complex subject, harm reduction advocates seek to address these health issues through direct services (such as rehab and supervised injection sites) as well as indirect services, such as the promotion of community cohesion and the reduction of stigmatization (HRI, 2018; Pauly, 2008). As will be demonstrated in the subsequent sections, addressing the various determinants of mental and physical health is central to the harm reduction mission.

Another aspect of basic needs and wellbeing involves access to housing and to social services. Access (or lack thereof) remains an important component of social injustice that sustainability scholars seek to address (See for example Burch et al., 2018), a fact which is reflected by its inclusion within Sustainable Development Goal targets 3.8, 11.1, and 11.6 seeking to respectively “increase access to quality essential health services”, “ensure access to safe housing and basic services” and “increase universal access to safe, inclusive public spaces” (UN General Assembly, 2015). This focus is understandable, considering that nearly half of the world population lacks access to essential health services (WHO, 2017). This lack of access is exacerbated by various financial and transactional barriers (Pauly, 2008). For example, as pointed out by Bramley and Power (2009) varieties of urban forms and densities provide unique challenges to urban communities in regard to use and access to housing and services.

Furthermore, the density of a community has been shown to influence the extent to which a community member utilizes locally provided goods and services (Bramley & Power, 2009; Keivani, 2010). This is particularly relevant to those in need of health services, as proximity often influences the frequency of use of services for community members (Wieckowska & Czerwinski, 2017). Access to affordable and desirable housing is also of vital importance.

Turkington and Sangster (2006a) view housing as much more than simple means of shelter, suggesting that housing can provide the first step to building community, reducing segregation and promoting community cohesion. As a result, goal 11 of the SDGs for example ("Sustainable cities and communities") lists its first target as "By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums" (Rosa, 2017). Goal 3 lists as one of its targets to increase access and "By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes." Research has been conducted regarding the relationship between urban density and housing type (Bramley et al., 2006; Turkington & Sangster., 2006b), showing it to be an important component of the social aspects of sustainable development. Access can relate to other areas of public life as well. Chan and Lee (2008) demonstrate how access to a variety of variables such as the creation of a "harmonious living environment" and an "availability of open spaces" are crucial for socially sustainable development outcome. Ferris et al. (2001) view access to parks and greenspace as essential for addressing the justice and equity that are central to the Sustainable Development Goals.

Likewise, access is a key concern within the harm reduction literature. As health is a complex socio-ecological issue, the harm reduction approach seeks to address its multiple determinants. Some examples of this include providing access to necessary services, improved housing and job security to underserved populations. A number of the services advocated by harm reduction scholars, such as supervised injection sites and needle exchange programs, represent essential services to drug users, with access providing significant – and often life-saving – health benefits. Researchers such as Galea et al. (2013) view drug use as a context-

driven issue, with various socio-environmental determinants (such as neighborhood disadvantage, social norms, resources, and physical environment) influencing rates of drug use. Access to services such as supervised injection sites have shown a reduction in drug use in the immediate areas (Boyd et al., 2017) as well as a significant drop in fatal overdoses. Research conducted around the first supervised injection site in Canada (named "Insite") showed a 35% reduction of fatal overdose in the areas surrounding the site within the first two years, as compared to an only 2% decrease in the rest of the city (Morphal et al., 2011). Furthermore, harm reduction sites such as supervised injection sites have the potential to act as "points of contact" for users and can help treat or prevent the spread of HIV and hepatitis (Tyndall et al., 2006). When implemented as a policy approach, harm reduction has been shown to increase access to health programs for communities (Pauly, 2008).

3.4 Discussion: Exploring opportunity for co-beneficial change

To make progress toward sustainable development, the issue of global illicit drug use must be addressed. Global illicit drug use has been shown to have significant social, ecological and economic repercussions (see for example Csete et al, 2015; McSweeney, 2014; UNODC, 1995: 2018) making the failure of the sustainable development discourse to address the issue essentially a failure to adequately consider the needs of hundreds of thousands of people across the globe. Despite its prominence, the “war on drugs” prohibition-based approach to drug policy has been ineffective at curtailing drug use and has resulted in high social, ecological and environmental costs worldwide. The harm reduction approach to drug policy seeks to remedy these issues.

This integrative literature review revealed that harm reduction and sustainable development overlap in their respective histories, objectives and values. The two concepts arose

within similar historical contexts, and both place significant emphasis on the principles of human rights and social justice. These overlaps suggest a broader potential for compatibility and co-beneficial policy integration. This potential is emphasized in comparison with their alternatives, prohibition-based policy and ‘traditional’ development, which demonstrate an explicit incompatibility with the practical and ethical objectives of sustainable development. By reviewing the literature of harm reduction and sustainable development, this study aimed to address these knowledge gaps, identify concepts that can bridge the two literatures, and create opportunities for future co-beneficial projects. The following section seeks to explore some of these opportunities.

3.4.1 Bridging concepts for future knowledge sharing and action mobilization

As discussed in Chapter one, bridging theories and concepts are useful for facilitating knowledge sharing between distinct disciplines. In this context, bridging theories are concepts that are able to link key discourses through the identification of common language and the alignment of mutual goals, for the purposes of knowledge exchange and action mobilization. The literature review in this chapter has successfully identified common language and mutual goals between harm reduction and sustainable development, therefore presenting opportunity for more specific theories that are able to address these shared goals simultaneously.

i. Good governance

There are a number of theories that could be potentially useful for addressing the shared objective of improved social inclusion within communities as identified within the sustainable development and harm reduction literatures. Much has been written about social and community

cohesion, inclusion and participation in a variety of fields (e.g., sociology, geography, planning). However, for the purpose of linking harm reduction and sustainable development, I suggest that the field of sustainability governance should be considered as a resource for identifying useful bridging concepts and theories. As identified by Abernethy (2014) and Jordan (2008), sustainability governance can be useful as a bridging concept due to its emphasis on interdisciplinary discussion and debate. Put broadly, sustainability governance aims to create a “more sustainable and equitable future by reforming socio-political practices that govern individual and collective action” (Abernethy, 2014: p.53; Kemp et al., 2005; Meadowcroft, 2009) and has an extensive conceptual history. Of particular use for bridging harm reduction and sustainable development would be the theory of ‘good governance’, which is considered to be an essential concept to the sustainability governance literature. While a precise definition is contested, some of the pertinent commonly identified principles of good governance include accountability, legitimacy and participation, and transparency and equity (Bosselman, Engel & Taylor, 2008; Earth System Governance Project, 2018; Graham, Amos & Plumper, 2003; Kemp et al., 2005). As such, the usefulness of good governance, and sustainability governance more broadly, as a bridging concept is apparent based on the demand for inclusivity and community participation that is evident within the sustainable development and harm reduction literatures discussed above. For example, in this context, the inclusion of drug users into participatory processes would be an ideal result for both the goals of sustainable development and harm reduction, as it would help foster community cohesion among previously excluded stakeholders. While much of the sustainable development discourse has already engaged with principles of sustainability governance, the health promotion and harm reduction literatures have only recently begun to engage with issues of governance (e.g., Wallerstein, 2007). By introducing

sustainability governance as a means to achieve their common goal of inclusivity, theoretical and practical progress could be further facilitated.

ii. Therapeutic landscapes

In regards to linking sustainable development and harm reduction based on their shared interest in improving public health and wellbeing, the disciplines of health and urban geography seem to be particularly relevant. There are several concepts and theories in the geography literature that could potentially serve as bridges, but in reference to the identified areas of concern, one stands out as particularly useful: the concept of therapeutic landscapes. The study of therapeutic landscapes, first coined by cultural geographer Wilbert Gesler (1992), focuses on understanding why particular environments are conducive to healing, considering “physical and built environments, social conditions and human perceptions” (Gesler, 1996: p.96). Since its inception, the concept has been adopted and expanded within the health geography literature (See for example Bell et al., 2018). Modern interpretations of the concept look to understand why particular spaces promote health, and how this knowledge can be leveraged into the development of health promoting public spaces.

The use of this concept could be potentially helpful as a bridging concept for harm reduction and sustainable development. Issues of substance abuse related with treatment and relapse have been explored to some extent in the therapeutic landscapes literature (See for example Love et al., 2012). Research shows that while most substance abuse programs offer short term assistance, they often fail to address material deprivation and social oppression that drive users to abuse substances in the first place (Love et al., 2012). It has therefore been suggested that the use of a therapeutic landscape perspective would be useful for improving local conditions, such as through the creation of informal support networks for users (Bell et al., 2018).

Likewise, the research surrounding therapeutic landscapes is deeply concerned with the quality of the natural and physical environment as a determinant of health and healing. The role of greenspace (such as woodlands, parks and gardens) as well as blue space (such as rivers, ponds, oceans) has been shown repeatedly throughout the research to facilitate positive health effects and promote healthy living in urban spaces (Bell et al., 2018; Foley & Kistemann, 2015; Plane & Kladowsky, 2013). As such, it is in the interest of those concerned with public health and wellbeing to consider various factors that contribute to healthy spaces. While the therapeutic landscapes concept has been criticized in the past for being exclusionary and only catering to dominant groups (For example Conradson, 2014), if applied in conjunction with the principles of justice and inclusion found within the harm reduction and sustainable development literature, it could be a useful conceptual tool for bridging the two literatures toward their common goal of healthy communities.

iii. Just sustainability

When considering the shared interest in social justice identified throughout the harm reduction and sustainable development literatures, the identification of a bridging concept is comparatively straight forward. Environmental justice as a field of inquiry has a long conceptual history, and there has been considerable research exploring what environmental justice is, and how it can be applied within contexts of sustainable development. However, one particular line of inquiry seems to be relevant for the purpose of a bridging concept, that of ‘just sustainability’. The just sustainability discourse emerged from within environmental justice as a concept focused on actions of non-state actors and their efforts to improve cities (Agyeman and Evans, 2003; Agyeman, 2005). Having already been linked to sustainable development in the literature

(Schlosberg, 2007; Salleh, 2009), the discourse relies heavily on environmental and social outcomes with a particular focus on grassroots initiatives.

What makes the concept of just sustainability particularly suited for bridging harm reduction and sustainable development is its diverse focus areas. Rather than focusing on strictly environmental or social justice issues, just sustainability offers a comprehensive perspective that focuses on “wellbeing and quality of life; meeting the needs of future and present generations; enabling justice and equity in terms of recognition, process, procedure and outcome; and living within ecosystem limits (Broto and Westman, 2017). In this way, just sustainability effectively merges the discourses surrounding social justice and sustainability, with a particular focus on wellbeing in urban contexts. As such, it presents a useful framing for engaging with the diversity of interests found between harm reduction and sustainable development, while still retaining the essential qualities of the social justice movement. Further still, the just sustainability literature is already an effective bridging tool between equity and sustainability (Agyeman and Evans, 2003), and with its focus on grassroots movements, seems to be a clear fit for application.

While these concepts are being merely proposed as bridges between harm reduction and sustainable development, future research could explore their potential further in order to establish more explicit links.

3.4.2 Policy integration and coherence

Better understanding of the relationship between drug policy and sustainable development should enable improved policy coherence and integration. As a component of "good governance," policy coherence and integration at the national and subnational levels have long been seen as critical tools for making progress toward sustainable development (Kardos,

2012; Ruckert et al., 2015). The OECD defines policy coherence for sustainable development (PCSD) as “an approach and policy tool to systematically integrate the economic, social and environmental dimensions of sustainable development at all stages of domestic and international policy making” (OECD, 2011). In short, the objectives of policy coherence for sustainable development are to 1) “foster synergies” across economic, social and environmental policy areas, 2) “identify trade-offs and reconcile policy objectives” and 3) “[a]ddress the negative spillover of domestic policy” (OECD, 2018: p.83). Through the comparative examination of the literature, the opportunity for policy integration between harm reduction and sustainable development is apparent. For example, developing an understanding of the shared principles of harm reduction and sustainable development makes fostering synergies between distinct policy areas easier. To seek coherence, it is necessary first to understand the linkages between and among various policies as the integration of social, economic and environmental considerations is crucial to the decision-making process for sustainable development (Dernbach, J.C., 2003). Despite this, the actual relationship between disciplines (and in the case of the Sustainable Development Goals, goals) is largely under-examined. Although the Sustainable Development Goals are far more integrated than the preceding millennium development goals, many of the relationships between goals are not fully understood (Le Blanc, 2015). It is "implicit within the Sustainable Development Goals logic that the goals depend on one another," and yet in many ways, these dependencies are left underdeveloped (Nilson, Briggs, and Vispeck, 2016: p.320). To achieve policy coherence for sustainable development “mutually reinforcing gains” must be pursued (Nilson, Briggs and Vispeck, 2016: p.321). In this sense, the need for shared priorities, such as the pursuit of human rights and social justice and wellbeing, is vital for policy coherence and integration (OECD, 2014).

