

THE SUSTAINABLE CITY AND CLIMATE CHANGE¹

No city should be too large for a man to walk out of in a morning. ~ Cyril Connolly

1. INTRODUCTION

Among the major issues that have emerged over the past several decades in respect of the planet's health, three stand out for their actual or possible synergies—stabilization of greenhouse gases, the sustainable city and sustainable development.² Though all three lend themselves to being highly interconnected, they are only discussed in pairs and the stabilization of greenhouse gases is rarely referred to in connection with the development of sustainable cities. Accordingly, I modestly propose a reorientation of international policy and 'soft law' to the effect that sustainable development will provide the framework for an explicit linkage of greenhouse gas stabilization and the development of sustainable cities.

I will proceed by briefly describing climate change, a global environmental problem that informs this paper. I will then describe the sustainable city and indicate how I believe such a city can contribute to stabilizing or reducing greenhouse gases. Next, I will examine the current international law and policy of greenhouse gas stabilization and sustainable city development and indicate explicit and implicit points of overlap between them. Finally, I will attempt to link the need to stabilize greenhouse gases with the development of sustainable cities under an overall framework of sustainable development.

2. CLIMATE CHANGE

The phenomenon called 'climate change' was confirmed in a report published in 2001 by the Intergovernmental Panel on Climate Change (IPCC).³ I will briefly highlight the major points below.

It is beyond doubt that the planet is warming. Since 1861, the global average surface temperature has increased.⁴ Moreover, temperature increase in the 20th century has been the greatest of any century in the past 1000 years.⁵ Snow and ice cover are decreasing and mountain glaciers in non-polar regions are retreating.⁶ The global average sea level is rising. Global warming is also having an impact on other aspects of the climate. For example, precipitation increased over the course of the 20th century in some regions whereas in others the frequency and intensity of droughts increased.⁷

Most important for present purposes, it has been established that human activity is having an impact on the global climate and that natural climate variability alone cannot account for climate change.⁸ It has also been established that concentrations of greenhouse gas are contributing to global warming and that CO₂ emissions from the burning of fossil fuels are and will remain the predominant source of such gases in years to come.⁹ In order to reduce 'radiative forcing', which is responsible for the warming of the planet's surface, stabilization of greenhouse gas emissions will be required.¹⁰

The report indicates, with high confidence, that changes in temperature are already having an impact on physical and biological systems.¹¹ It is also understood that climate change will affect human systems such as "water resources; agriculture (especially food security) and forestry; coastal zones and marine systems (fisheries); human settlements, energy, and industry; insurance and other financial services; and human health".¹² Human and natural systems are vulnerable to climate extremes and its effects will disproportionately

affect the poor.¹³ Further, the consequences of climate change may include “future large-scale and possible irreversible changes in Earth systems resulting in impacts at continental and global scales”.¹⁴

Accordingly, humans will have to adapt, which would reduce but not eliminate the impacts of climate change.¹⁵ Not surprisingly, developing countries will have the most difficulty adapting because they have fewer resources for doing so.¹⁶

The report acknowledges that climate change is a unique problem because it is “global, long-term [...] and involves complex interactions between climactic, environmental, economic, political, institutional, social and technological processes” and there will be ‘uncertainty and risk’ in the decision-making related to it.¹⁷ For example, mitigation of climate change will be highly policy-centered with choices leading to different levels of greenhouse gas emissions and potential, collateral benefits of sustainable development.¹⁸

The IPCC report notes that successful mitigation of greenhouse gases will need to overcome barriers that are particular to different regions and sectors.¹⁹ Each State will also need to respond with a ‘portfolio’ of strategies in order to mitigate climate change.²⁰ Further, mitigation can be even more effective if it is integrated into policies to promote sustainable development as part of a broader transition process.²¹ Finally, and most important for present purposes, the report encourages the evaluation of mitigation options “in the context of development, sustainability and equity” including “exploration of alternative development paths”.²²

Interestingly, however, the IPCC does not make any reference in its report to the development of sustainable cities as an ‘alternative development path’ in which low-emission housing, transportation, and consumption patterns all play a role in reducing harmful greenhouse gas emissions. In other words, the report does not indicate the next step which must consist of making a link between sustainable cities and climate change. I believe, moreover, that this must be done within the context of international law and policy, which can serve as a guide for national and local decision-making and public participation.

3. THE SUSTAINABLE CITY

3.1. Introduction

This paper is based on two premises. The first is that the world is highly urbanized and that most of the world’s population growth will be in cities in the near future. At the turn of the twentieth century, 86 percent of the world’s population lived in rural areas but by 2000 this number had declined and the percentage of inhabitants living in urban areas reached 47 percent. Further, almost all population growth between now and 2030 is expected to be in the world’s cities.²³ This is not necessarily harmful to the environment because if people are more concentrated in one place this leads to more land for other activities and other collateral benefits.²⁴ For example, energy is used more efficiently in cities and it is easier to provide drinking water and waste systems.²⁵ Population growth centered in cities may also lead to fewer CO₂ emissions if cities develop in a sustainable manner, which leads to the second premise: enormous quantities of CO₂ are directly or indirectly emitted from cities with their higher concentrations of energy and transportation use. For example, in the United States, motor vehicles emit 20 percent of the nation’s CO₂, power plants emit 36 percent and industry accounts for most of the remainder.²⁶ Accordingly, if cities develop in a sustainable manner, it may be possible to mitigate climate change by providing the means for their inhabitants to adapt their travel, housing and consumption patterns. The issue that remains, however, is how to define a sustainable city.

The Habitat Agenda, which came out of the UN Habitat II conference in Istanbul, confirmed the principles of sustainable human settlement outlined in Agenda 21 (the plan for local implementation of the Rio Declaration on Environment and Development). These principles are:

- Providing adequate shelter for all;
- Improving human settlement management;
- Promoting sustainable land-use planning and management;
- Promoting the integrated provision of environmental infrastructure: water, sanitation, drainage and solid-waste management;
- Promoting sustainable energy and transport systems in human settlements;
- Promoting human settlement planning and management in disaster-prone areas;
- Promoting sustainable construction industry activities; and
- Promoting human resource development and capacity-building for human settlement development.²⁷

Interestingly, however, neither the Habitat Agenda nor Agenda 21 makes a link, explicit or implicit, between the development of sustainable human settlements and their role in addressing climate change. Whether this is due to an assumption that these matters are unrelated or if it is a matter of UN bodies not coordinating their efforts is unclear. What is clear, however, is that there is an understanding that the development of sustainable cities around the world is desirable and that the ability to do so exists now.^{27bis}

3.2. The European model of the sustainable city

The European model of the sustainable city finds its current basis and policy strength in the *Charter of European Cities & Towns Towards Sustainability of 1994* (the **Aalborg Charter** or **Charter**), *The Lisboa Action Plan: from Charter to Action of 1996* and *The Hannover Call of European Municipal Leaders at the Turn of the 21st Century* (the **Hannover Call**). The Aalborg Charter acknowledges that urban lifestyles are predominantly responsible for many of Europe's environmental problems, especially because the European population is 80 percent urban.²⁸ Accordingly, the Charter insists that cities and towns have a role in maintaining a livable planet through the development of sustainable cities.

