Committee: Special Conference on the Sustainable Development Goals

Question of: Sustainable Cities and Communities (Goal 11)

Students Officer: Marta Olaizola

Introduction:

Continuing population growth and urbanisation are projected to add 2.5 billion people to the world's urban population by 2050, putting pressure on modern living. In fact, more than one million people a week are moving to urban environments, and by 2050, more than two-thirds of the world's population will live in cities.

This massive urbanisation presents many challenges in terms of people's general health and wellbeing, safety, and overall quality of life as we will be exposed to higher levels of pollution, climate change, and human migration, not to mention the issue of waste management. Just looking at energy consumption and greenhouse gas emissions in Europe, for example, buildings alone account for more than two-thirds of total primary energy demand and of total greenhouse gas emissions.

It is estimated that 50% of the world's population now live in cities. With this migration into large urban centres, the difficulty of meeting the basic needs of millions has become an ever-increasing problem. Overpopulation, excessive consumption, pollution, and depletion of resources have presented environmental and health challenges in major cities. The need has never been greater to find solutions and reimagine urban landscapes. In1994, the Aalborg Charter for sustainable cities and towns was created, and since then cities around the world have been leading the way in innovative and integrated approaches to sustainable living.

The Issue:

There is no single model of a sustainable city, rather they are a choice of different solutions designed to support long-term ecological balance. However, there are some fundamentals that are critical to the classification of every sustainable city:

1. Access to public resources:
   The wellbeing of residents is critical in sustainable cities, which means guaranteed access to quality education, safe health centres, easy to access public transportation, garbage collection services, safety and good air quality, among other modern living necessities. As populations and challenges change within cities, so to does the need for adaptive solutions to resources. For example, New York City created a post-Sandy action plan consisting of 250 ambitious

infrastructure resilience initiatives including transportation, telecommunications, parks, insurance, and buildings.

2. Urban renewal actions:
The renovation of public spaces is another fundamental characteristic of sustainable cities. Public streets, squares, parks, urban spaces as well as modern irrigation and waste management practices are vital aspects of sustainable living. They help preserve the cultural heritage and identity of a city through renovation and restoration.

Ideally, urban renewal in a city is done in a completely integrated way. For example, in Melbourne, there are rebates designed to incentivise property owners to adopt sustainable practices resulting in the efficient use of energy and water whilst reducing their waste to a minimum.

3. Reduction of CO2 emissions:
The reduction of CO2 and other poisonous gases harmful to the ozone layer is perhaps the most significant measure of a city's environmental commitment. Lowering CO2 levels can be achieved through the long-term shift towards using renewable energies, vertical gardens, a good supply of alternative means of transport (e.g. bicycles, trains and electric buses) and household commitment to water and energy saving. One surprising city leading the way is Shenzhen, China, where in December 2013 a new fleet of more than 6,000 units of eco-friendly vehicles were introduced, becoming the largest zero emissions service fleet in the world.

4. Favouring ethical consumption:
It is now well understood that over-consumption leads to excessive depletion of natural resources, greater waste and harmful by-products associated in the manufacturing process. Therefore, it is critical that sustainable cities must promote and encourage ethical consumption, local food production and fair trade that both supports local supply chains and are environmentally friendly.

5. Reduce, reuse and recycle:
Managers of a sustainable city must raise awareness about the importance of recycling and responsible consumption, and create infrastructure that allows for minimal waste. And change is possible in a short space of time if cities show leadership. San Francisco has implemented an 11-year-old zero waste program, which now sees 80% of all trash diverted from landfills. By 2020, the city hopes to bring that up to 100%.

The majority of the world is now urban. Cities are attracting people because they are centres for economic activity and can offer a higher quality of life: there are more jobs, more services available, transport options to move within the city, trade, knowledge exchange, and connections to other cities and countries. As a result, in 2050, two-thirds of the world population is expected to live in cities.

Many countries are looking at their cities as engines for advancing national growth. As the world continues to urbanize, the highest concentration of growth is expected to be in Asia and Africa, regions that are home to some of the poorest countries in the world. Inequality is highest in urban areas – one out of three urban residents in the developing world lives in a slum. Cities are the highest consumers of energy and responsible for 70 percent of greenhouse gas emissions. Shocks and stresses such as natural disasters and economic crises tend to hit cities the hardest, as the concentration of people and assets makes them particularly vulnerable.