The commonalities in the literature also indicate an awareness of “trade-offs” between potential health policy alternatives. As has been shown, the prohibition approach is comparatively less amenable to the meeting needs and priorities of sustainable development when compared to harm reduction and has led to a multitude of harmful effects that work against the goals of sustainable development. By comparison, harm reduction already seeks to achieve goals similar to many of the Sustainable Development Goals. In acceptance of harm reduction principles by the sustainable development community, the reconciliation of policy objectives could be straightforward, as they maintain many of the same goals and principles.

Policy integration would not solely be for the benefit of achieving the Sustainable Development Goals. While harm reduction has recently gained some acceptance on the global stage, many current policies lack substance and support. For example, a quality assessment of Canadian harm reduction policy documents conducted by Hyksha et al., (2015) revealed a general lack of actionable content, with documents focusing on rhetoric over substance. Similarly, Cavaliari and Riley (2012) indicate that current harm reduction policies have become more ambiguous than previous iterations. The failure to create substantial content within harm reduction policy threatens the spread, and therefore the efficacy, of harm reduction services (Hyskha et al., 2016). This failure suggests a need for the creation of more comprehensive and theoretically grounded policy approaches, the framework of which the much larger and more established literature of sustainable development could potentially provide. In seeking policy integration between sustainable development and HR, progress on both fronts can likely be achieved.

3.4.3 Future research

The chapter has focused on the historical contexts of harm reduction and sustainable development, as well as the motivations and objectives of each concept, and found considerable potential for positive alignment. In conducting this analysis, opportunities for policy coherence and integration arose, suggesting a variety of future research opportunities.

In the field of policy design and analysis, future research should examine existing policy documents to better understand how they seek to achieve the same goals, whether implicitly or explicitly. This research could come in the form of a qualitative study that aims to analyze existing policy documents. While they may be implicit, the literature review suggests that some of the goals of sustainable development can be addressed through harm reduction approaches to policy. Understanding of the actual relationship between sustainable development and current harm reduction policy can help us identify future policy and research development needs and opportunities.

This review also suggests opportunities for applied, experimental research projects and identified a number of concepts that would be useful for bridging the two bodies of literature. Using the proposed bridging concepts of therapeutic landscapes, good governance and just sustainability as a basis for research, a number of issues could be explored. This includes the impacts of various drug policies on environmental outcomes (for example, the effects of drug crops in the Middle East on ecological and economic prosperity (HPA, 2015), which is mostly missing from the literature. Such relationships are intrinsically linked to global drug policy approaches and are thus interconnected with progress toward sustainability. Other areas, such as the impact of green space on mental health, could be leveraged to understand the role of environmental determinants on drug use (see for example Nutsford et al., 2013). Governance and planning research could also be explored, as how a project is planned and organized significantly

influences the social and environmental outcomes of the project (Vifell & Soneryd, 2012), making a collaborative and interdisciplinary approach ideal for co-beneficial health outcomes. As a relatively new area of inquiry, the research opportunities for both sustainable development and harm reduction scholars are plentiful and span across disciplines.

3.5 Conclusion: Creating a foundation for change

This study revealed significant overlaps between harm reduction and sustainable development. Perhaps the most crucial point that can be drawn from the literature is the fact that *without* the adoption of harm reduction by the sustainable development community, it will be difficult to achieve the overarching goals of sustainable development. Similarly, it will be difficult to achieve the long-term goals of harm reduction without considerable progress made toward the overarching goals of sustainable development, with many of the determinants of drug use (such as the public health and wellbeing) being directly influenced by these goals. The existing paradigm of drug prohibition and criminalization stands in opposition to the objectives of sustainable development, actively worsening issues of social isolation and threatening the health of community members on a global scale. Nearly all historical descriptions of sustainable development take a pragmatic standpoint that explicitly avoids such discriminatory and unjust governance practices, making prohibition-based policy an eventual (if not already existing) barrier to progress toward a sustainable society.

The bridging concepts identified also provide avenues for future research related to the relationship between harm reduction and sustainable development. Good governance (as defined by the sustainability governance literature); therapeutic landscapes (from health geography); and just sustainability from the environmental justice literature all offer viable opportunities for research. In addition, health generally could perhaps be utilized as a bridging concept to link

these two literatures, with their common language and goals opening opportunity for collaboration and mutually beneficial policy coherence.

This review reveals an opportunity for policy integration and coherence between harm reduction and sustainable development. As the goals of policy coherence are to "foster synergies across economic, social and environmental policy areas; identify trade-offs and reconcile policy objectives and; address the negative spillover of domestic policy" the exploration of this relationship is important (OECD, 2018: p.83). Future research attempting to explain this relationship could help to bring clarity and policy recommendations to particular case studies. Countries that have already adopted both harm reduction and sustainable development initiatives like Canada, The Netherlands, and Sweden represent fertile grounds for discussion and analysis, helping researchers understand how to further engage with the sustainability discussion within harm reduction policy and how to embark on interdisciplinary work that helps to achieve the goals of both movements.

While illicit drug use has been socially and politically vilified since the birth of prohibition in the early 1900s, it is time to shed the archaic understandings of drug use that have long shaped global drug policy and instead embrace an evidence-based and justice-oriented approach to drug policy. In doing so, the sustainable development community can take steps toward achieving truly holistic progress toward sustainability, rather than one that ignores the needs and concerns of the most vulnerable.

4 Synergies of justice: Investigating the status and potential of co-beneficial sustainability dimensions in Canadian harm reduction policy

Abstract

The global movement toward sustainable development, along with the creation of the Sustainable Development Goals (SDGs), provides a progressive and holistic framework for creating a more just, equitable and sustainable world for both the future and present generations. In order to pursue these goals, an understanding of other existing policy frameworks and their relationship to the SDGs is crucial. Within the public health sector, the ‘harm reduction’ approach to illicit drug policy may present a superior alignment to the SDGs than previous drug management strategies centred on prohibition, because it is based on human rights and public health, rather than criminal enforcement and incarceration. Despite this, the relationship between sustainability and harm reduction policy has been scarcely acknowledged by scholars and practitioners. Through the analysis of 17 Canadian harm reduction policy documents (HRDPs), in this paper I show that Canadian harm reduction documents across British Columbia, Alberta, and Ontario implicitly address a variety of sustainability concerns. I found that the HRDPs maintain a focus on a multitude of sustainability issues such as health, access to services, and democratic governance, while largely failing to engage with ecological concerns relevant to drug policy. The results demonstrate a direct overlap of a variety of objectives between Canadian HRDPs and sustainable development, as well as identifying the policy areas where sustainability concerns could be better recognized and addressed. By understanding these synergies, future policy can be engaged to create co-beneficial, cross-discipline outcomes that help make progress toward more socially and environmentally sustainable communities.

4.1 Introduction

The issue of global substance abuse poses immediate social, ecological and economic threats to the sustainability and resilience of communities worldwide. By failing to engage with these issues, the sustainable development community has left illicit drug users and their communities vulnerable to continued harms. In order to seek sustainable societal outcomes, sustainability scholars must seek ways to help mitigate the harms of societal drug use. Though there has been a scarcity of interest in this relationship among the academic community, recent research has identified the growing barriers to sustainability that substance abuse presents.

Along ecological dimensions, 2018 represented a record high in global illicit opium and cocaine cultivation (UNODC, 2018), placing undue pressure and destruction of local ecologies and damaging to otherwise viable socio-ecological systems (HPA, 2015; McSweeney et al., 2014). This is particularly concerning within countries in the global South, where the cultivation of illicit drugs can prevent the use of essential farming areas for traditional agricultural purposes (Rolles et al., 2012). There are also considerable financial impacts, with the United States alone spending \$78.5 billion on enforcement, healthcare and other associated “drug war” costs in 2017 (NIDA, 2019). In terms of social impact, the UNODC global drug report (2018) highlights that in 2016, 31 million people worldwide were reported to have substance abuse disorders, with nearly 11 million people injecting drugs. In 2015, over 450,000 people died due to drug use (Ibid, 2018). While daunting themselves, these statistics also fail to account for the plethora of people who are impacted by ripple effects of this rampant drug use, such as the spouses, children, and community members with relations to the affected drug user.

This burden is felt throughout the globe but is particularly severe in North America, specifically, the US and Canada (UNODC, 2018). The rates of substance abuse in the US and

Canada are among the highest in the world, with 3.45% and 2.28% of their respective populations being considered to have drug abuse disorders (as opposed to Mexico's .82%) in 2017 (Ritchie & Roser, 2018). The abuse of opioids is particularly problematic, with Canada seeing a staggering 10,300 opioid related deaths from between September 2016 and January 2018 (Special Advisory Committee on the Epidemic of Opioid Overdose, 2019). The precise reasons for the comparatively high rates of drug use in the US and Canada are not entirely clear, although most who have observed the phenomenon suggest that it is linked to the over-prescription of habit-forming painkillers over the past decade combined with aggressive marketing campaigns by pharmaceutical companies (Lisa, 2018; Vasilev, 2016), as well as the influx of illicit opioids from South America (Vasilev, 2016). With traditional approaches to drug policy failing to curtail use and its associated harms, and the rate of fatal North American overdose increasing annually, potential alternatives (such as the harm reduction approach) have been created (Health Canada, 2018; Hedegaard et al., 2018).

Growing in popularity on the global stage (Stone, 2016), the harm reduction approach to drug policy presents an opportunity for these issues to be addressed. Though there is no universal definition of HR, Harm Reduction International summarizes it as: “refer(ing) to policies, programmes and practices that aim to minimise negative health, social and legal impacts associated with drug use, drug policies and drug laws...grounded in justice and human rights; (and) it focuses on positive change and on working with people without judgment, coercion, (or) discrimination” (HRI, 2018). Used in combination with law enforcement, treatment, and prevention, harm reduction is meant to serve as an underlying principle to drug strategies, seeking to minimize the harms associated with drug use, while simultaneously creating support networks for the people who are most affected by it. Harm reduction maintains a consistent focus

on the preservation of human rights and community wellbeing, creating a common objective between it and sustainable development.

Using Canadian provincial and municipal policy frameworks as context, in this paper I engage with two research questions: How is sustainability addressed within Canadian harm reduction policies? And in what ways can future policy iterations better incorporate sustainability considerations? In order to answer these questions, I developed a sustainability assessment tool, contextualized for use within Canadian harm reduction policy documents (HRPDs). In applying this tool to several HRPDs across the country, the research questions were addressed.

This paper is structured as follows: Section (4.2) will provide a brief historical and conceptual overview of both sustainable development and harm reduction based on previous literature. Following this, Section (4.3) will outline my methodology for this project, explaining the process used to select the documents for analysis and for designing the assessment criteria. This is followed by (4.4), which documents the results of the policy assessment and outlines the significant findings. The discussion (4.5) further explores these findings and delves into their potential significance. Finally, the paper concludes with some closing remarks, policy recommendations and ideas for future research (4.6).

4.2 Uncovering the linkages and histories of sustainable development and harm reduction

4.2.1 Sustainable Development: Collective action toward a common desirable future

Introduced first in 1987 as “development that meets the needs of the present without compromising the ability for future generations to meet their own needs” (Brundtland et al., 1987), sustainable development has since been effectively adopted within the minds of the public

as a common and desirable principle (Scheirer & Dearing, 2011; van Egmond & de Vries, 2011). However, its wide uptake has been met with varying levels of success, with resistance from a wide range of powerful interests that are invested in “business as usual” leading to constant efforts to coopt the term, often resulting in definitional confusion and failures “in activating a collective initiative toward a sustainable future”. In addition to this, the gap between our current practices and what would be needed to transition to a state of lasting wellbeing- and the resistance from outside interests- cause pervasive challenges to sustainability efforts, effectively leaving development efforts to address global unsustainability largely ineffectual (Gibson, 2016; Muringathuparambil, 2014).