Such development includes maintaining natural capital and ensuring that rates of consumption do not exceed rates of replenishment, the consumption of non-renewable resources is not greater than the rate at which renewable resources are replaced, and biodiversity is maintained.²⁹ The Charter recognizes that cities are both the largest 'unit' for addressing several issues, including environmental ones, and the smallest one for resolving such problems in an 'integrated, holistic and sustainable fashion'.³⁰ Sustainable city development also prohibits exporting environmental problems; rather, such matters must be brought into balance or absorbed by regional or national bodies.³¹

The Charter highlights several means for achieving sustainable city development. First, investments must be made in conserving 'natural capital' and encouraging its growth by reducing current levels of exploitation.³² Next, investments must be made in order to relieve pressure on natural capital by expanding it within cities, for example, by cultivating inner-city parks. Sustainable city development also includes increasing end-use efficiency by encouraging the construction of energy-efficient buildings and environmentally-friendly mass transit.

In addition to increased investment, sustainable city development includes integrating health care, employment and housing with environmental protection.³³ The Charter recognizes that there must be effective

land-use and development planning policies with environmental assessments.³⁴ The Charter also stresses that there must be an emphasis on “*reducing the need for mobility*” and taking advantage of high densities to enable efficient mass transit and energy use.³⁵ Further to this, the sustainable city is premised upon providing options to people so that they are not forced to use private vehicles but, rather, have choices such as walking, cycling or using mass transit.³⁶

Most important for present purposes, the Charter indicates that climate change poses risks to natural and built environments and that there must be efforts to mitigate, stabilize and reduce greenhouse gases.³⁷ Interestingly, however, the Charter does not take the next step and clearly establish that the sustainable city and lifestyle can facilitate that process. The Hannover Call, on the other hand, recognizes that climate change and other environmental problems “have their origins in air pollution, noise, and traffic congestion which are both *caused by* and affect citizens of cities and towns in their daily lives,”³⁸ [emphasis added].

Finally, the Charter recognizes the importance of local control and funding for the development of the sustainable city.³⁹ Public participation is also a key factor in implementing Agenda 21⁴⁰ which informs the Charter and its goals.⁴¹

3.2.1. Barcelona

Barcelona is an excellent example of the principles above being put into action. I will discuss just a few activities as a thorough examination of the pace of sustainable city development and volume of projects in Barcelona is beyond the scope of this paper.

Barcelona is engaged in an ambitious round of transportation projects. Three of the most important ones are the ‘Picasso Project’, a new rail network and a new urban transport policy.⁴² The ‘Picasso Project’ is specifically focused on linking roads throughout the Barcelona region as well as recovering space once used for roads for other public purposes.⁴³ For example, the ‘Ronda del Mig’ was an unsightly expressway that had divided several neighborhoods. It is now being covered with broad plazas and parks. High speed rail service is being built from Madrid to Barcelona and will eventually reach the French border where it will connect with the French high-speed rail system.⁴⁴ This service will run through intermodal stations in the heart of the city as well as at the El Prat international airport. And, finally, the metropolitan region’s mass transit authority is spending millions of Euros to extend and update metro, commuter railway, and tram systems in order to double the number of people who use mass transit.⁴⁵ The latter project is an element of the ‘Mobility Pact’—a social pact for sustainable mobility in Barcelona—which is environment- and people-friendly, better planned and more efficient.⁴⁶ I believe that the projects above will dramatically reduce CO₂ emissions as fewer people will be using private vehicles and space will be reclaimed that had been devoted to the automobile.

A major redevelopment project is also underway in the Besòs River area. A once blighted, industrial zone is being turned into space for the ‘2004 Universal Forum of Cultures’, which will address, *inter alia*, environmental sustainability.⁴⁷ The project will include a new shoreline, zoo, yacht haven, residential area, public transit and state-of-the-art technical installations, including a sewage sludge drying plant, an efficient electrical co-generation plant that pollutes less, and solar energy facilities.⁴⁸ Once the Forum is over, the entire area will be turned into a neighborhood like the successful Olympic Village after the 1992 Summer Olympics.

I believe that this project will be an excellent model of a compact, pedestrian- and transit- friendly neighborhood that is energy, mobility and space efficient and, accordingly, low emission.

3.3. An unworkable model

In contrast to Barcelona and the European model for developing sustainable cities, which is supported by the European Commission, many cities remain committed to an automobile-oriented approach, especially in North America. For example, the City of Virginia Beach, Virginia⁴⁹ is characterized by a “mostly low density residential setting” which is the form of development preferred by its citizens.⁵⁰ Moreover, though its “citizens do not savor a future in which [they] are committed without choice to an auto-only or even a roads-only mode of transportation”, its government remains paradoxically committed for the foreseeable future to “methods of transportation [that are] predominantly auto-oriented as they are now.”⁵¹

In light of the discussion about climate change above (*supra* Pt. 2), one must question how defensible an auto-oriented approach is given the consequences of climate change, the established understanding that CO₂ emissions greatly contribute to this problem, and Virginia Beach’s location, which makes it particularly vulnerable to sea level increases.

Virginia Beach is adjacent to a city with a traditional growth pattern (Norfolk, Virginia) and is not simply a suburb of a larger city; indeed, Norfolk now has a smaller population. Nevertheless, Virginia Beach’s development is highly similar to other “low-density, non-contiguous, automobile-dependent suburbs surrounding city cores” found throughout North America. It is the result of many factors, including Federal government policies and incentives for home ownership, Federal highway development, “government-funded extension of sewers and water lines, emergency services and new schools”.⁵² Dependency on the car (and especially the inefficient ‘Sport Utility Vehicle’⁵³) in Virginia Beach, as in many North American cities, is also the result of artificially low gasoline prices and major road construction projects, the latter of which ultimately divert funding from mass transit development.⁵⁴

The consequences of low-density, automobile-dependent sprawl in Virginia Beach and elsewhere are numerous. For example, it leads to greater air pollution and related health problems and the loss of “forests, wetlands, recreational wilderness and agricultural land”.⁵⁵ Most important for present purposes, however, sprawl-induced automobile dependency, and transportation generally, are “*leading contributor[s] to greenhouse gases and climate change*” [emphasis added].⁵⁶ Accordingly, I believe that the Virginia Beach model of city development should be disfavored and sustainable city development encouraged.