Cities around the world are implementing innovative ideas to efficiently manage urbanization. They are facing challenges head on and placing themselves on a path toward sustainability. Increasingly, city governments are becoming empowered administratively and financially to be able to serve their growing populations, offering good public transport options, access to clean water, effective waste management, and other essential basic services. As national governments recognize the importance of urban areas to their overall economic growth, the World Bank Group is increasingly being asked to support city sustainability worldwide, whether it's by helping improve own-source revenue collection, creating urban infrastructure and access to transport, or adapting energy efficient options for city industries to run cleaner and at a lower cost.

Characteristics of a Sustainable City

1) A controlled population for whom adequate, meaningful employment is available.
2) Adequate governance set-up which can meet the needs of the populace and ensures civic responsibilities, community participation, a sense of identity, transparency and equity in local institutions.
3) Efficient basic civic amenities for a reasonably comfortable existence. For example, due to the shortage of power, more than 50% of power is illegally consumed without payment to the municipal corporation, leading to corruption, astronomical financial losses and inadequate supply to those who pay for its consumption. Same goes for water, which is inadequate to meet the demands of the population.
4) Planned housing colonies with adequate infrastructure like schools, parks, drainage system, local healthcare establishments.
5) An appropriate transport system, as transportation affects the environment. Transportation planning has to take into consideration a wide range of options and choices like adequate roads, parking lots, alternate system of transportation, mass transit facilities. The aim should be to reduce the total vehicle kilometres driven in congested areas, thus reducing the pollution and emission of greenhouse gases. This can only be affected if the number of vehicles on roads are reduced. At present, there are about 34 lakh registered vehicles on Delhi's roads, of which over 22 lakhs are two-wheelers which are the main polluting vehicles.
6) Effective environmental infrastructure to address the issues of untreated sewage and waste polluting rivers, lakes and coastal zones, (thus threatening water ecosystems).
7) Empowerment of women and encouraging their participation in the political, social and economic life of a city and adoption of urban policies that consider women's needs and initiatives.
8) Development of an efficient urban private sector, both formal and non-formal which reduces poverty by generating jobs and helping in economic growth.

9) An efficient health-care system which would also address issues of nutrition, family planning and sanitation.

10) A mechanism in the form of a policy initiative for industrial dispersal to satellite townships where better employment opportunities are created.

Consequences:

Advantages of a Sustainable City:

The importance of sustainability in the urban setting cannot be over emphasised. As it concerns the very survival of a city, healthy cities contribute to a healthy nation. Clean environment and economic growth are complimentary to each other and result in a vibrant community who see themselves as "stakeholders" in all aspects of daily life. In addition are:

1. A city which provides its inhabitants with every basic amenity for a reasonable standard of living.
2. Used resources are regenerated and sustained without getting depleted.
3. A society which takes part in good governance and allocation of its economic resources for the well-being of its people.
4. Where citizens are law-abiding, conscious of their role and contribute to the all-round development of the city.

Issues to be addressed:

For a sustainable city, the following aspects have to be addressed:

- Empowerment: Addressing the economic, social, political and institutional inequalities which prevent the poor and disadvantaged groups from having access to and influence over policies and interventions, which in turn influence their lives.
- Security: Addressing the risk and vulnerability which poor communities in the big cities will increasingly face in the global environment and which may trap them into poverty.
- Opportunity: Putting in place the conditions for investment and sustainable development of the environment or increase risk and vulnerability.
- Financing: For improving public services and utilities, employment opportunities, housing, health and education for all communities in the cities.