While inconvenient, this inability to arrive at an agreed upon interpretation and definition of sustainability does not necessarily derail attempts to pursue sustainability. Instead, as suggested by Gibson (2017), the lack of explicit definition requires researchers to take a different approach, viewing sustainability as a process that can be guided using an identifiable set of requirements for progress, rather than an end goal (p.12), and presents opportunities for open discussions about what we, as members of the global community, envision for a sustainable society and what is required to move towards those sustainability objectives. This approach acknowledges the complexity of sustainability, attempting to unravel the vast interdependencies and links that exist within socio-ecological systems (p.8). In this capacity, the sustainable development goals (SDGs) may prove valuable, providing a foundation for justice-oriented development that considers varied needs of vulnerable populations and sets more of less quantifiable goals that can be used as benchmarks for progress (Hector, Christensen, & Petrie, 2014). Though these needs are often considered as separate items and isolated from the others, the SDGs nonetheless provide a valuable starting point for holistic improvement across social, environmental and

economic dimensions. Published by the United Nations in 2015, the SDGs create an international framework for global development through the year 2030. They are comprised of 17 goals and 169 targets, which collectively seek to enable a more sustainable and justice-oriented future (UN General Assembly, 2015). With justice as a fundamental driver, the various goals and targets aim to address various justice concerns, including democratic governance, poverty reduction, access to services, and inclusivity (UN General Assembly, 2015). In addressing social, economic and environmental inequalities, the SDGs carve a path toward more equitable societies.

The Sustainable Development Goals offer explicit goals related to human health and wellbeing, with one of the 17 goals being dedicated to health. According to the World Health Organization (2015), the sustainable development health goal is to “Ensure healthy lives and promote well-being for all at all ages” and is associated with 13 targets. Unlike the preceding Millennium Development Goals, the Sustainable Development Goals include new target issues such as substance abuse and mental health and are generally better suited to address health concerns within the scope of sustainable development (p.8). The emphasis on health in the SDGs suggests both its centrality to sustainable development and the need for an international approach to addressing the health concerns of marginalized communities (Buse & Hawkes, 2015).

One of the explicit pledges of the Sustainable Development Goals is that “no one will be left behind” (HPA, 2015; United Nations, 2015). In order to achieve this goal of inclusivity, policy coherence between sustainable development and other policy domains is essential; in order to pursue effective, sustainable development, decision makers must be able to understand and identify the most effective policies that are available (Degenhardt et al., 2013). This extends to health policy, and in the case of this paper, drug policy. As an increasingly severe global issue,

addressing the challenges of societal drug abuse may be crucial to achieving the goals and targets set out by the SDGs (HPA, 2015).

4.2.2 Harm reduction: A compassionate alternative approach to a global health crisis

Initially developed as a response to the AIDS epidemic of the 1980s, (Inciardi, 1999; Steenholde, Colquhoun, & Varcoe, 2015) the harm reduction approach to drug policy has since been adopted to varying extents in 158 countries (See Stone, 2016: p.8 for full list). In the North American context, this approach stands in stark contrast to traditional drug policy approaches of prohibition and criminalization (Erickson, 1992) that have been shown to be ineffective at curtailing drug use (Fish, 2006) and have led to significant social harms such as increase in gender-based and racially discriminatory practices, the prevention of access to health services leading to otherwise preventable deaths (Csete et al., 2016) and financial, psychological and logistical hardships on the familial and community levels (p. 27).

The failures of prohibition have become increasingly salient over time, with the abuse of prescription and illicit opioids such as OxyContin and heroin spreading throughout the North American continent. In Canada alone, an estimated 200,000 people are dependent on prescription drugs (Vashishtha, Mittal, & Werb, 2017), and an additional 100,000 inject illicit drugs, resulting in health and community repercussions such as "injection-related infections, overdose, blood-borne disease transmission, exposure to discarded needles, violence, property crime and sex trade" (Thomas Kerr & Palepu, 2001, p. 1). These failures led lawmakers, government officials and the public to recognize need for an alternative, the likes of which the harm reduction framework provided. In the late 1990's some Canadian cities such as Vancouver and Toronto began to adopt the harm reduction approach, offering services such as needle exchange programs

and supervised injection sites (SIS). These sites are legal, medically supervised areas for users to consume illicit recreational drugs (Kerr & Palepu, 2001). One example of harm reduction success can be seen in Vancouver, where the implementation of harm reduction services has led to massive reductions in fatal overdose (Marshall et al., 2011; Vancouver Coastal Health, 2017), a significant decrease in HIV incidence rates (Urban Health Research Initiative, 2009) and the creation of informal networks among drug users focused on harm reduction education and service provision (Bouchard et al., 2018).

Overall, the Vancouver experiment can be viewed as a major step toward effective harm reduction practice and provides lessons for other municipalities searching for a solution to their own drug abuse concerns and has been applied with varying degrees of success across Canada (Young & Fairbairn, 2018). These sites, and similar harm reduction practices, have since been adopted across nearly all major Canadian cities, and have been met with considerable success where implemented, significantly reducing fatal overdose, disease transmission and in some cases providing users with access to rehabilitation programs (Ian Malkin et al., 2003). However, as identified by Hyshka et al. (2017), the harm reduction policies across the country are weak, and require further development to reach the desired results, with “relatively few offer(ing) robust characterizations of harm reduction or go(ing) beyond rhetorical or generic support” and are thus inconsistent with “international understandings of the approach” (p.13).

As demonstrated above, the pursuit of sustainable development requires the inclusion of health concerns, spanning across sector and policy domain. With health being a crucial component of the SDGs, health policies that fail to consider various socio-ecological dimensions of sustainability are missing out on crucial, co-beneficial synergies. However, the level to which various aspects of health policy align with sustainability is currently unknown. This paper uses

Canadian HRPDs to explore one such policy area, and in doing so builds an understanding of the extent to which current HRPDs address sustainability, as well as identify opportunities for future policy improvements that promote co-beneficial synergy between the two domains. The following section outlines the process used to assess the HRPDs, building from the generic sustainability assessment criteria developed by Gibson (2005).

4.3 Methods

4.3.1 Document retrieval and scanning

In order to identify relevant documents for analysis, I first began with a comprehensive search for HRPDs on the national, provincial and municipal scale. Locales were selected for analysis based on urban population size, level of drug use/abuse and their requests to the federal government for approval to implement harm reduction services. These requests and approvals are publicly documented on the website of Canada's federal health authority, Health Canada (Health Canada, 2017). The provinces that were selected for analysis were Ontario, British Columbia, Alberta and Quebec. The municipalities selected within these provinces were Toronto, Ottawa, Calgary, Edmonton, and Montreal.

Boolean searches were conducted using an internet search engine (Google) and a variety of keyword search terms. This process identified publicly available HRPDs on the municipal, provincial and federal levels. To fortify these findings and to identify any missing (and potentially crucial) documents, I reviewed the Canadian Harm Reduction Policy Project (CHARPP) database, where I identified useful follow-up documents and updates (CRISM, 2017). The initial search identified 145 documents, which I then screened for relevance. Building from the inclusion criteria used by Hyksha et al. (2017), I defined relevant policy documents as

those that were (1) issued by and represent a municipal, provincial or federal government or (2) issued by a municipal, provincial or federal health authority; (3) mandated future action; (4) “addressed harm reduction services and interventions addressed harm reduction services and interventions, defined as one or more of the following: syringe distribution, naloxone, supervised injection/consumption, safer inhalation kits, low-threshold opioid agonist (i.e., methadone) treatment, buprenorphine/naloxone (Suboxone), and drug checking services; or (5) was produced as either a stand-alone harm reduction policy or as part of a strategy document guiding services for substance use, addiction, mental health, and/or prevention of blood-borne or sexually transmitted infections”(p.4) Following the initial scan, a total of 55 documents remained.

The second scan for relevance required a more detailed review of the documents and was refined using more stringent inclusion and exclusion criteria. As this research project is aimed to understand how HRPD contribute to sustainability objectives, broad HRPDs were most relevant for analysis, thus leading to the exclusion of highly specific legal and applied policy counterparts. In addition, in order to avoid misinterpretation of data I elected to exclude the documents from Quebec, as the majority of the Quebec-based documents were written in French and lacked official English translations. Finally, for ease of review, I categorized documents into "historical" or "current." Based largely on the categorization used by Hyksha et al. (2016), documents were considered current if they: 1) were published in 2018 or later; 2) were the most recent version that had not been replaced by newer documents or; 3) had no stated end date. Historical documents were not included in the final analysis. In sum, I identified 17 documents (**Table 2**) as relevant for analysis: British Columbia (n=5), Alberta (n=5), Ontario (n=6) and Federal (n=1).

Table 2: Full list of harm reduction policy documents

Province	Title	Author	Level	Pages	Publication Date
ON	Substance use prevention and harm reduction guide 2018	Ministry of Health and Long-term care	Provincial	27	2018
ON	Toronto Drug Strategy (TDS)	Toronto Public Health	Municipal	108	2005
ON	TDS: Status Report	Toronto Drug Strategy Implementation Panel	Municipal	39	2016
ON	Open Minds, Healthy Minds: Ontario's Comprehensive Mental Health and Addiction Strategy	Government of Ontario	Provincial	26	2011
ON	Ottawa Integrated Drug Strategy	Health, recreation and social services committee	Municipal	11	2006
ON	Report for Action: A Public health approach to drugs	Toronto-Medical Officer of Health/Board of Health	Municipal	10	2018
AB	Ministers Opioid Commission Recommendations	Opioid Emergency Response Commission	Provincial	10	2018
AB	Supervised Consumption: A Report for Calgarians	Calgary Coalition of Supervised Consumption	Municipal	15	2018
AB	Creating Connections: Alberta's Addiction and Mental Health Strategy	Alberta Health and Wellness; Alberta Health Services	Provincial	56	2011
AB	Creating Connections: Alberta's Addiction and Mental Health Action Plan	Alberta Health and Wellness; Alberta Health Services	Provincial	40	2011
BC	BC Harm Reduction Strategies and Services Policy and Guidelines	Harm reduction Strategies and Services Committee	Provincial	24	2014
BC	Harm Reduction: A BC Community Guide	BC Ministry of Health	Provincial	30	2005
BC	The Four Pillars Drug Strategy	City of Vancouver	Municipal	6	2019
BC	Every Door is the Right Door: A BC Planning Framework to Address Problematic Substance Use and Addiction	Ministry of Health	Provincial	95	2004
BC	Healthy Minds, Healthy People: A Ten-Year plan to Address Mental Health and Substance Use in British Columbia	Ministry of Health	Provincial	40	2010
AB	Harm Reduction for Psychoactive Substance use	Alberta Health Services	Provincial	12	2013
FED	Public Consultation on Strengthening Canada's approach to Substance Abuse Issues	Health Canada	Federal	35	2018

4.3.2 Document analysis

To help guide deductive document coding and allow for comparison between HRPDs I developed a comprehensive sustainability assessment tool, made up of 48-questions addressing a broad range of sustainability concerns (**Appendix A**), from the generic sustainability assessment criteria set out by Gibson (2005). In order to create an assessment tool relevant for use within Canadian HRPDs, it was necessary that I specify the eight generic criteria for this particular

application. This requires the identification of “key case and context considerations”, the major influences of which include “1) starting conditions and dynamics; 2) potential effects of what is being assessed; and 3) future results that are desired or feared” (Gibson, 2017: p.23).

There were a few steps I took in order to understand these considerations. First I reviewed the Canadian Harm Reduction Policy Project (CHARPP) to help understand the policy features that are relevant to Canadian health policy assessment design and to help inform the question list (See Hyshka et al., 2017, p. 5). I then reviewed each of the SDGs to identify the potentially relevant issues to drug policy. Following the review of the SDGs, I identified some common variables of the social and environmental determinants of health identified within the literature. Dating back as far as the “Lalonde Report” (1974) written by the Canadian Department of Health, the country has produced and maintained a long tradition of policy documents addressing these issues (Bryant et al., 2011). The determinants provided by Health Canada (1998) are income and social status; social support networks; education; employment and working conditions; physical and social environments; healthy child development; health services; gender; and culture. A majority of these determinants were incorporated into questions for the assessment tool. This initial specification resulted in an initial list of questions (n=102) that I felt were relevant to both the context of harm reduction and to the objectives and targets of the SDGs.