In the United States, the latter trend is known as the ‘Smart Growth Movement’, which promotes “a more controlled, intelligent urban planning process that encourages sustainable [city] development.”⁵⁷ Such development is characterized by mixed-use high-density neighborhoods around a town center. It is pedestrian, bicycle, and public transit-friendly and characterized by preservation of historic and cultural structures and green spaces and farmland.⁵⁸ One of the benefits, of course, is reduced reliance on the private vehicle for daily activity with the benefit of reduced climate changing CO₂ emissions. In the United States, however, there is still no Federal government agency with the mandate of promoting sustainable city development and only 12 states have enacted comprehensive planning legislation.⁵⁹

In light of the above, the Aalborg Charter describes a useful model for the development of the sustainable city, which can contribute to mitigating climate change while creating numerous collateral benefits. Moreover, these principles are being put into action in cities such as Barcelona. Accordingly, the next step is to promote this model and its global potential for climate change mitigation through international policy or ‘soft law’. In this way, a necessary but hitherto missing link will be made between the international law of sustainable city development and climate change.

4. THE INTERNATIONAL LEGAL REGIME

4.1. Greenhouse gas emission stabilization & reduction

The two major treaties addressing climate change are the UN Framework Convention on Climate Change and the Kyoto Protocol thereto.

4.1.1. The UN Framework Convention on Climate Change

The UN Framework Convention on Climate Change (the **FCCC**) does not establish emissions reductions targets but, rather, indicates that an ‘ultimate objective’ is to stabilize greenhouse gas omissions.⁶⁰ Consequently, the FCCC was necessary but not sufficient because earlier successful treaties for controlling transboundary air pollution relied on such targets. Moreover, any future action is based on the principle of ‘common but differentiated responsibilities’.⁶¹ This principle requires developed states to do more on their part in respect of climate change because of their greater contribution to greenhouse gas emissions. In particular, article 4(2)(a) requires developed states to show that they are ‘taking the lead’ by enacting legislation and policies to mitigate climate change through emissions reductions and sinks and reservoirs.⁶² Article 4(2)(b) requires developed states to report on their efforts with the aim of “returning individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide [...]”⁶³

For present purposes, the FCCC makes brief reference to the right of States Parties to promote ‘sustainable development’ and indicates that “policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programmes [...]”⁶⁴ However, there is no definition for sustainable development in the treaty. Instead, emphasis is placed on economic growth for developing countries and exemption from emissions reductions.⁶⁵ I believe that a link between the development of sustainable cities—with their greater efficiencies and arguably lower CO₂ emissions—would have been a useful corrective to granting such exemptions to developing countries, especially those with capacity for implementing elements of the sustainable city.

4.1.2. The Kyoto Protocol

As Peter Davies observes, the Kyoto Protocol (the **Kyoto Protocol** or **Protocol**)⁶⁶ addresses eight issues, however, I will only focus on those that may have some bearing on sustainable city development. First, under article 2 of the Protocol, Annex I nations (those listed in Annex B to the Protocol) are required to enact certain policies to reduce emissions.⁶⁷ These may include, *inter alia*, enhanced energy efficiency programs, protection and enhancement of sinks and reservoirs, new technologies, and emissions reductions in the transport sector.⁶⁸

Notably, however, there is no mention in this list of promoting the overall development of sustainable cities with their greater efficiencies and arguable role in reducing CO₂ emissions.

Developed countries must reduce their emissions during the period 2008-2012 by an amount that is at least 5 percent less than their 1990 levels.⁶⁹ Some commentators have observed, however, that the year 1990 introduces inequities because, for example, Germany's reunification led to great reductions in CO₂ emissions. Moreover, the selection of 2008 as the completion date does not take into account power plants or automobiles that have lifetimes beyond that year.⁷⁰ Developing countries do not have any new responsibilities under the Protocol pursuant to article 10. However, as explained above, they should not have received exemptions from emissions reduction, especially China which will pass the United States in annual emissions by 2013.⁷¹

Annex I nations may transfer or acquire 'emission reduction units' if they participate in joint projects with other Annex I nations for the purpose of reducing emissions, which can then be used to reduce their target requirements.⁷² For example, country A might finance a mass transit system in one of its cities with subsequent CO₂ emissions reductions through reduced private vehicle use. Under article 6(1) it could trade the credit for the reductions it has achieved with country B, another developed country. Additionally, the Clean Development Mechanism allows developed countries to receive emissions reductions credit for projects that they fund in developing countries with the aim of reducing greenhouse gas emissions.⁷³ Both mechanisms could be useful for the development of sustainable cities, particularly the Clean Development Mechanism. For example, a project might be financed by a developed nation for the construction of a comprehensive transit system in a developing country. The developed nation would receive credit for the emissions reductions resulting from a highly efficient form of transport and the developing nation would achieve one element of the sustainable city as well as collateral benefits such as less noise and congestion.

The Protocol does not specifically mention the development of sustainable cities within the context of mitigating climate change and reducing CO₂ emissions. However, articles 6 and 12 are promising inasmuch as they promote modalities for the development of a sustainable city.

4.2. Sustainable cities

The following documents prescribe agreed international policy in respect of sustainable city development. For present purposes, I will focus on those provisions in the documents that concern energy and mobility efficiency and planning, which are major factors for a reduced emissions urban environment.

4.2.1. The Vancouver Declaration on Human Settlements

The Vancouver Declaration on Human Settlements (the **Vancouver Declaration**), adopted in June 1976, was an outcome of the first major UN conference on human settlements. It centers on three themes—the New International Economic Order, development, and planning. For present purposes, I will only focus on the latter.

Emphasis is placed on the need to adopt spatial planning strategies that are suitable for local conditions and to build 'livable, attractive and efficient settlements which recognize human scale'.⁷⁴ The Vancouver Declaration also emphasizes that each nation can plan and regulate its land use in such a way that "the growth of population centres both urban and rural are based on a comprehensive land use plan."⁷⁵ Further to this, it encourages nations to "prepare spatial strategy plans and adopt human settlement policies to guide [...] socio-

economic development efforts”.⁷⁶ The Vancouver Declaration recognizes that such policies must also address environmental protection, however, an explicit link is not made between this and the need to avoid pollution of the biosphere and oceans and ‘irrational’ exploitation of resources.⁷⁷

I believe that the provisions relating to planning in the Vancouver Declaration are an early sign of the evolving concept of the sustainable city. Moreover, there appears to be an implicit recognition that well-designed human settlements with an eye towards economic development also have environmental benefits. Of course, there is no linkage to climate change because the science was not well understood at that time.