Key Events

Event/Date	Explanation
Conference of Events & Training from Environmental Analyst Ltd	20th September 2018. At the Holiday Inn, London-Kensington High Street, UK. A conference where 12 speakers talked about environmental opportunities in planning reform, brownfield policy, infrastructure requirements and housing market outlook to build sustainable towns and cities.
Columbia University's International Conference on Sustainable Cities	1-2nd May 2018 at the Columbia University in New York. It was the sixth annual conference that the ICSD (International Conference on Sustainable Development) in collaboration with the SDSN (Sustainable Development Solutions Network) and MDP (Master's in Development Practice Programs) have made. The aim of the conference is to bring together persons involved in research, policy, practice, and business that will share practical solutions for achieving the SDGs at local and national levels.
International Conference on Urban Regeneration and Sustainability	1-3rd October 2019 at Valencia, Spain. This conference addresses all the aspects of urban environment aiming to provide solutions leading towards sustainability. This conference follows a series of very successful meetings that started in Rio (2000), followed by Segovia (2002), Siena (2004), Tallinn (2006), Skiathos (2008), A Coruña (2010), Ancona (2012), Kuala Lumpur (2013), Siena (2014), Medellin (2015), Alicante (2016) and Seville (2017).
8th European Conference on Sustainable Cities and Towns	27-29 April 2016 at Basque Country, Spain. Around 900 participants from 40 countries adopted the Basque Declaration which provides urban societies with pathways to become more productive, sustainable and resilient.

Previous Attempts to Solve the Issue

The United Arab Emirates, and Dubai in particular, have taken major strides in the digitization of services, processes and assets, and have emerged as a regional leader. The Smart Dubai initiative was born out of the visionary approach of His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and The Ruler of Dubai, to focus the city's unified efforts towards its most valued asset – its people. The vision of Smart Dubai is to become the happiest city in the world (by embracing technology as an enabler). The Smart Dubai initiative plays a pivotal role in guiding and enabling the city's ongoing digital transformation across all sectors. Since the Smart Dubai initiative was founded in March of 2014, the city has witnessed exceptional growth in the availability and quality of digital services contributing to more efficient and improved city experiences for the government, private sector and individuals. Dubai embarked on its smart and sustainable city transformation through several tracks including legal, governance, infrastructure and services, among others.

In the U.S., cities like Portland, Oregon, have taken the lead on the path to creating a sustainable future. For the past several decades, Portland's local government has initiated numerous projects aimed at reducing greenhouse emissions by 2050, including revamping the city transit system, building greener facilities that utilize solar energy, and upgrading homes to be more energy efficient. As a result of these sustainability efforts, the city's use of fossil fuels has been reduced and their green structures initiative has also created hundreds of new jobs.

Another great example of current sustainability effort is the development of sustainable sewage systems that take a more natural approach to water treatment by developing freshwater ecosystems for the purpose of treating wastewater. One of these sewage systems have been implemented in Nebraska and is currently providing water to approximately 120 households without taking up any additional energy (excluding discharge pumps). Proponents of this method suggest viewing the wastewater in sewage as a valuable resource for the enrichment of soil and other purposes.

As the impacts of global warming increase each year, developing sustainable cities will continue to be important within the United States, and the world as a whole. Although sustainable strategies should be implemented as soon as possible, it's important to remember that developing efficient, long-lasting initiatives is a process that takes time. For quick, short-term changes, citizens and communities may benefit from assessing their current lifestyle to determine where they can decrease environmental impact and preserve natural resources.

In the Asian context, we should emulate the example of Singapore and Kuala Lumpur, (Malaysia). Both these metropolises have achieved a high standard of living in a relatively short period of time. Such an achievement is not only the responsibility of the government but the people alike. Responsible citizenship demands an effort from each and every individual in the society. If that is not forthcoming, the government has to come down hard to ensure a clean, healthy environment. It is at all levels - individual, household, community and city – that striving will produce tangible results. An attitude of care for the environment, controlling pollution, following housing norms, honest effort and meaningful utilisation of economic resources will have a positive impact for the sustainable growth of a city.

13 of the best sustainable cities in the world and the steps they've taken to become leaders in clean energy and climate solutions.

1. <u>COPENHAGEN, DENMARK</u>

Copenhagen is often ranked as one of the greenest cities on the planet. Why? For starters, in 2009 the city set a goal to become the world's first carbon neutral capital by 2025 as part of its CPH 2025 Climate Plan. Copenhagen has focused on reducing energy consumption in a variety of ways, including using an energy-efficient district heating system that connects to nearly every household and innovative cooling systems that save around 70 percent of the energy compared to traditional air conditioning.