As a result of specification, I elected to eliminate two of the categories (resource maintenance and efficiency and inter-generational equity). These two categories were the least salient of the generic assessment criteria in drug policy debates, which made generating a sufficient amount of questions to justify a distinct category difficult. However, as the content of these categories are important for a complete assessment, I included related questions within the

remaining 6 categories. For example, questions related to resource maintenance and efficiency are found in within categories 1 and 6 (e.g., Q:1.4; 1.7; 1.8; 6.3), while questions related to intergenerational equity are contained within category 4 and 6 (e.g., Q:4.1; 6.2; 6.3; 6.4; 6.5). Upon the creation of the initial question list, I went through multiple iterations of quality testing to 1) ensure relevance, 2) ensure equal weight and 3) avoid significant overlaps, as well as eliminate questions that were 4) overly simplistic or 5) overly complicated (and therefore difficult to answer through the coding process). Once I had reduced questions to (n=70) by the above five criteria, I attempted to apply the questions to three HRPDs (documents 1, 7 and 10) to further specify the criteria to the context of Canadian HRPD. In doing so, I was able to better understand the language used by policy makers within this field and revise my questions accordingly, as well as eliminate questions that seemed redundant or irrelevant. This process led me to the final 48 questions that I felt were relatively equally weighted in significance while still covering all the relevant sustainability considerations.

As shown by the question list (Appendix A), the process of elimination left an uneven number of questions per category, ranging from six to ten questions per category. This imbalance is significant in that it makes the analysis of cross-category comparisons more difficult. In order to account for this, I calculated the category scores so that they would be proportional to the number of questions in each category, as will be seen in section 5.4. To that end, when considering the results of the analysis, the category imbalance was taken into account so as not to skew inferences drawn.

Using the assessment tool, the content of the HRPDs was analyzed using a deductive coding framework based on the 48 questions contained within the checklist. Through this process, I aimed to reveal segments of text within the documents that speak to any number of the

48 assessment questions, either implicitly or explicitly. Using Nvivo for both a keyword search and deductive coding, I was able to identify relevant segments of text for the final review, the “scoring” stage. Each checklist question was answered on a 0-2 scale with the total document score being the total points allocated. In this regard, 0 stood for ‘no mention of the issue’; 1, ‘the issue is mentioned but not elaborated’; 2, ‘the issue is elaborated.’ This scoring system was adapted from the checklist system used by Huge and Hens (2009). A potential limitation to this system is that it is unable to assess the extent of commitment to these principles. As such, it is important to consider the scores revealed to be exploratory. The implications of this limitation are discussed in the sections below. Upon completion, the section and total scores were tallied and presented in the form of a document score summary table (**Table 3**). The use of this scoring method makes the data amenable to presentation in figure format. As each question is distinct enough to avoid double counting, the score for each document is representative of the level to which they address each sustainability consideration.

4.4 Results: Socially conscious but ecologically ignorant

In order to understand the extent to which Canadian HRPDs aim to contribute to sustainability outcomes, I applied a sustainability assessment tool to 17 policy documents across the provinces of Ontario, British Columbia, and Alberta, as well as one federal level HRPD. By conducting a sustainability assessment, I sought to identify areas of policy alignment with sustainability outcomes, as well as areas within the HRPD that can be improved in future policy iterations. The documents were scored out of a possible 96 points, which is representative of a “perfect” score of 2 across all 48 questions, meaning they were all addressed and elaborated upon.

4.4.1 Overall performance

Spanning 48 questions across six assessment categories, the mean score for the documents was 38 out of a possible 96 points. The majority of the documents failed to engage with issues relevant to sustainability to a sufficient degree. Only three (17%) of the documents achieved a score higher than 48, with the majority (87%) achieving scores ranging from 16 to 46. The highest scoring documents were the 1) *Toronto Drug Strategy* (64), 2) *Healthy Minds, Healthy People: A Ten-Year Plan to Address Mental Health and Substance Abuse in British Columbia* (61) and 3) *Every Door is the Right Door: A BC Planning Framework to Address Problematic Substance Abuse and Addiction* (55). The lowest scoring documents were 1) *Supervised Consumption: A Report for Calgarians* (16), 2) *Minsters Opioid Commission Recommendations* (23) and 3) *The Four Pillars Drug Strategy* (24). **Table 3** identifies the total scores for each document.

Table 3: Total document scores (Out of a possible 96)

Province	Document Title	Score
ON	Substance use prevention and harm reduction guide 2018	33
ON	Toronto Drug Strategy (TDS)	64
ON	TDS: Status Report	30
ON	Open Minds, Healthy Minds: Ontario's Comprehensive Mental Health and Addiction Strategy	45
ON	Ottawa Integrated Drug Strategy	31
ON	Report for Action: A Public health approach to drugs	29
AB	Ministers Opioid Commission Recommendations	23
AB	Supervised Consumption: A Report for Calgarians	17
AB	Creating Connections: Alberta's Addiction and Mental Health Strategy	46
AB	Harm Reduction for Psychoactive Substance Abuse	33
AB	Creating Connections: Alberta's Addiction and Mental Health Action Plan	39
BC	BC Harm Reduction Strategies and Services Policy and Guidelines	30
BC	Harm Reduction: A BC Community Guide	51
BC	The Four Pillars Drug Strategy	23
BC	Every Door is the Right Door: A BC Planning Framework to Address Problematic Substance Use and Addiction	53
BC	Healthy Minds, Healthy People: A Ten-Year plan to Address Mental Health and Substance Use in British Columbia	61
FED	Public Consultation on Strengthening Canada's approach to Substance Abuse Issues	48

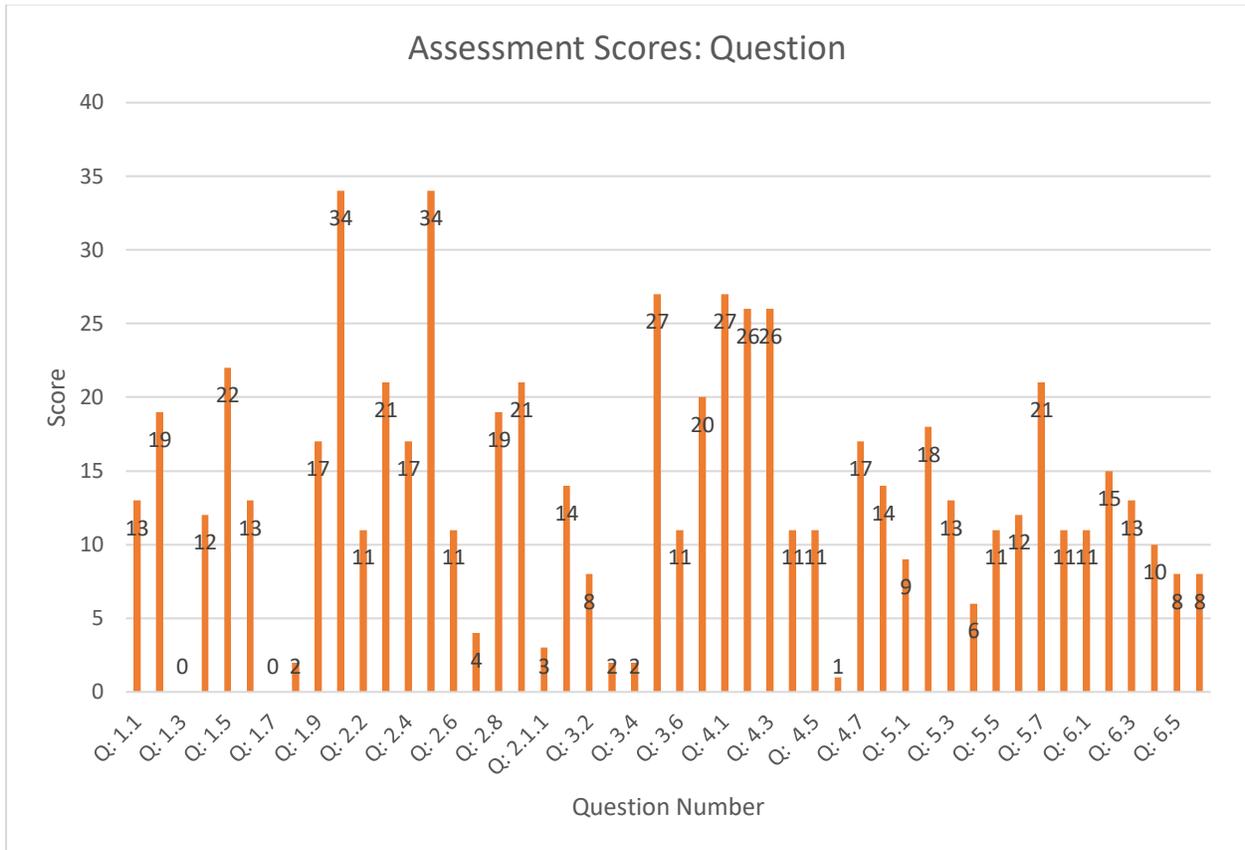
4.4.2 Scores by category and by question

Of the six categories, categories 2 (livelihood sufficiency and opportunity) and 4 (socio-ecological civility and democratic governance) had the highest scoring question on average, with an average question score of 17.5 and 16.6, respectively (Figure 3).

The lowest scoring categories (based on average question score) were categories 1 (socio-ecological integrity) and 5 (precaution and adaptation) with an average question score of 10.8 and 12.6, and a median score of 12.5 and 12, respectively. Despite the different number of questions per category, this still remains the case when considered in proportion to score per question.

Of the 48 questions contained within the assessment tool, the highest score questions were 2.1; 2.5; 3.5 and 4.1. The lowest scoring questions were 1.3; 1.7; 1.8 and 4.6 (**Figure 3**). The mean score among all 48 questions was 13.38 out of a possible 34 points. The median score among the questions was 12. The maximum score (34) for each question was determined by the possibility of the question being addressed and elaborated upon fully (getting a score of 2) in all 17 documents.

Figure 3: HRPD Question score



4.4.3 Common Themes

The analysis of the documents revealed some common themes and areas of concern within the HRPDs, as well as areas that are rarely addressed. Perhaps unsurprisingly, the categories and questions on which the HRPDs scored the highest seemed to deal most directly with issues of social sustainability, such as the creation of democratic governance processes (Q:4.1; 4.2; 4.7), promoting health (Q:2.1; 2.2; 2.5) and improving wellbeing (Q:2.8; 2.9; 3.1; 3.3.6 [?]; 3.8). All 17 of the HRPDs mentioned and elaborated upon the issue of mental and physical health of drug users (Q:2.1) as well as the importance of access to healthcare services (Q:2.5). The high score

of (Q:3.5) and (Q:4.1) demonstrates a common interest throughout the documents in addressing stigma and reintegrating drug users into community decisions and outcomes.

Broadly speaking, the documents sought to approach the issue of drug use within their respective domains through a lens of health promotion, rather than top-down enforcement or criminalization. An emphasis on reducing the burden of disease was commonly found throughout the documents (Q:2.4), usually in reference to the spread of HIV, a concern also mentioned within the SDGs (SDG:3.2). Furthermore, the health of users (not the law) was shown to be a primary concern within the documents, with near-ubiquitous high scores throughout the HRPDs indicating an acknowledgment of the growing impact of drug use on population health (Q:2.1). Many of the documents expressed a nuanced understanding of health issues; viewing drug abuse and addiction as a multi-faceted issue (Q:1.2). For example, as one determinant of health (Health Canada, 1999; Pauly, 2008), access to essential health services is heavily emphasized within the HRPDs (Q:2.5).

The document analysis also revealed a concerted interest in the promotion of inclusion and the reduction of stigma. One of the highest scoring questions within the assessment tool was dealing with the inclusion and empowerment of people with “lived experience”⁴ within decision-making processes (Q:4.1). Aside from individuals with lived experience, a majority of the documents (82%) explicitly sought to establish relationships with a broad variety of stakeholders, including industry professionals, healthcare providers, community leaders, academic researchers, etc. (Q:4.2). Similarly, the reduction of stigma and discrimination is shown to be essential, which is demonstrated through the high scores of (Q:3.5) and (Q:3.7), which seek to reduce the stigma and discrimination of users and to consider the unique and

⁴ meaning those who have used or are currently using illicit drugs

diverse needs of vulnerable populations, including LGBTQ and indigenous communities. This demonstrated concern for inclusion was shown explicitly in a few documents (n=10) with (Q:4.7) identifying a desire for community cohesion. The role of the community was mentioned more explicitly than had been anticipated, with (Q:1.10 [?]) and (Q:2.3) (that dealt with the pursuit of community resilience and the role of the family in achieving population wellbeing) scoring well above the average question score.