4.2.2. Habitat Agenda

The Habitat Agenda (the **Habitat Agenda** or **Agenda**) is human-centered and draws its inspiration from principle 1 of the Rio Declaration on Environment and Development (the **Rio Declaration**) (*see infra* Pt. 4.3.1). Moreover, it incorporates the other Rio Declaration principles of “the precautionary approach, pollution prevention, respect for the carrying capacity of ecosystems and preservation of opportunities for future generations”.⁷⁸

The Agenda is also based on two themes: ‘Adequate shelter for all’ and ‘Sustainable human settlements development in an urbanizing world’.⁷⁹ The first theme focuses on that segment of the world’s population that lacks shelter and protection whereas the second focuses on economic and social development and environmental protection.⁸⁰ I will focus on the second theme and, in particular, planning, production/consumption, and energy and mobility efficiency in light of the need to establish a link between sustainable cities and their role in mitigating climate change.

Regarding planning, the Agenda emphasizes that cities “properly planned and managed, hold the promise for human development and the protection of the world’s natural resources through their ability to support large numbers of people while limiting their impact on the natural environment.”⁸¹ This is particularly important because a city’s ecological and social footprint goes far beyond its borders. For example, access to work and shopping areas should be enhanced through efficient spatial planning (e.g. mixed-used, high density development) and accessible, environmentally friendly, quieter, and energy-efficient transit.⁸² The Agenda also encourages land to be developed in such a manner that transport use is reduced altogether.⁸³ Other positive land-use policies include redeveloping brownfields and creating more green spaces in urban environments.⁸⁴

With regard to production and consumption patterns, the Agenda emphasizes that they must be changed to be more sustainable, to reduce environmental stress, and to promote efficient and rational natural resource use.⁸⁵ Current patterns are high-emission and are leading to ever increasing amounts of waste and placing pressure on inadequate waste treatment facilities. The sustainable city, on the other hand, is based upon changes of attitude in respect of consumption patterns and new ways of treating waste that are efficient and sustainable.⁸⁶

The Agenda also emphasizes reduced energy consumption, which is one of the largest sources of greenhouse gas emissions. For example, urban and rural planning and design should play a role in making end-user energy consumption more efficient.⁸⁷ Renewable and safe energy sources should be introduced into human settlements.⁸⁸ Energy-efficient systems for generation, distribution and use of energy should also be

promoted and research encouraged on ‘non-motorized or low energy transport systems’.⁸⁹ The public should be encouraged to be more energy-efficient and user fees can provide an economic ‘stick’ for facilitating this.⁹⁰ Energy production should be made more low-emission through the “reduction and neutralization of emissions of polluting gases originating in the generation, transportation and use of energy”.⁹¹ Technology should also be harnessed to reduce energy use through solar heating and cooling, energy efficient design, and building improvements.⁹²

The Agenda also addresses transport which, as it notes, is a major consumer of non-renewable energy and land and contributes to pollution. Of course, as explained above, transport is also a major source of greenhouse gas emissions. The Agenda encourages transport policies that promote means of mobility other than the automobile (through pricing, spatial planning and regulatory measures⁹³), improved land-use policies, alternative fuels and fuel vehicles and improving the environmental efficiency of current means of transport.⁹⁴ The Agenda also recommends disincentives for automobile use which, as explained above, emits large amounts of CO₂.⁹⁵

In sum, the Agenda is the most progressive and comprehensive international document to date on the development of sustainable cities. In respect of climate change, it makes a brief reference to dependence on non-renewable energy sources as one factor contributing to this problem.⁹⁶ However, I believe that this mere reference points to the need to establish a more explicit link between sustainable city development and climate change mitigation.

4.2.3. Istanbul Declaration on Human Settlements

The Istanbul Declaration on Human Settlements⁹⁷ (the **Istanbul Declaration**), which was adopted at the Habitat II conference in Istanbul, reaffirms the Habitat Agenda. The Istanbul Declaration also confirms that environmental protection and improving human settlements require a commitment to “sustainable patterns of production, consumption, transportation and settlements development; pollution prevention; respect for the carrying capacity of ecosystems; and the preservation of opportunities for future generations”.⁹⁸ In other words, the Istanbul Declaration affirms those principles in the Agenda that are fundamental for the development of sustainable cities. Nevertheless, the Istanbul Declaration does not take the step of recognizing the role that the sustainable city can play in the mitigation of climate change.

The Istanbul Declaration also takes its inspiration from the Rio Declaration. It recognizes the principle of ‘common but differentiated responsibilities’ as well as the ‘precautionary principle’ approach to action.⁹⁹ The Istanbul Declaration also recognizes the importance of Agenda 21, which implements the Rio Declaration at the local level, and the importance of the same level of implementation for the Agenda.¹⁰⁰ Indeed, there is an interesting interplay between these documents and the localities to which they apply because global problems, such as environmental degradation, are ‘localized’ and city problems are placed within a global context.

4.2.4. UN General Assembly Declaration on Cities and Other Human Settlements in the New Millennium

The Declaration on Cities and Other Human Settlements in the New Millennium (the **Declaration on Cities**) confirms that the Agenda and Istanbul Declaration are the international legal framework for the development of sustainable human settlements. It also confirms that such development is human-centered.¹⁰¹ Interestingly, the document notes that actions taken at the local level can have global environmental

implications, which can be addressed in the context of sustainable cities.¹⁰² It is unclear, however, if this is an implicit reference to climate change.

The Declaration on Cities observes that soon over half of the world's population will live in cities. Moreover, it recognizes that the environment is continuing to deteriorate and that steps towards the development of sustainable cities have been impeded.¹⁰³ Accordingly, it emphasizes that the Agenda must be implemented immediately. To do so, local control and public and NGO participation will be necessary.¹⁰⁴

The Declaration on Cities makes brief reference to such sustainable city concepts as sustainable transport,¹⁰⁵ planning,¹⁰⁶ and sustainable production and consumption.¹⁰⁷ Interestingly, the Declaration on Cities also emphasizes the need to *integrate* and *harmonize* Agenda 21 with the Habitat Agenda in order to 'promote sustainable urban planning and management'.¹⁰⁸ I believe that this call for integration should be expanded so as to coordinate the goals of the FCCC and the Kyoto Protocol—climate change mitigation—with those of Agenda 21 and the Habitat Agenda. In short, sustainable development generally (social and economic development and environmental protection) can serve as an international policy framework through which the development of sustainable cities and the mitigation of climate change can be linked.