Copenhagen has also focused on reducing emissions and improving the health of its residents by improving mobility, integrating transport, and building what's known as a super cycle highway. Super cycle highways and other bike lanes around the city have led to 45 percent of the city's residents commuting by bike every day.

2. <u>SAN FRANCISCO, UNITED STATES</u>

It's no secret that San Francisco and the surrounding Bay Area are a serious tech-hub and home to some of the most innovative companies in the world, including Salesforce, Airbnb, Uber, and Twitter. Innovations in technologies to improve energy efficiency in buildings and enhance its transportation system have helped make San Francisco a leader in sustainability and clean energy. Just look at the city's public transit system: it's not uncommon to see hybrid-electric buses driving down the city's streets and more than half of all MUNI buses and light rails are zero-emission.

The Bay Area has also cut its water consumption drastically in recent years. As California has battled serious droughts, San Franciscans have reduced their water consumption to around 49 gallons of water per day on average (the national average is 80-100 gallons per day). These conservation tactics and other advances in sustainable food, recycling, and composting are expected to help San Francisco reach its goal of becoming zero waste by 2020.

3. <u>VANCOUVER, CANADA</u>

Vancouver has been on the forefront of environmental activism for decades. In 1990, it became one of the first North American cities to outwardly address the climate crisis by releasing a report called "The Clouds of Change." This was just the beginning of an environmental strategy that Vancouver released years later in 2012, the Greenest City Action Plan, which set 10 goals to achieve by 2020, including increasing green jobs, reducing community-based greenhouse gas emissions, and expanding green buildings around the city.

Additionally, Vancouver has committed to getting 100 percent of its energy from renewable sources by 2050. This goal is particularly bold given that it targets *all forms of energy in the*

city—including heating, cooling, and transport—not just electricity. The city's focus on clean energy and sustainability has led it to have the lowest greenhouse gas emissions per person of any major North American city. Between making sustainable improvements to neighbourhoods' energy consumption, striving for zero waste, and continuing to develop its successful Greenest City Action Plan, Vancouver has set the stage for businesses and residents to work together to be one of the greenest and most climate change resilient cities on Earth.

4. STOCKHOLM, SWEDEN

Stockholm is a growing city that seeks to be an attractive home for newcomers and do good for the planet at the same time. Awarded the first "European Green Capital" recognition by the European Commission in 2010, Stockholm aims to be fossil-fuel free by 2050.

How does the city plan to reach this goal? One component is Sweden's shift from oil to "district" heating, which means the nation now uses heat from centralized sources (such as a power station) to more efficiently heat and cool its buildings. District heating alone accounts for over 80 percent of heating and hot water in apartments today, and is one of the key factors in how Sweden has reduced its greenhouse gas emissions in recent years.

Another reason for Stockholm's success with sustainable living is its residents, who pride themselves on being "climate-smart." Eight out of 10 residents feel the city should urge citizens to live more environmentally-friendly and believe being climate-smart should be a natural part of living in a city.

5. SINGAPORE, SINGAPORE

With a population of more than five million people, Singapore is often recognized as one of the most forward-thinking green cities in Asia. The city-state has developed a Sustainable Development Blueprint, which outlines sustainability goals leading up to 2030. The targets include improving energy efficiency by 35 percent, ensuring 80 percent of its buildings are certified green, and having 80 percent of households be within a 10-minute walk to a train station.

Singapore has also improved its sustainability by making drastic changes in transportation. The city-state limits car ownership among its residents and has built effective public transportation systems, which has helped reduce pollution and crowding on streets and highways. Singapore's public transit system helps residents navigate the city, along with biking and walking.

6. LJUBLJANA, SLOVENIA

Ljubljana was crowned the European Green Capital 2016. 70% of housing in the Slovenian capital is already heated by district and natural gas distribution and is one of few European

cities which can boast of natural drinking water without prior treatment. This includes public drinking fountains around the city reducing the use of plastic water bottles.

7. OUARZAZATE-MOROCCO

Morocco is currently home to the largest concentrated solar power plant in the world. The power station on the edge of the Saharan desert will be the size of the country's capital city by the time it is finished in 2018, and will provide electricity for 1.1 million people.