The document analysis also showed some areas that were nearly entirely ignored. The HRPDs showed a general lack of consideration for environmental sustainability concerns. Category 1 contains three of the lowest scoring questions throughout the entire assessment tool, with (Q:1.3) and (Q:1.7) being entirely ignored by all documents. Aside from the acknowledgment of the complexities of public health (Q:1.5), issues of ecological integrity were also ignored within the documents. For example, not a single document dealt with issues of natural resources and ecosystems services (Q:1.7) or the ecological impacts of drug cultivation (Q:1.8). Only one of the seventeen documents mentioned climate change and its mention was only in passing reference to acting in accordance with an external document (Ontario Healthy Environments and Climate Change Guideline), though no specifics on how this would occur was stated. Additionally, though the "environment" was mentioned in a few situations, it was never discussed from an ecological viewpoint. Rather, documents discussed the "social" environment that can influence behaviour. While the social environment is an essential determinant of health to be discussed, the blatant disregard of physical environmental concerns presents a problem for the HRPDs.

Another theme was the lack of recognition for precaution as an objective for policy outcomes, both in failing to acknowledge potential conflicts (Q:5.1; 5.4; 5.5) and in focusing

exclusively on short term policy outcomes (Q:3.2; 5.1; 5.7; 6.1; 6.4; 6.5). Issues such as documentation of progress, policy longevity and policy integration were also ignored. While some documents (41%) made explicit their efforts to monitor and evaluate progress (Q:5.7), only one document (D:17) divulged an explicit plan to ensure policy longevity (Q:6.4). Furthermore, few documents discussed efforts to integrate with larger societal objectives (Q:6.1) or interaction with environmental or economic policies (Q: 6.3). The consideration of interconnections between and among domains is crucial for sustainability – gains in one area can easily be negated by failures of another, thus requiring sustainable processes to consider the interrelated nature of their proposition (Gibson, 2005; Mainali et al., 2018). An exemplary document in this regard was (D:4), which discussed and elaborated on five of the six questions and their interactions, but it was alone in this regard.

As discussed above, a potential limitation to the scoring system used in this study is that while it is able to identify whether particular issues are mentioned or elaborated upon, it is unable to assess the extent of commitment to these principles. As a result, even the relatively low scores seen here could exaggerate the actual extent to which these action are being done sustainably, particularly in light of the findings of Hyksha et al. Despite this, the modest recognition of sustainability in these documents demonstrates potential for improvement in future iterations and may represent progress towards coherent and sustainable public policy.

4.5 Discussion

With an average document score of 33 out of a possible 96 points, the documents displayed an apparent deficit in sustainability considerations and a general lack of concern for sustainability issues areas outside of the social realm. However, the common themes that arose

through the analysis, both in areas that were addressed or neglected, can be revealing for answering the research question and therefore merit further discussion.

The themes arose from an aggregate of questions from multiple categories and, while hardly inclusive of all the questions and issues discussed under the criteria categories, were selected for discussion based on their potential significance. By identifying the commonalities between HRPD and sustainability objectives, this analysis helps to provide opportunities for future iterations of policy and practice to create more meaningful and lasting benefits across environmental, economic and social dimensions.

4.5.1 HRPD Sustainability Success

i. A nuanced approach to healthcare

As harm reduction has an explicit focus on improving health outcomes for users (HRI, 2018), it was anticipated that health would become a central focus of the HRPDs. However, its obviousness does not make it any less important. For over 20 years, health has been seen as a critical component of international development and is reflected as such within much of the sustainable development discourse (Buse and Hawkes, 2015). As a set of guiding principles for sustainable development, the SDGs maintain an explicit emphasis on the importance of health and health outcomes, with goal 3 (and its 13 targets) seeking to “Ensure healthy lives and promote wellbeing for all at all ages” (UN General Assembly, 2015). From a broad perspective, one could view the entire SDGs framework as an effort to improve health, which focuses on ranging "from the biosphere to local community" (Morton et al. 2017). The wellbeing of a community is inextricably linked to health outcomes (Atkinson et al., 2017), thus making the preservation and promotion of individual and community health outcomes essential to any future

sustainability successes (Fortune et al., 2018). The centrality of health within the SDGs suggests that health policies that fail to consider broader sustainability implications are missing out on crucial synergies, thus making the exclusion of environmental and sustainability concerns within the HRPDs a necessary gap to address.

As shown in the results, the HRPDs' approach the issue of substance abuse through the lens of health promotion, frequently displaying a nuanced understanding of the determinants of health. This is to be expected within the Canadian context, as Canada has played an instrumental role in establishing the global discourse surrounding the social determinants of health (Bryant et al, 2011). Within the HRPDs, this understanding of the complexity of health was focused primarily on the different determinants of health and drug use, such as early trauma, culture, employment, income, social support, housing, health and services. By acknowledging the wide variety of health determinants, the documents place an implicit emphasis on the need for a holistic and considered approach to dealing with health issues. This desire for holism suggests the potential for collaboration with other perspectives and approaches that could affect health outcomes while simultaneously addressing sustainability concerns. For example, increasing the biodiversity of existing green space in urban areas has been found to have positive effects on mental health outcomes and general population wellbeing (Fuller et al., 2007). Despite the failure of the HRPDs to engage with ecological issues (as is discussed below), the eagerness to adopt a nuanced approach to healthcare leaves the HRPDs seemingly flexible to new approaches, and improvements from traditional policies utilizing a “diseased brain” model of addiction.

ii. The need for availability and access to services

The frequent mention of the need for improved access to services within the HRPDs also provides a potential linkage between harm reduction and sustainable development. The incorporation of harm reduction principles into health systems creates the potential for improved access to health programs throughout communities (Pauly, 2008) and has been shown to have substantial benefits, such as the reduction of fatal overdoses, risk-taking behaviors and in some cases the cessation of drug use (Boyd et al, 2017; Jozaghi & Anderson, 2013). Conversely, the lack of access to essential services can have detrimental health effects for users, being shown to be a critical determinant of relapse for crack cocaine users (Wallace, 1989) as well as youth injection drug users (Boyd et al., 2017). When discussing access/availability of services, the HRPDs tended to be referring to the geographic sense of the word. However, geographic barriers are not the only barriers to healthcare: “financial, qualitative and/or interactional barriers” exist as well (Pauly, 2008). To the credit of the HRPDs, many of these issues are addressed, though not in direct reference to access issues.

The importance of access and availability to services is found throughout the sustainable development literature, being viewed as a critical component of a socially sustainable community (see for example Bramley et al., 2006; Dempsey et al., 2011; Vavik and Keitsch, 2010). This is reflected within the SDGs themselves, with SDG 3.8 focusing on “access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all” (UN General Assembly, 2015). Access and allocation of resources is also central to governance scholars, with the most recent Earth System Governance Science and Implementation Plan highlighting access to resources and opportunity as critical dimensions of global inequality that require attention and care in order to pursue sustainability (Earth System Governance Project, 2018). This concern for issues of importance of

access and availability identifies a common goal between harm reduction and sustainable development, one that could potentially be achieved through cooperative policy making.

iii. The pursuit of inclusion and democratic governance

Another major strength of the HRPDs was their focus on processes of good governance (or the “processes of decision making and their institutional foundations” (Biermann et al., 2015)), which is an area of concern for both sustainability (see for example Burch et al, 2018) and social justice (Littig & Griessler, 2005). As such, governance was a critical consideration when designing the SDGs (Biermann et al, 2015), which is reflected in the many targets related to creating inclusive participation and accountable institutions (e.g. SDG 10.2, 10.3, 16.5, 16.7). This aligns directly with SDG 16.7, which seeks to “ensure inclusive participation” (UN General Assembly, 2015). The inclusion of users within governance processes is seemingly indicative of a broader theme found throughout many of the documents: the pursuit of an inclusive and cohesive society for drug users. This pursuit of a cohesive society further demonstrates the alignment between sustainable development and HR, which share a goal of creating equitable communities for all.

The findings align with the general understanding of harm reduction being a progressive approach to health policy, while also indicating a close relationship to some of the fundamental components of sustainable development. Despite failing to acknowledge sustainability explicitly, the HRPDs were shown to share a number of common concerns with the sustainable development literature, and are actively seeking solutions to many of the issues involved. In this way – through addressing issues of health, governance, and access – the HRPDs seek to contribute to sustainable development outcomes.

4.5.2 HRPD: Missing considerations and opportunities for the future

i. Environmental Omission

Aside from the interaction with social sustainability issues, the document analysis revealed some unexpected failures of harm reduction policy concerning their contributions to sustainability. The first, and perhaps most apparent, failure was the near total lack of environmental considerations throughout the documents. Despite the aforementioned “understanding” of the complexities of health, the documents fail to engage with the significant environmental determinants that influence health. Overall the physical environment is ignored, to the detriment of the policies and the users who are influenced by them. Furthermore, the HRPDs showed a general lack of attention to precaution and long-term planning, which was revealed by the low scores of categories 5 and 6. However, while the documents currently fail to engage with these issues, their failures can be viewed as opportunities for improvement in future policy iterations.

The reasons for the omission of environmental concerns are not entirely clear, though some reasons could be speculated. For one, the analysis of medical and social issues from ecological perspectives has long been criticized within the sociological and epidemiological scientific communities that regard such studies as “inherently inferior to individual level analysis” (Macintyre & Ellaway, 2000). Though this view of ecological analysis has been refuted (see for example Macintyre and Ellaway, 2000), its troubled history may have led to its omission from health policy, such as the HRPDs. A second potential reason for omission, and perhaps the more intuitive of the two, is the long standing social norms and understanding of drug abuse issues. Drug abuse and addiction, first viewed as a moral failing of the abuser and more recently

viewed as a neurological disease, situates the issue on an individual level. As seen by Hart (2017), by focusing exclusively on the issue of an individual's brain or on the removal of the drug from society, there is "neither a need nor interest in *understanding the role of socioeconomic factors* in maintain drug use or mediating drug addiction" (emphasis added). As such, the "diseased brain" model of addiction frequently leads to the creation of ineffective, costly and discriminatory drug policies (Hart, 2017). Though not explicitly stated by Hart, it is reasonable to assume that the problems that arise from the diseased brain model extend to the exclusion of socio-ecological determinants of addiction within policy as well, as seen within the HRPDs in this study.

Another reason for the neglect of environmental considerations could lie within incapacities of the governing institutions themselves. The institutional structures that shape policy and address particular public issues have a tendency to separate issues and their responses into isolated and distinct departments or categories, whilst simultaneously discouraging collaboration across sector or discipline. Although there seems to be a growing awareness of the importance of integrated planning and other "good governance" practices within government, institutional incapacities arising from issues such as a "lack of skills" or "administrative incompetence" plague many traditional government organizations (Plumptre and Graham, 1999). Furthermore, while inter-agency collaboration has readily recognizable benefits, the presence of characteristics such as a lack of communication or ideological differences can serve as significant barriers to collaboration (Majumdar, 2006). Particularly in areas as seemingly distinct as drug policy and sustainability, the lack of inter-agency collaboration (and thus attention to broader environmental and socio-economic considerations) is not entirely surprising. This speaks perhaps to the larger need, at least within the Canadian context, for cross-departmental

“institutionalization of sustainability”, the benefits of which could include “increased access to diverse resources,” “broader, integrated horizontal planning” and multiple benefits from drug policy initiatives (Dale et al, 2017, p.349).

ii. The role of ecological integrity in health outcomes

Despite some of the more obvious concerns with the absence of environmental considerations, the more pressing issue is the inconsistency that this absence represents. As demonstrated in section 4.6.1, the assessment has so far shown the HRPDs as having a nuanced approach to healthcare, offering a range of solutions that simultaneously seek to improve health outcomes for users and their communities. In this context, the lack of physical environmental considerations is glaring. Not only have the benefits of ecosystem services been demonstrated across the literature, but there have also been reported benefits of said services that align perfectly with the goals that the HRPDs seek to achieve. For example, green space has been shown to improve the mental health of people who live in urban environments (Nutsford et al., 2013); a benefit that continues to improve as the green spaces’ biodiversity increases (Fuller et al., 2007). This is particularly important, as urban contexts have been shown to expose people to unique conditions that predict for adverse mental and physical health outcomes (Galea et al., 2003; Valdez et al., 2007).