4.2.5. UN General Assembly Resolution 56/206

This resolution¹⁰⁹ recognizes that there is a greater need to integrate the Habitat Agenda with the UN system. Accordingly, it provides for the transformation of the UN Centre for Human Settlements into UN-Habitat. This agency and its secretariat are now *the* focal point for the coordination of human settlements development at the UN,¹¹⁰ which may lead to greater synergies with other UN bodies dedicated to implementing the Kyoto Protocol and Agenda 21.

4.3. Sustainable development

Though environmental deterioration was addressed at the Stockholm Conference of 1972, it was not until 1992 at the UN Conference on Environment and Development that the concept of 'sustainable development' became a recognized element of international environmental law.¹¹¹ 'Sustainable development' broadly encompasses the following substantive elements: "sustainable utilization of natural resources; the integration of environmental protection and economic development; the right to development; the pursuit of equitable allocation of resources both within the present generation and between present and future generations [...]; and the internalization of environmental costs through application of the 'polluter pays' principle".¹¹² It also contains the procedural elements of public participation and environmental impact assessment.¹¹³ For present purposes, I will focus on those provisions in the documents below regarding sustainable city development and climate change mitigation and indicate implicit points of linkage between the two. In other words, I will demonstrate how the concept of sustainable development can be a useful framework for linking sustainable city development and climate change mitigation.

4.3.1. Rio Declaration on Environment and Development

The Rio Declaration does not address sustainable city development *per se*. However, as noted above (*supra* Pt. 4.2.2), the Habitat Agenda incorporates, *inter alia*, the following Rio principles: the precautionary approach, pollution prevention and preservation of opportunities for future generations.

The precautionary approach (Principle 15) encourages the “development of specific measures of law and policy despite scientific uncertainty”.¹¹⁴ This principle of sustainable development underlies sustainable city development as well as the FCCC (Article 3(3)). Therefore, I believe that the principle could serve as a link between sustainable city development and climate change mitigation. In other words, specific policies for sustainable city development could be developed in the spirit of mitigating climate change despite some scientific uncertainty as to what its exact effects will be in future. Accordingly, specific policies for energy and mobility efficiency and planning could be encouraged instead of automobile-dependent sprawl in light of the need for precaution in respect of climate change.

Pollution prevention is more accurately described as ‘preventive action’ which is indirectly referred to in Rio Principle 11. It is the obligation to “prevent damage to the environment, or to otherwise reduce, limit or mitigate such damage”.¹¹⁵ This principle, in addition to underlying sustainable city development, informs the ‘overall objectives’ of the FCCC which are the prevention of dangerous human interference with the climate.¹¹⁶ I believe that this principle can also serve as a link between the city and climate change. For example, by encouraging compact, mixed-use development (with its energy and mobility efficiencies) and mass transit use (and thereby reduced automobile use), climate changing gases can be reduced and climate change mitigated.

Finally, the principle of intergenerational equity—Rio Principle 4—ensures that natural resources are preserved for present and future generations.¹¹⁷ This principle is found in Article 3(1) of the FCCC and also underlies sustainable city development. This principle could be a link between the need to develop cities that are energy and mobility efficient, and hence lower emission, and the need to preserve a healthy climate system for current and future generations.

In sum, the Rio Declaration establishes a *framework* for sustainable development which informs both sustainable city development and climate change mitigation. In other words, it can facilitate synergies between different aspects of sustainable development (such as climate change mitigation and sustainable city development) in light of the overarching goals of environmental protection and economic development.

4.3.2. Agenda 21 & the Programme for the Further Implementation of Agenda 21

Agenda 21 is, simply put, a plan of action for sustainable development. As one writer notes, such development is not an option, it is a requirement for the future health of the planet.¹¹⁸ Agenda 21 is an enormous document, thus I will focus on those sections that address the development of sustainable human settlements and indicate potential points of linkage with climate change mitigation.

First, Agenda 21 addresses the need for proper city management. For instance, cities must be managed in such a way that sprawl (discussed *supra* Pt. 3.3) does not expand and “increase pressures to convert open space and agricultural buffer lands for development”.¹¹⁹ Agenda 21 also promotes environmentally sound land-use planning which includes, for example, ‘national land-management plans’ and legislation to guide “environmentally sound urban development, land use, housing and urban expansion”.¹²⁰ In short, Agenda 21 promotes more compact cities which have greater energy and mobility efficiencies and are lower emission.

Agenda 21 also encourages sustainable energy and transportation use. It notes that increasing energy efficiency, reducing energy production-related pollution and encouraging renewable energy use are important

elements of sustainable city development.¹²¹ Further, Agenda 21 promotes a reduction of the “negative impacts of energy production and use on human health and on the environment, particularly in urban areas”.¹²² Finally, Agenda 21 encourages mass transit use and land-planning which reduce transportation demand.¹²³

Though this plan of action does not make an explicit link between sustainable city development and climate change mitigation (indeed, Agenda 21 does not mention climate change), it captures the most important elements of the sustainable city.

The Programme for the Further Implementation of Agenda 21 (the **Programme**) was adopted by the General Assembly in 1997 with a focus on accelerating the implementation of Agenda 21.¹²⁴ It notes that sustainable human settlements development is an integral part of sustainable development, especially because over half of the world’s population will soon live in cities.¹²⁵ The Programme also notes that “urbanization is a cross-sectoral phenomenon that has an impact on all aspects of sustainable development”.¹²⁶

The Programme emphasizes the need to fully implement the Habitat Agenda and Agenda 21, which would require, *inter alia*, “[n]ew and additional financial resources” and “[t]ransfer of expertise and technology, capacity-building, decentralization of authority [...] and private-public partnerships to improve the provision and environmentally sound management of infrastructure and social services”.¹²⁷ Interestingly, however, a link is not made between the need for sustainable city development with climate change which is discussed separately in the Programme.¹²⁸

4.3.3. The Johannesburg Declaration and Johannesburg Plan of Implementation

The Johannesburg Declaration and Johannesburg Plan of Implementation were adopted at the World Summit on Sustainable Development on 4 September 2002. For present purposes, the Johannesburg Plan of Implementation (the **Johannesburg Plan**) makes only brief references to human settlements.¹²⁹ The Johannesburg Declaration does not mention sustainable city development.

In respect of climate change, the Johannesburg Declaration only makes brief reference to it and its adverse effects.¹³⁰ The Johannesburg Plan, on the other hand, discusses climate change but there is only brief reference to the need for transport policies that are integrated into the sustainable development framework.¹³¹ No explicit linkage is made, however, between the development of sustainable cities and climate change mitigation.