'It is a very, very significant project in Africa,' said Mafalda Duarte, the manager of Climate Investment Funds (CIF), 'Morocco is showing real leadership and bringing the cost of the technology down in the process.'

As well as the country's plans to generate 42% of its energy from renewables by 2020, with one-third of that total coming from solar, wind and hydropower, it is also currently hosting the UN climate change conference, COP22, in Marrakech.

8. FREIBURG, GERMANY

Freiburg has been pioneering 'passive houses' where no active system is needed to maintain a comfortable temperature. While one house in the countryside is using up to 6,000 litres of oil a year to heat it, these houses only use 150 litres.

The buildings are super-insulated with foam, are triple-glazed, and externally sealed. Fresh air enters at ceiling level and is sucked out through a funnel so that the heat from the warm air going out is transferred to the cold air coming in.

This provides an almost constant temperature without the need for heating – because warmth is provided by cooking, lighting, even warm-blooded mammals. In fact, an entire flat could be heated with only 30 candles.

9. TIANJIN, CHINA

China is exploring the creation of sustainable 'eco-cities'. In the wasteland of Tianjin, a huge clean-up took place to restore the central reservoir and develop around it. The city is lined with trees, solar panels, and wind turbines, and uses ground temperature for energy so that one-fifth of the energy used will be emission-free.

One of the best things about Tianjin is that living like this is being made accessible. Ho Tong Yen, head of Sino-Singapore Tianjin Eco-city Development and Investment says 'Being green isn't a luxury, it's an affordable necessity. This city should be a practical, replicable, scalable model for elsewhere in China and the world.'

10. MASDAR, UNITED ARAB EMIRATES

Whilst Tianjin is making headway, Masdar City, just outside of Abu Dhabi, has developed the eco-city 'green print' for how cities can accommodate rapid urbanisation and dramatically reduce energy, water and waste.

The city combines ancient Arabic architectural techniques with modern technology to capture winds as a natural cooler during summer temperatures whilst utilising the sun's energy through the largest rooftop solar technology installation in the Middle East.

Research is also at the core of the city as the neighbourhoods develop around the Masdar Institute of Science and Technology, a research university dedicated to cutting-edge solutions in the fields of energy and sustainability.

11. AMSTERDAM, THE NETHERLANDS

As well as being one of the most bike-friendly cities in the world, Amsterdam is now embedding solar panels into their cycle paths that could generate enough electricity to power three houses. The 70-metre path that connects the suburbs to the city is the world's first public road with solar panels.

Those who do need the use of a car are encouraged to take part in their car sharing and/or electric car hire schemes, reducing the number of cars on the roads and thus the amount of CO_2 emissions.

12. CURITIBA, BRAZIL

With 52 square meters of green space per capita, Curitiba is truly the 'greenest' city in the world. Curitiba's parks serve an ecological function, as well. Much of the 400 square kilometres of parkland doubles as a naturalized, decentralized storm water management facility, instead of channelling the rivers between concrete walls in an attempt to control the water and overdevelop the land around it as many other cities do.

Curitiba empowers its population to keep the city clean through programs that exchange trash and recyclables for bus tokens, food and cash. This means that the city is astonishingly clean which encourages the populace to respect and care for the land they live on.

13. REYKJAVIK, ICELAND

Reykjavik has pioneered the use of geothermal power with almost 95% of heating in the city is provided by renewable geothermal district heating (this is using heat from the earth to generate energy and is clean and sustainable).

No other city has developed a district heating and electrical system using renewable energy resources on the scale of Reykjavik, and it aims to be a completely fossil fuel free city by 2050.

Reykjavik also has a strong focus on preserving green spaces with roughly 9 out of 10 inhabitants living only a five-minute walk away from a public green space.

Possible Solutions

- Take an active interest in the governance and management of your city
- Take notice of what does and what doesn't work in your community
- Advocate for the kind of city you believe you need
- Develop a vision for your building, street, and neighbourhood, and act on that vision. Are there enough jobs? Are you close to healthcare? Can your children walk to school safely? Can you walk with your family at night? How far is the nearest public transport? What's the air quality like? What are your shared public spaces like? The better the conditions you create in your community, the greater the effect on quality of life.

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