As the scientific community builds their understanding of addiction and its determinants, policy and practice should follow suit. By incorporating physical environmental concerns into future iterations of policy, HRPDs would be able to address sustainable development G targets such as 11.7 and 15.9 (provide universal access to safe, inclusive spaces and green space;

Integrate ecosystem and biodiversity values into national and local planning), while simultaneously making progress toward reducing the harms of drug use for drug users.

iii. The challenge of foresight

The deficit of points – and therefore, policy acknowledgment – across categories 5 and 6 (precaution and adaptation; immediate and long-term integration) presents the second area of concern that is worthy of discussion. The HRPDs’ failure to sufficiently address potentially negative consequences and conflicts suggests a lack of foresight regarding long term policy outcomes. By failing to acknowledge the potential challenges or negative impacts that these policies could face, policymakers make harm reduction out to be a utopian ideal. In doing so, the policies appear to be vulnerable to outside criticism and debate, as well as the risks associated with inflexibility. In this relatively new approach to drug policy, it is essential for future iterations of HRPDs to display honesty and foresight in their policy recommendations and acknowledging the potential need for future learning and adaptation and leaving space in the document itself to explore possible alternatives. If sustainable outcomes are to be achieved, options that are open to flexibility and reversibility should be explicitly considered (Gibson, 2005). This represents an important first step in applying the precautionary principle (Gibson, 2005), and suggests an opportunity upon which future policy can build.

Before the analysis, I had anticipated that the documents would have made explicit their plan to integrate harm reduction programs and beliefs into their respective domains (e.g., integration with law enforcement agencies, other health policy domains, etc.). Considering the controversial nature of HR, I had expected the policy-makers to elaborate on their vision for the future, such as where they saw these projects going, ideal long-term outcomes, and means of

building public understanding and support. However, I was mistaken. Few documents address the need for a sustained positive impact of these policies, nor their longevity beyond electoral cycles, future opportunities for improvement (e.g., future expansion of services or adaptation due to changes in need), or least of all future generations that will be impacted by these policies. This gives the impression of non-committal policymaking, or at the very least, policy making that is insufficiently aware of the impacts that current policies can have on future generations.

Monitoring the trade-offs and synergies between the different sectors of the SDGs is a “key development challenge”, with the failure to do so leading to “incoherent policies, adverse impacts to development policies of one specific sector on the other; loss of opportunity for positive synergistic effects and delayed outcomes leading to sustainable development” (Mainali et al., 2018: p.2). Future iterations of the HRPDs would ideally include a more explicit and broader conception of the possible synergies between and among policy domains. This would not only assist them in enhancing the longevity of their own contributions to wellbeing but also help to achieve stronger coherence across policies (SDG: 17.14). This may prove useful as a template for other policies.

Though the low consideration of the issues pertaining to categories 5 and 6 (precaution and adaptation and immediate and long-term integration) was unexpected, in hindsight it could have been more easily anticipated. It can be immensely challenging to create effective policies that extend beyond short term benefits (Mackenzie, 2016), particularly with controversial or innovative policy issues (such as harm reduction or sustainable development) (Head, 2010). It is therefore much more manageable for policymakers to work in the short term, with achievable goals, and reasonable targets. However, the long-term implications of policy are important to acknowledge, particularly when the issues will have diverse and lasting impacts. The creation of

a needle exchange program, for example, is of little use if the program is cancelled after one year, leaving users back where they started. In this sense, the entire discussion of drug policy and sustainability may present a bit of a paradox. For many, the goal of drug policy should be to mitigate abuse issues, not to sustain them. However, if we were to remove the normative assumptions tied to the issue, the reality becomes that drug abuse is an ever-present feature of modern society, and one that demands an approach that considers immediate and long-term consequences.

In addition to these reasons for low document scores, a major reason for the overall low scores of the documents lies in the vagueness and lack of elaboration on points that recognize the documents sustainability considerations. By failing to elaborate on the areas deemed important to sustainability, many questions were scored with “1”, making the scores lower than anticipated. This vagueness speaks to failures of commitment and should be addressed in future iterations.

4.6 Conclusion: A step in the right direction

In assessing the extent to which Canadian HRPDs contribute to or detract from sustainability objectives, potential synergies were revealed. Foremost, health and its many complex determinants are addressed prominently throughout the HRPDs. The determinants discussed within the documents run parallel with targets and goals of the SDGs, including poverty, housing, social inclusion, and access to services. This parallel is significant in both practice and future potential, revealing the extent to which contemporary HRPDs are already addressing issues of sustainability, as well as avenues for future policy to address a broad range of sustainability issues. Although the majority of the documents analyzed received low assessment scores, their points of failure can be viewed as places of opportunity for the development of more comprehensive future policy approaches. The desire for vertical and

horizontal consultation across boundary is present within nearly all of the documents, further demonstrating the willingness of policymakers involved to discuss collaboration within an interdisciplinary setting. Likewise, the lack of elaboration seen within many of the documents can serve as guidance for future iterations, where the specification of actions and an explicit commitment to said actions can and should be emphasized.

While the Canadian HRPDs have been analyzed previously (See Hyksha et al., 2017), they have not been assessed through the lens of sustainability. Further still, the relationship between harm reduction policy and sustainable development has been scarcely discussed within the literature, a relationship that this analysis proves increasingly interrelated. This paper demonstrates the current extent and limitations of this relationship within the Canadian policy context, opening up various opportunities for future research and clarifying the extent to which the two fields rely upon each other.

As a preliminary exploration of the relationship between sustainable development and HR, there are many avenues for future research that could bolster the findings of this assessment. One example of this is to conduct a policy "greening," as seen in Huge and Hens (2009). Working together with local policymakers, this process would seek to better incorporate ecological concerns into existing or new HRPDs by effectively aligning them with the ecological goals of sustainable development. This could extend to the incorporation of other areas of deficit revealed within this research, such as attention to long-term planning and precaution, as well as build on objectives already addressed such as livelihood sufficiency and housing affordability.

In conjunction with this, future research could be done concerning the impacts of the physical environment on health outcomes for drug users, through the lens of sustainable development. In general, sustainable development discourse should begin to incorporate drug

policy issues if it intends to reach its targets. This presents many areas of potential study, spanning across disciplines such as urban planning, human geography, environmental studies, and public health. In order to achieve sustainable communities, a nuanced approach to the issues that plague them must be utilized. Harm reduction, as a policy approach and philosophy, may be one component of sustainable progress: seeking to enable a just, sustainable and healthy future for all.

5 The long road ahead: Concluding thoughts and opportunities for the future

“At a time when drug-policy discussions are opening up around the world, there is an urgent need to bring the best of non-ideologically-driven health science, social science, and policy analysis to the study of drugs and the potential for policy reform.” – Csete et al., (2016)

5.1 Introduction

This final chapter will provide a brief overview of the significant findings of the preceding chapters, as well as explain the significance of these findings in the Canadian context (Section 5.2). It will also identify contributions to theory and methodology (Section 5.3). This chapter will also provide policy recommendations based on the findings of the research (Section 5.4), as well as opportunities for future research (Section 5.5).

In exploring the relationship between the harm reduction model of contemporary illicit drug policy and sustainable development, this project sought to identify existing and potential avenues for cooperative progress between policy makers working in the domains harm reduction and sustainable development to expand the range and depth of contributions to the clients of harm reduction programs, their surrounding communities and the broader public interest.

Though largely overlooked within the existing literature, drug policy weighs heavily on efforts toward sustainable communities, with prohibition-based policies often resulting in significant impacts to socio-ecological systems (Csete et al., 2016; HPA, 2015). By identifying the policy approaches that are able to best mitigate the harms associated with societal drug abuse, these barriers to sustainable development can be reduced. The identification of the synergies between sustainable development and harm reduction in this research are key for future policy improvement, in order to more effectively pursue the existing goals of both Canadian harm

reduction policy and the Sustainable Development Goals. The shared emphasis on wellbeing, social justice, and social cohesion represent the first stages of this cooperative relationship; in seeking the same goals, a bridge is created across disciplines, mandates and fields of practice that can encourage cooperation between distinct issue areas.

This project represents the first of what I hope to be a number of empirical studies examining drug policy through the lens of sustainability. The success or failure of sustainable development efforts is dependent upon cross-sector policy coherence, an objective made possible through the exploration of various policy approaches such as this project. Historic, and in many places still dominant, drug policy approaches that are focused on enforcement and incarceration have caused innumerable social, ecological and economic harms whilst simultaneously relegating illicit drug users to the fringes of society. In order to make ‘true’ progress toward sustainability the needs of all members of society, regardless of circumstance, must be considered. By promoting the rights, health and inclusion of drug users, harm reduction model offers an alternative approach that helps to achieve such a goal.

5.2 Reflection and results

5.2.1 Common goals, minor challenges, and opportunities for collaboration

Throughout this thesis, a number of related topics have been addressed. In Chapter 3, I conducted a comparative analysis of the historical and philosophical foundations of harm reduction and sustainable development. Although they exist within distinct domains, the comparative review revealed a plethora of commonalities between the two concepts. Most notably, both concepts share an explicit emphasis on justice and human rights, focusing heavily on the rights and needs of vulnerable populations. Furthermore, through confirmation of the stark

incompatibility between sustainable development and traditional “prohibition” based approaches to drug policy, the review indicated a need for harm reduction in order to achieve general community sustainability goals. In order for the transition towards sustainability to be successful, the needs and concerns of the most vulnerable populations must be addressed, an opportunity to which harm reduction seeks to respond. As means of sharing knowledge and mobilizing action between these two literatures, several concepts were proposed as bridging concepts based on their shared values of social cohesion, social justice and wellbeing and quality of life. This chapter concluded by identifying areas of potential coherence between harm reduction and sustainable development policy, using their shared values and histories as bridging concepts.

Chapter 4 builds upon the conceptual relationship developed in Chapter 3 and explores it further through the application of a sustainability assessment tool to examine 17 Canadian harm reduction policy documents (HRPDs). The analysis, seeking to understand the extent to which current HRPDs address issues of sustainability, was quite revealing. The review showed a general failure of the HRPDs to sufficiently address sustainability concerns. However, this is not to say that the documents were devoid of sustainability considerations. Issues pertinent to the social realm of sustainability (such as health, wellbeing, poverty, justice, human rights and access) were frequently addressed throughout. Furthermore, many of the documents maintained a nuanced understanding of the determinants of health, which suggests opportunity for the inclusion of a broader range of social and ecological considerations that may have influence. The chapter concludes by identifying potential avenues for future policy improvement, in ways that would be able to benefit both the outcomes of harm reduction and sustainable development focused individuals.

5.2.2 *Limitations*

This study has potential limitations. Foremost, if the sample size had been larger than the 17 HRPDs assessed within this study, it would have been possible to assess the statistical significance of the findings and draw more concrete conclusions. In future iterations of this research, I would recommend the use of a larger number of policy documents. This could include policy documents found across the country, not just in the three provinces selected for use within this study. In particular, the omission of Quebec-based policy documents (due to a language barrier) was certainly a limitation, as Quebec is both the second largest province in Canada and has an established record of harm reduction policy and services. Future research would ideally be conducted with a bilingual team, to enable to use of documents written in French as well as a more robust work force to complete the larger analysis. In addition, the inclusion of a broader array of document types would be useful for making this study more robust. Omitted due to lack of expertise and time constraints of the researcher, the inclusion of legal documents and highly specific policy documents could further legitimize the results of this study.

5.3 Contributions to methodology and theory

This project has sought to contribute to both the theory and methodology of sustainable development research, bridging a gap within the research with the common goals of two seemingly disparate fields.

5.3.1 “No one gets left behind”

The comparative analysis provided in Chapter 3 addresses a research gap between sustainable development and harm reduction, thus making a novel contribution to the existing literature. By

identifying areas where harm reduction and sustainable development overlap in their histories and values, the analysis identified links between the two concepts. Linking the two based on their shared objectives of justice, community cohesion and public wellbeing, this contribution provides a foundation for the inclusion of harm reduction within the sustainable development discourse. The significance of this is clear. With these commonalities as a foundation, I was able to construct the argument that without the utilization of the harm reduction model, the pursuit of a “holistic” form of sustainable development is inherently impossible to achieve. The philosophy of “no one left behind” touted by the proponents of the SDGs is a direct challenge to the way “traditional” drug policy has been conceived and carried out (UN General Assembly, 2015). Failure to engage with illicit drug users, a group that is highly vulnerable across numerous dimensions, is a failure to pursue sustainability in a meaningful way.