5. LINKING THE INTERNATIONAL LAW AND POLICY OF CLIMATE CHANGE MITIGATION & SUSTAINABLE CITY DEVELOPMENT

The Rio Declaration clearly provides a general framework for sustainable development. Further, the Habitat Agenda and Agenda 21 are the most useful and powerful documents of agreed international policy on sustainable city development, however, they do not explicitly link such development with climate change mitigation. The FCCC and Kyoto Protocol, on the other hand, focus solely on climate change mitigation and promote ways in which to do this but do not make specific reference to sustainable city development. Therefore, now is the time to explicitly link the agreed policy and law for both.

5.1. The Rio Declaration revisited

The Rio Declaration created an unprecedented synergy between the concepts of environmental protection and social and economic development.¹³² I believe that a synergy should now be promoted between the stabilization or reduction of greenhouse gases and the development of sustainable cities with sustainable development as the supporting framework. The objective would be the ultimate stabilization or reduction of atmospheric concentrations of greenhouse gases, in particular CO₂, with several collateral benefits for the inhabitants of the world's growing cities including, *inter alia*, quieter, cleaner and more efficient urban spaces and poverty reduction. Moreover, the creation of this synergy would 'localize' the climate change issue while 'globalizing' the problems particular to the world's cities, especially those in developing nations, by clearly tying them to an issue that is already having an impact on all regions of the world. Further, I believe that making such an explicit link would energize movement towards both goals because of the all-around positive outcomes made possible by doing so. Finally, making this link is obvious and urgent because the byproducts of current urban lifestyles are a major component of climate change.

The discussion above regarding the Rio Declaration (*supra* Pt. 4.3.1) has already established how that agreement can provide a supporting framework for the linkage of climate change mitigation with sustainable city development. In particular, certain Rio Principles—the precautionary approach, pollution prevention and the preservation of opportunities for future generations—underlie the climate change mitigation regime and the agreed international policy on sustainable city development. Accordingly, I believe that the Rio Declaration should be the supporting framework and guiding document for creating a synergy between sustainable city development and climate change mitigation. The next step is to determine how this link can be explicitly established and made effective.

5.2. The Kyoto Protocol revisited

As discussed above (*supra* Pt. 4.1.2), the most useful modality in the Kyoto Protocol for promoting the development of sustainable cities is the Clean Development Mechanism. The Joint Implementation scheme in Article 6(1) of the Kyoto Protocol may also be useful in helping developed countries reduce their own emissions.

Nevertheless, an explicit connection between these modalities and sustainable city development is not made. Accordingly, there should be a reorientation of this regime to the effect that sustainable city development projects are explicitly encouraged using Kyoto Protocol modalities. In this way, emissions reductions are achieved and sustainable city development promoted within the overall framework of sustainable development. This reorientation will require more cooperation than currently exists, however, as explained in the next section.

5.3. UN-Habitat/ FCCC Secretariat cooperation

There is no indication whatsoever that there is cooperation between the UN-Habitat Secretariat, which administers the Habitat Agenda as explained above (*supra* Pt. 4.2.5), and the FCCC Secretariat. The FCCC Secretariat does, however, "coordinate with the secretariats of other relevant international bodies, notably the Global Environment Facility (GEF) and its implementing agencies (UNDP, UNEP and the World Bank), the Intergovernmental Panel on Climate Change (IPCC) and other relevant conventions."¹³³

At a minimum, these two secretariats should begin coordinating their efforts to make effective the goals of the Habitat Agenda, Agenda 21, the FCCC and the Kyoto Protocol thereto. Indeed, they are both required to cooperate with other international bodies generally.¹³⁴ Both secretariats should discuss ways in which the Kyoto Protocol's modalities can be most effectively utilized for funding projects that contribute to sustainable city development. They should also coordinate their efforts such that implementation of the plans of action for sustainable city development in the Habitat Agenda and Agenda 21 promote the goals of the FCCC and Kyoto Protocol when possible, especially because a significant proportion of CO₂ emissions are a byproduct of urban lifestyles. By doing so, localities are energized to address a global emergency while at the same time they receive the benefits of funding and technology transfer contained in the FCCC and Kyoto Protocol.

5.4. Funding

For now, the financial mechanism for FCCC projects is the Global Environment Facility (the **GEF** or **Facility**), which is implemented by the United Nations Development Programme, the United Nations Environment Programme, and the World Bank.¹³⁵ GEF climate change projects focus on “1) removing barriers to energy efficiency and energy conservation; 2) promoting the adoption of renewable energy by removing barriers and reducing implementation costs; 3) reducing the long-term costs of low greenhouse gas emitting energy technologies; and 4) supporting the development of sustainable transport”.¹³⁶ Though the GEF clearly funds *elements* of the sustainable city, there does not appear to be an explicit acknowledgement of the broader picture, namely, sustainable city development as a major factor in climate change mitigation. Moreover, there is no indication that there is any coordination between the GEF and UN-Habitat and the Facility is not mentioned in the Habitat Agenda. Accordingly, I believe that the GEF should coordinate with UN-Habitat together with the FCCC Secretariat so that greater efficiencies and synergies can arise with respect to the role sustainable city development can play in climate change mitigation.

In respect of funding for the Kyoto Protocol, the Conference of the Parties has the responsibility of arranging for the funding of such projects.¹³⁷ Moreover, the Conference of the Parties has made it clear that “public funding for clean development mechanism projects from Parties in Annex I [to the Kyoto Protocol] is not to result in the diversion of official development assistance and is to be separate from and not counted towards the financial obligations of Parties included in Annex I.”¹³⁸

5.5. The explicit link: a UN General Assembly resolution

An *explicit* link must be made between the development of sustainable cities and climate change mitigation through international policy and ‘soft law’ with the Rio Declaration as the framework supporting this linkage. Accordingly, I believe that a UN General Assembly resolution (the **Resolution**) would be appropriate especially because the General Assembly is the most representative body in the United Nations and is part of the “three-tiered intergovernmental mechanism to oversee the coordination of the implementation of the Habitat Agenda”.¹³⁹

First, the Resolution should reaffirm the principles of the Rio Declaration, particularly with regard to the development of sustainable cities, and promote it as a framework for linking sustainable city development and climate change mitigation. The Resolution should reaffirm the goals and principles, commitments and global plan of action in the Habitat Agenda as well as the bases of action, objectives, activities and means of

implementation in Agenda 21. The Resolution should, of course, reaffirm the objectives of the FCCC and Kyoto Protocol. Further to the above, the Resolution should encourage a *holistic* approach to sustainable development, sustainable city development and climate mitigation. Accordingly, instead of a piecemeal approach to sustainable city development, in isolation from broader concerns such as climate change, the Resolution should characterize the matter as a larger system in which such development—including energy and mobility efficiency and spatial planning—have a larger role in maintaining the health of the Earth’s atmosphere.

Second, the Resolution should insist that UN-Habitat and its secretariat coordinate with the FCCC Secretariat on the development of sustainable cities as a mitigating factor in respect of climate change. Such cooperation would be logical because UN-Habitat has the mandate of promoting sustainable city development which, as explained above, can promote CO₂ emissions reduction. The FCCC Secretariat is, of course, the body responsible for carrying out the mandates of the FCCC and Kyoto Protocol.

Third, the Resolution should encourage access to the GEF by UN-Habitat project beneficiaries as a means of financing sustainable city development projects. The Resolution should also reaffirm Clean Development Mechanism funding in the Kyoto Protocol, particularly in respect of sustainable city development projects. A review process could be established whereby the Facility finances those projects that promote sustainable city development with the aim of mitigating climate change. This would work towards the goals of the Habitat Agenda, FCCC, Kyoto Protocol, and GEF with positive outcomes for all involved.

Finally, the Resolution should emphasize the Aalborg model for sustainable city development (*supra* Pt. 3.2) and discourage automobile dependent, high emission sprawl. The Resolution should note that urban lifestyles are predominantly responsible for many of the planet’s environmental problems, including climate change, but that cities have great potential for mitigating climate change. The European approach to city development, as described in the Aalborg Charter and with Barcelona as an example, would be an excellent model to promote.

6. CONCLUSION

It is clear that human activity is contributing to climate change and that highly inefficient, high emission transportation and energy use are among the most significant causes. The sustainable city may be a useful corrective to this problem because of its great potential for energy, mobility and spatial planning efficiencies. Though up until now there has been almost no explicit coordination between these two issues, there is little doubt that current urban lifestyles must change. Accordingly, it is time to reorient current international law and policy in such a way that the sustainable city is seen as part of a holistic approach to climate change mitigation. The knowledge for promoting such cities and the pieces of a rough legal framework exist. It is simply a matter of acknowledging the obvious and encouraging international actors to promote new synergies under the aegis of sustainable development for the health of the Earth, the well-being of our cities and the security of future generations.

Endnotes

¹ J.D., LL.M. Mr Spence is currently the Hague Researcher for the Harvard Sussex Program on CBW Arms and Armament Limitation, and is on loan to the Organisation for the Prohibition of Chemical Weapons.

² The UN term for this concept is 'sustainable human settlements'. I will use 'sustainable city' and 'sustainable human settlements' interchangeably.

³ IPCC, 2001: Climate Change 2001: Synthesis Report. A Contribution of Working Groups I, II, and III to the Third Assessment Report of the Intergovernmental Panel on Climate Change, Watson, R.T. and the Core Writing Team (Eds.).

⁴ Summary for Policymakers, Climate Change 2001: The Scientific Basis, at 2.

⁵ *Id.*

⁶ *Id.* at 4.

⁷ *Id.* at 4-5.

⁸ *Id.* at 10 ("The balance of evidence suggests a discernible human influence on global climate").

⁹ *Id.* at 10, 12.

¹⁰ *Id.* at 12.

¹¹ Summary for Policymakers, Climate Change 2001: Impacts, Adaptation, and Vulnerability, at 3-4.

¹² *Id.* at 5.

¹³ *Id.* at 6.

¹⁴ *Id.*

¹⁵ *Id.* at 6-7.

¹⁶ *Id.* at 8.

¹⁷ Summary for Policymakers, Climate Change 2001: Mitigation, at 3.

¹⁸ *Id.* at 3.

¹⁹ *Id.* at 11-12.

²⁰ *Id.* at 12.

²¹ *Id.*

²² *Id.*

²³ B. Crossette, *Demographers puzzled by declining birthrates*, International Herald Tribune, 28 Aug. 2002, at III (Environment: A Special Report).

²⁴ *Id.*

²⁵ A. C. Revkin, *The search to soften man's impact*, International Herald Tribune, 28 Aug. 2002, at IV (Environment: A Special Report).

²⁶ Sierra Club Global Warming and Energy Program, *A Dangerous Experiment*, www.sierraclub.org/globalwarming/dangerousexperiment/solutions.asp (2000).

²⁷ Report of the United Nations Conference on Environment and Development, UN Doc. A/CONF.151/26 (Vol. I), Ch. 7 (1992).

^{27bis} See The State of the World's Cities Report 2001, <http://www.unchcs.org/istanbul+5/statereport.htm>, at 66 (2001) ("local authorities are directly influencing energy use and emissions").

²⁸ Charter of European Cities & Towns Towards Sustainability, Pt. I (1994).

²⁹ *Id.* at I.2.

³⁰ *Id.* at I.3.

³¹ *Id.* at I.5.

³² *Id.* at I.6.

³³ *Id.* at I.6 & I.7.

³⁴ *Id.* at I.8.

³⁵ *Id.*

³⁶ *Id.* at I.9.

³⁷ *Id.* at I.10.

³⁸ Hannover Call of European Municipal Leaders at the Turn of the 21st Century, at Annex 3(b) (2000).

³⁹ Charter, *supra* note 28, at I.12.

⁴⁰ The plan that implements the Rio Declaration on Environment and Development at the local level.

⁴¹ Charter, *supra* note 28, at I.13.

⁴² Barcelona: New Projects, at 11 (Oct. 1999).

⁴³ *Id.*

⁴⁴ *Id.* at 23.

⁴⁵ *Id.* at 28-29.

⁴⁶ Mobility Pact Barcelona, at 3 (1998).

⁴⁷ Barcelona: New Projects, *supra* note 42, at 16.

⁴⁸ *Id.* at 19-20.

⁴⁹ The author's hometown.