5.3.2 Identifying bridging theories based on shared normative perspectives and practical goals

Using the common values and principles identified in Chapter 3, I was able to propose several concepts from the discourses of health geography, environmental governance and environmental justice that could potentially serve as bridging concepts between the literatures of harm reduction and sustainable development. Bridging concepts have been identified as useful tools for sharing knowledge and enabling collective action between disparate fields and are thus highly useful for interdisciplinary research (cite). While this project lacked the space to explore these bridging concepts in practice, by identifying them based on common values they can potentially be utilized in future research to help achieve the common goals identified. The concepts proposed as bridging concepts were: good governance (as defined by the sustainability governance

literature); therapeutic landscapes (from health geography); just sustainably, (from environmental justice) and more generally, health. What these ideas represent are linkages between harm reduction and sustainable development. By operationalizing these concepts in future research, the pertinent issues identified in this thesis can be collaboratively addressed.

5.3.3 Policy assessment through the lens of sustainability

Using what was learned from the comparative review, I was able to then create a policy assessment tool for application within harm reduction policies. Building from the criteria for sustainability assessment described by Gibson (2005) as well as the CHARRP policy analysis framework described by Hyksha et al., (2017), I was able to create a unique assessment tool. When applied, this assessment tool enables the user to assess the extent to which a particular drug policy contributes to sustainability or fails to address elements that are key to sustainability progress. As they are contextualized for the use with drug policy, the assessment criteria used by the tool takes into account issues relevant to both drug policy and sustainability, such as access to services, inclusion of users in decision making, and, of course, health promotion. Made up of 48 questions spanning 6 broad categories (socio-ecological integrity; livelihood sufficiency and opportunity; equity; socio-ecological civility and democratic governance; precaution and adaptation; immediate and long-term integration), this tool allows for a comprehensive assessment of Canadian Harm Reduction Policy Documents (HRPD). In creating this tool, I have contributed to the methodology of policy analysis, as well as extended the potential application of sustainability assessment, an approach that has become increasingly popular for enhancement of sustainable decision making.

5.3.4 Assessing contemporary Canadian HRPDs

The assessment tool was then applied to 17 existing Canadian harm reduction policy documents. While Canada is certainly exemplary in its extensive use of harm reduction policy throughout the provinces and territories (particularly when compared to the rest of North America), the quality of Canadian HRPDs has been brought into question by some scholars. For example, after having conducted a quality analysis of HRPDs across the country, Hyksha et al., (2017) described them as having “poor” quality, with few documents “going beyond generic support”. Application of the sustainability assessment tool developed for this project was able to add substantially to the findings of Hyksha et al., for two reasons. For one, it was able to assess the quality of the HRPDs from the perspective of contributing to progress toward sustainability areas. In turn, this enabled the identification of crucial synergies that exist between HRPDs and sustainable development goals, further demonstrating the need for research. Secondly, by conducting this analysis with a sustainability lens, I was able to critically assess the HRPDs along different dimensions than the CHARRP analysis, thus enabling the identification of policy deficits that informed the creation of policy recommendations pertinent to sustainable development and harm reduction objectives.

5.4 Recommendations for policy enhancement

The progression from the literature review and comparative analysis in Chapter 3 to the document scan in Chapter 4 helped to delineate the relationship between the harm reduction and sustainable development on conceptual and empirical levels. As a result, I was able to formulate a number of recommendations for future policy. These recommendations provide options for future iterations of policy and provide a space for cross-sector experimentation.

First, the results of this project suggest an opportunity for Canadian HRPDs to incorporate ecological considerations into future policy iterations. As demonstrated in chapter four, these documents are largely devoid of ecological considerations. The literature acknowledging the potential significance of physical environment as a determinant of mental health and addiction (e.g., Nutsford et al., 2013) justifies this inclusion. Furthermore, the inclusion of sustainability-related social and ecological considerations aligns with the already holistic approach to health demonstrated by many of the documents and would be a natural progression. In this way, harm reduction policy would be able to cohere to principles of sustainable development more succinctly, whilst also improving outcomes for their target populations. To their credit, many of the HRPDs reviewed in this project demonstrated an appreciation of the complexity of health. In continuing to address social determinants of health whilst incorporating the broader suite of sustainability-related social and ecological ones, this appreciation for complexity would be fostered. To that end, future HRPDs should make an effort to more explicitly mention and engage with key sustainable development issues, such as resilience and climate change. Though perhaps seemingly tangential, these issues are relevant to the success and wellbeing of their community as a whole. In acknowledging their importance, they would be displaying a timely awareness, and open opportunity for potential collaboration.

5.5 Recommendations for practitioners

While policy changes can be beneficial for guiding actions, the grassroots-based nature of harm reduction shows that many actions start from the bottom, therefore necessitating an integration of sustainability considerations into real world practice. Though this thesis uses policy as a way to illustrate the shared values of harm reduction and sustainable development, recommendations for

practitioners can still be developed in the hopes of leveraging the lessons learned into bottom up changes. Examples of practical recommendations for harm reduction service providers include the following: taking steps to improve the physical environment surrounding their facilities; the potential relocation of services to areas more conducive to mental health; the creation of educational material for clients to better understand the role that environment plays on health; and engaging in dialogues with the local community to build a shared understanding of their role in creating an inclusive community. However, such recommendations would not be legitimate without first going through a process of co-creation that incorporates context-specific local knowledge to find relevant solutions, as well as considering other harm reduction factors to ensure that mutually enforcing gains are identified. As such, my one specific recommendation for practice is aimed at facilitating the co-creation of solutions among a broad range of community stakeholders.

My recommendation suggests the initiation of a series of workshops that would invite harm reduction service providers and their clients, as well as sustainability researchers and community members, to discuss the relevant findings of this thesis and to develop practical, context-specific approaches to integrate the sustainability perspective into harm reduction practice. Such a workshop would not only engage with a diverse group of stakeholders, but would also allow for the actions being taken, and the realities of service provision, to be explicitly identified by those most directly involved. These workshops should take place within a manageable geographic and political context, such as Metro Vancouver, and use lessons learned to replicate the process in other municipalities. The number of workshops would likely depend on the feedback provided by attendees but would ideally consist of two to five sessions over the course of a year in order to allow time for experimentation with new approaches and to report

critical findings. This would serve as both a way to build relationships in the community and to collectively create innovative approaches to a complex issue.

5.6 Future research

This review reveals tensions that exist within the sustainable development community, as well as avenues for remediating some of these tensions. While there have been criticisms of some of the sustainable development discourse for being too narrowly focused on ecological issues, recent advances have opened a variety of avenues for research to be conducted within the social realm that help to further build our understanding of what sustainability means, and how we can seek to achieve it. In this regard, the Sustainable Development Goals provide a particularly useful framework for the pursuit of a nuanced approach toward sustainability, incorporating social, economic and environmental considerations into societal outcomes.

The relationship presented throughout this paper has opened up multiple opportunities for future research. In creating these potential research directions, I sought to span across disciplines, with the goal of creating actionable knowledge that could help to meet the needs of policymakers and stakeholders alike. By demonstrating the compatibility, if not the necessity, for harm reduction as an avenue for urban sustainable development, this paper presents opportunities for future research to bolster this relationship; further bridging harm reduction and sustainable development two seemingly disparate approaches to reach a common goal. The following examples represent but a few options for future research in this area. Broadly speaking, further inquiry into SDG 3.5 (*Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol*) is required. Though the issue of substance abuse is addressed within this SDG target, research surrounding it, as well as efforts to truly

incorporate it into sustainability discourse, is minimal. Understanding the best options for achieving the various targets of the SDGs is essential for success, thus making the expansion of research surrounding SDG 3.5 crucial.

In order to pursue effective sustainable development, decision makers must be able to understand and identify the most effective policies (Degenhardt et al., 2013). The failure to engage with drug abuse issues presents a critical weakness for sustainable development efforts, as it represents a significant burden to progress. Substance abuse and mental health pose unique barriers to sustainable development, with suicide, dementia, addiction and other neurological disorders burden modern society, being responsible for over 10% of the global disease burden (WHO, 2015). Furthermore, drug trafficking impedes development progress, and has been shown to inflict social and health related harms that prevent progress on development (Singer, 2008). There are a few avenues for future research: some related more to policy analysis, and some aimed more at understanding the mechanism that policy is seeking to address.

- First (in regards to policy), it would be informative to apply the sustainability assessment tool used in chapter 4 to the HRPDs of other countries, and within different contexts. In doing so, a more nuanced understanding of drug policy and its influence on sustainable development could be achieved. Although this particular project was focused on the major urban hubs of Canada, there are hundreds of HRPDs across the globe that would provide useful insight into this process. With issues and complexities varying greatly across contexts (e.g., rural v. urban; global north v. global south), understanding the extent to which other HRPDs address sustainability concerns could inform future policy action. Such an analysis could be done by government officials or by individuals within the academic community. Due to the significance of this issue presented through this

thesis, ideally these assessments would be conducted within the next 5 years, so as to allow for proper integration and modification of future harm reduction policy documents.

- Another suggestion for future policy research would be to conduct a “greening” process with an existing HRPD. Modelled after the greening of poverty reduction documents conducted by Huge and Hens (2008), this process would seek to work with policy makers to incorporate aspects of environmental sustainability into existing socio-economic policy. As the Canadian HRPDs were shown to be lacking in ecological considerations (chapter 5), this process could be crucial in bridging the two domains and has potential to improve the policies as a whole. Utilizing a multi-dimensional conceptualization of environmental sustainability, the greening process has potential to “strengthen the decision-making process as a whole”, thereby supporting the “institutional pillar of sustainable development” (Huge and Hens, 2008). This process could also be used to address missing objectives related to long term planning and policy coherence, as well as reinforce social objectives already addressed such as access to affordable housing and healthcare. To conduct a similar project within the context of HRPDs would be a natural progression from this project. In order to do so, a partnership between policy-makers and scholars would be required. This could be done first at the municipal level in order to demonstrate its success, with the hopes of being replicated at the provincial or federal level in years to come.
- Finally, research that further explores the proposed bridging concepts would be of significant utility. As done by Abernathy (2014), the linking of two disparate literatures and areas of practice using a bridging concept can be useful for understanding the practical and theoretical sharing of knowledge. Future research could focus on the

creation of analytical frameworks grounded by one (or more) of the bridging theories proposed. In particular, I believe that the just sustainability concept would be a useful tool for this form of research, as it has been shown to be an effective concept for bridging ideas (equity and sustainable development) in the past.

As stated earlier in this thesis, mapping the potential synergies and trade-offs that exist between policy options is essential to achieving the SDGs, with failure to do so being potentially catastrophic to progress (Mainali et al, 2018). Furthermore, the inclusion of drug users into processes of development is crucial if sustainable development is to be pursued. As a group associated with historic discrimination and stigma (Ahern et al., 2007), drug users are at grave risk of being left to suffer the consequences of ill-considered policy. As stated by the Aruaco et al. (2014), “the people most likely to be left behind by development are those facing ‘intersecting inequalities’ of economic deficits intersecting with discrimination and exclusion on the grounds of identity”, a situation to which drug users have been relegated for some time. Drug policy reform that seeks to better address inequalities and health may be essential to achieving many of the sustainable development goals outlined in the SDGs (HPA, 2015). Understanding the synergies and trade-offs that exist between policies, such as between harm reduction and sustainable development, has an extended impact on sustainable development progress and success. For this purpose, the above recommendations can help to move in the right direction toward inclusive, integrated and sustainable drug policy.

5.7 A step toward synergy

Health, meaning the health of the community, the environment, and the individual, is first and foremost the quintessential goal of sustainable development. I contend that the main objective of sustainability is the creation of a healthy, resilient and empowered society. The SDGs set out by the United Nations present a framework that guides toward the achievement of this objective, one founded upon principles of justice and human rights. One such aspect of health is the health of people who use drugs, a group historically excluded from decision-making processes and discriminated against. As shown in this thesis, the harm reduction approach to drug policy presents a vital opportunity for sustainability scholars to make progress towards a variety of the SDGs through its explicit promotion of social justice, wellbeing and social cohesion and inclusion. As compared to historic approaches to drug policy, harm reduction is an essential step towards creating sustainable communities, and in mitigating the socio-ecological harms that are incurred through the use of illicit drugs while still treating drug users with respect and dignity. Without harm reduction as a policy framework, sustainable development is inherently impossible, as dictated by the explicit ethos of “no one left behind” promoted by the Sustainable Development Goals. This project represents one of the first of many linkages that will bridge the sustainable development and harm reduction discourse, in the hope of creating future synergies in policy and in practice. As demonstrated in the preceding chapters, the two fields share historic commonalities and shared objectives, and are in many ways working toward the same outcome. Together, they represent a step towards a sustainable future for all members of society.

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Appendix A: Assessment criteria questions

1. Socio-ecological integrity

- 1.1. Does the HRPD explicitly mention sustainable development in its strategic objectives?
- 1.2. Does the HRPD recognize the complexity and nuance of societal issues?
- 1.3. Does the HRPD refer to international commitments to sustainable development and drug use (e.g., SDGs)?
- 1.4. Does HRPD consider the impacts of drug policy on the physical environment (e.g., ecological damages caused by illicit drug cultivation, such as deforestation and crop eradication)?
- 1.5. Does the HRPD recognize the multiple, complex determinants of public health?
- 1.6. Does the HRPD acknowledge the relationship between environment and mental health?
- 1.7. Does the HRPD consider the value in natural resources (e.g., ecosystem services)?
- 1.8. Does the HRPD consider climate change and related issues?
- 1.9. Does the HRPD seek to build community resilience?

2. Livelihood sufficiency and opportunity

- 2.1. Does the HRPD address the physical and mental health of drug users?
- 2.2. Does the HRPD seek to improve community and individual wellbeing in its strategic goals?
- 2.3. Does the HRPD consider the role of family and community in population wellbeing?
- 2.4. Does the HRPD seek to mitigate the spread of disease among drug users? (HIV, Hepatitis, etc.)
- 2.5. Does the HRPD consider the availability and access of essential services to drug users?
- 2.6. Does the HRPD consider the role of poverty in drug abuse? Does it seek to address this issue?
- 2.7. Does the HRPD consider the availability of appropriate social protection systems for drug users?
- 2.8. Does the HRPD seek to address employment issues for drug users?
- 2.9. Does the HRPD consider housing issues of drug users (e.g., homelessness, slums, food deserts)?
- 2.10. Does the HRPD seek to provide access to safe and inclusive public spaces (including parks, greenspace, etc.)?

3. Equity

- 3.1. Does the HRPD explicitly acknowledge social justice or human rights issues?
- 3.2. Does the HRPD consider how services can best improve opportunities for future communities?
- 3.3. Does the HRPD acknowledge disparities between socio-economic classes?
- 3.4. Does the HRPD consider the need to address the socio-economic gaps in access to health care?
- 3.5. Does the HRPD consider the stigma and discrimination faces by drug users? Does it seek to address these issues?
- 3.6. Does the HRPD consider the violence associated with drug use? Does it seek to mitigate this violence?
- 3.7. Does the HRPD acknowledge the diverse and unique challenged faced by vulnerable

population groups? (e.g., indigenous peoples, LGBTQ)

4. Socio-ecological civility and democratic governance

- 4.1. Does the HRPD empower people with lived experience (i.e. previous or current drug users) and engage them in relevant deliberations and decision making? Are they considered as stakeholders within the ongoing deliberation process?
- 4.2. Does the HRPD consider participation, partnership and collaboration across boundaries of society? Does it actively seek to enable horizontal/ vertical consultation?
- 4.3. Does the HRPD promote community or individual learning and support of harm reduction principles?
- 4.4. Does the HRPD consider the negative impacts of enforcement and incarceration among poor and minority communities?
- 4.5. Does the HRPD recognize the need to reduce organized crime?
- 4.6. Does the HRPD acknowledge the social and ecological effects of urbanization?
- 4.7. Does the HRPD seek to promote social cohesion and inclusion?
- 4.8. Does the HRPD promote accountability and inclusion within its strategic goals?

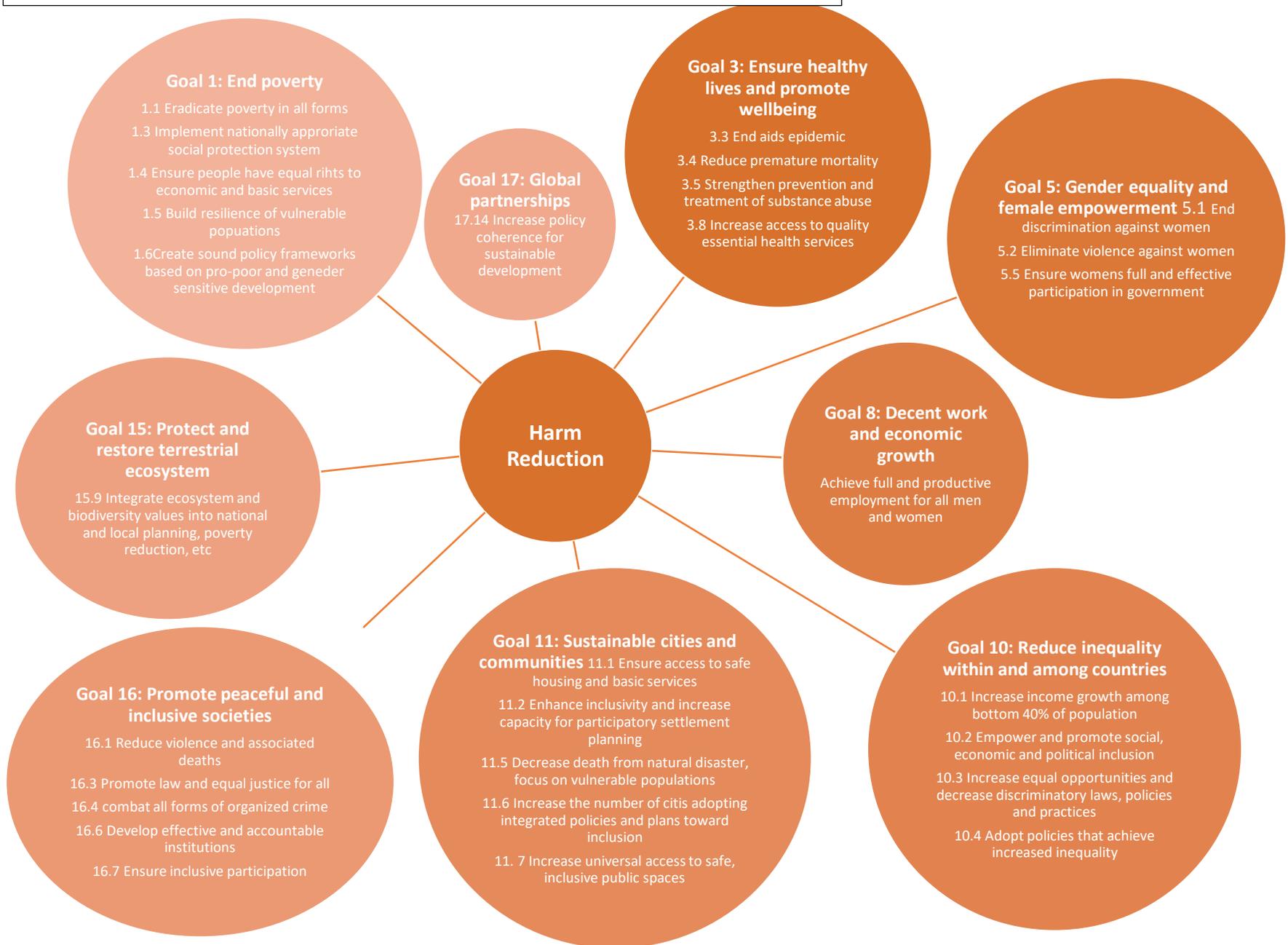
5. Precaution and adaptation

- 5.1. Does the HRPD consider the risk of negative impacts of harm reduction services? Does it make available viable alternatives?
- 5.2. Does the HRPD recognize uncertainty associated with harm reduction services? Does it seek to pursue evidence-based practices?
- 5.3. Does the HRPD allow space for learning and adaptation?
- 5.4. Does the HRPD consider potentially conflicting policy priorities?
- 5.5. Does the HRPD consider potentially conflicting cultural standards?
- 5.6. Does the HRPD consider alternatives, reversibility and caution?
- 5.7. Does the HRPD establish a process for monitoring and reporting to track progress?
- 5.8. Does the HRPD consider financial sustainability?

6. Immediate and long-term integration

- 6.1. Does the HRPD consider integration within existing societal objectives and services?
- 6.2. Does the HRPD consider long and short-term policy outcomes?
- 6.3. Does the HRPD consider policy interaction between social, economic and environmental policies across multiple sectors?
- 6.4. Does the HRPD seek to ensure policy longevity, going beyond electoral cycles?
- 6.5. Does the HRPD aim for multiple, mutually reinforcing and lasting gains?
- 6.6. Does the HRPD seek to enable transformational change to either community or health system?

Appendix B: Summary of sustainable development goal targets directly influenced by harm reduction policy



Appendix C: Full scoring sheet summary for all questions

	ON	ON	ON	ON	ON	ON	AB	AB	AB	AB	AB	BC	BC	BC	BC	BC	FED
1.1	0	2	1	1	0	0	0	0	2	0	1	1	1	0	2	2	0
1.2	1	2	0	1	1	2	0	0	2	1	2	0	2	0	2	2	1
1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.4	1	1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	0
1.5	2	2	0	1	2	2	0	0	2	2	0	1	0	2	2	2	2
1.6	1	1	1	1	1	0	0	0	1	2	1	0	0	0	2	1	1
1.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1.9	1	2	2	2	1	0	0	0	2	0	2	0	0	0	2	2	1
2.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2.2	1	2	0	1	2	0	0	0	1	0	0	0	1	0	1	1	1
2.3	2	2	2	1	1	0	1	0	2	2	0	1	1	0	2	2	2
2.4	2	2	0	0	1	2	0	1	0	0	0	2	2	1	1	1	2
2.5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2.6	0	2	1	1	0	0	0	0	1	1	0	1	0	1	1	1	1
2.7	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1
2.8	1	2	0	2	1	0	0	0	2	1	1	1	1	1	2	2	2
2.9	1	2	1	1	1	1	0	1	2	1	2	1	2	1	1	2	1
2.2.1	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0
3.1	1	1	0	1	0	1	0	0	1	1	0	1	2	0	2	2	1
3.2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	1	2	1
3.3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
3.4	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
3.5	2	2	1	2	0	2	1	2	2	2	2	2	1	0	2	2	2
3.6	1	2	0	0	0	0	0	0	1	1	1	0	0	0	2	2	1
3.7	0	2	2	0	1	2	1	0	0	2	1	1	1	1	2	2	2
4.1	1	2	2	2	0	2	2	0	2	2	2	2	2	0	2	2	2
4.2	2	2	2	2	2	2	1	0	2	1	2	0	2	0	2	2	2

4.3	2	2	2	2	1	1	1	0	1	1	2	2	2	1	2	2	2
4.4	0	2	1	1	0	1	0	1	0	0	1	0	1	1	0	0	2
4.5	1	2	0	0	2	0	0	1	0	0	1	0	1	1	0	0	2
4.6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.7	0	2	0	2	0	0	0	1	0	1	0	2	2	1	2	2	2
4.8	1	1	1	2	0	0	1	0	2	0	2	0	2	0	0	2	0
5.1	0	1	1	0	0	1	1	0	0	0	0	0	2	2	1	0	0
5.2	0	1	1	0	1	1	1	1	1	1	1	1	2	0	2	2	2
5.3	0	2	0	0	0	0	1	0	2	2	0	1	2	0	1	2	0
5.4	0	1	0	0	0	0	1	0	0	0	1	0	1	2	0	0	0
5.5	0	0	0	0	0	0	1	0	1	1	1	1	2	0	0	2	2
5.6	0	2	1	0	2	1	0	0	1	1	1	1	1	0	1	0	0
5.7	1	2	1	1	2	0	2	1	1	1	2	2	1	0	2	2	0
5.8	0	1	1	1	0	0	2	0	0	0	1	0	1	0	1	1	2
6.1	2	2	0	2	2	0	0	0	0	0	0	1	0	0	0	2	0
6.2	0	1	1	2	2	0	0	0	1	0	1	0	1	2	1	1	2
6.3	0	0	0	2	0	0	2	0	2	0	2	0	1	0	1	2	1
6.4	0	1	1	2	0	0	0	0	1	0	1	0	1	0	1	1	1
6.5	0	1	0	0	0	0	0	2	0	0	0	0	2	1	0	2	0
6.6	1	1	0	2	0	1	0	0	2	0	0	0	0	0	0	1	0
	33	64	30	45	31	29	23	17	46	33	39	30	51	23	53	61	48