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- ⁵⁰ Comprehensive Plan, City of Virginia Beach, Virginia, at 9 (1997).
- ⁵¹ *Id.* at 45.
- ⁵² Sustainable Development in Europe, North America and Central Asia: Progress Since Rio, UN Doc. ECE/CEP/84, at 26 (2002).
- ⁵³ One writer has noted that SUV sales have increased in the last several years while average gas mileage continues to decrease and the US Congress refuses to tighten fuel efficiency standards. P. Singer, *One World: The Ethics of Globalization 2* (2002)(citation omitted).
- ⁵⁴ Sustainable Development, *supra* note 52, at 26.
- ⁵⁵ *Id.*
- ⁵⁶ *Id.*
- ⁵⁷ *Id.* at 28.
- ⁵⁸ *Id.*
- ⁵⁹ A. Brown, C. Collins, T. Frank et al., *Sprawl: The Dark Side of the American Dream*, <http://www.sierraclub.org/sprawl/report98/report.asp#intro> (1998).
- ⁶⁰ UN Framework Convention on Climate Change, 29 May 1992, *reprinted in* 31 ILM 849 (1992), at art 2.
- ⁶¹ P. Davies, *Global Warming and the Kyoto Protocol*, 47 Int'l & Comp. L. Q. 449 (1998); *see* Framework Convention, *supra* note 60, at art. 3(1).
- ⁶² Framework Convention, *supra* note 60, at art. 4(2)(a).
- ⁶³ *Id.* at art. 4(2)(b).
- ⁶⁴ *Id.* at art. 3(4).
- ⁶⁵ P. Davies, *supra* note 61, at 224.
- ⁶⁶ The Kyoto Protocol to the United Nations Framework Convention on Climate Change, 10 December 1997, *reprinted in* 37 ILM 22 (1998).
- ⁶⁷ *Id.* at art. 2.
- ⁶⁸ *Id.* at arts. 2(1)(a)(i), 2(1)(a)(ii), 2(1)(a)(iv), 2(1)(a)(vi).
- ⁶⁹ *Id.* at art. 3(1).
- ⁷⁰ J. Shaw, *The Great Global Experiment*, 105 Harvard Magazine 35 (2002).
- ⁷¹ *Id.* at 43.
- ⁷² The Kyoto Protocol, *supra* note 66, at art. 6(1).
- ⁷³ *Id.* at art. 12(3).
- ⁷⁴ The Vancouver Declaration on Human Settlements, I(1)(a)-(b) (1976).
- ⁷⁵ *Id.* at II(10).
- ⁷⁶ *Id.* at III(2).
- ⁷⁷ *Id.* at II(11).
- ⁷⁸ Report of the United Nations Conference on Human Settlements (Habitat II), Istanbul, 3-14 June 1996 (UN Doc. E.97.IV.6), chap. I, resolution 1, annex II.
- ⁷⁹ *Id.* at para. 29.
- ⁸⁰ *Id.* at para. 2.
- ⁸¹ *Id.* at para. 7.
- ⁸² *Id.* at para. 43(n).
- ⁸³ *Id.* at para. 111.
- ⁸⁴ *Id.* at para. 112.
- ⁸⁵ *Id.* at para. 43(j).
- ⁸⁶ *Id.* at para. 133.
- ⁸⁷ *Id.* at para. 146(a).
- ⁸⁸ *Id.* at para. 146(b).
- ⁸⁹ *Id.* at para. 146(c)-(d).
- ⁹⁰ *Id.* at para. 146(f), para. 146(i).
- ⁹¹ *Id.* at para. 146(h).
- ⁹² *Id.* at para. 146(j).
- ⁹³ *Id.* at para. 149.
- ⁹⁴ *Id.* at para. 149.
- ⁹⁵ *Id.* at para. 151(d).
- ⁹⁶ *Id.* at para. 145.
- ⁹⁷ Report of the United Nations Conference on Human Settlements (Habitat II), Istanbul, 3-14 June 1996 (UN Doc. E.97.IV.6), chap. I, resolution 1, annex I.
- ⁹⁸ *Id.* at para. 10.
- ⁹⁹ *Id.*
- ¹⁰⁰ *Id.* at para. 12.

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- ¹⁰¹ The Declaration on Cities and Other Human Settlements in the New Millennium, UN Doc. A/RES/S-25/2, at para. 1 (2001).
- ¹⁰² *Id.* at para. 4.
- ¹⁰³ *Id.* at para. 28.
- ¹⁰⁴ *Id.* at para. 39.
- ¹⁰⁵ *Id.* at para. 59.
- ¹⁰⁶ *Id.* at para. 60.
- ¹⁰⁷ *Id.*
- ¹⁰⁸ *Id.* at para. 61.
- ¹⁰⁹ General Assembly Resolution 56/206, UN Doc. A/RES/56/206 (2002).
- ¹¹⁰ *Id.* at para. I(B)(1).
- ¹¹¹ P. Birnie & A. Boyle, *International Law and the Environment* 86 (2002).
- ¹¹² *Id.* at 84.
- ¹¹³ *Id.* at 86.
- ¹¹⁴ P. Sands, *International Law in the Field of Sustainable Development: Emerging Legal Principles*, in W. Lang (Ed.), *Sustainable Development and International Law* 65 (1995).
- ¹¹⁵ *Id.*
- ¹¹⁶ *Id.*
- ¹¹⁷ *Id.* at 58-59.
- ¹¹⁸ D. Sitarz (Ed.), *Agenda 21: The Earth Summit Strategy to Save Our Planet* 6 (1993).
- ¹¹⁹ *Id.* at 178.
- ¹²⁰ *Id.* at 180.
- ¹²¹ *Id.* at 187.
- ¹²² *Id.* at 188.
- ¹²³ *Id.* at 189.
- ¹²⁴ Programme for the Further Implementation of Agenda 21, UN Doc. A/RES/S-19/2, at para. 3 (1997).
- ¹²⁵ *Id.* at para. 32.
- ¹²⁶ *Id.*
- ¹²⁷ *Id.*
- ¹²⁸ *Id.* at paras. 48-56.
- ¹²⁹ Report of the World Summit on Sustainable Development, UN Doc. A/CONF.199/20, at 48, para. 71 (2002)
- ¹³⁰ *Id.* at 3, para. 13.
- ¹³¹ *Id.* at 19, para. 21(a).
- ¹³² *See, e.g.*, The Rio Declaration on Environment and Development, Principle 4 (1992).
- ¹³³ The Secretariat [of the UN FCCC], <http://unfccc.int/secret/secretariat.html>.
- ¹³⁴ Framework Convention, *supra* note 60, at art. 8(2)(e); General Assembly Resolution 56/206, *supra* note 109.
- ¹³⁵ Global Environment Facility, Focal Areas, http://gefweb.org/Projects/Focal_Areas/focal_areas.html; *see* Framework Convention, *supra* note 60, at arts. 11, 21(3).
- ¹³⁶ *Id.*
- ¹³⁷ Draft decision -/CMP.1 (Article 12): Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol, Annex, at para. B(4)(d).
- ¹³⁸ Decision 17/CP.7: Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol, Preamble.
- ¹³⁹ General Assembly Resolution 56/206, *supra* note 109, at para. III(1).