



# FlensMUN 2025

## Committee Guide:

## United Nations Environment Assembly

4<sup>th</sup> FlensMUN Conference

Flensburg, 10<sup>th</sup>- 13<sup>th</sup> of July 2025

## Letter from the Chair

Dear Delegates,

Welcome to the United Nations Environment Assembly (UNEA) at FlensMUN 2025! It is an honour to serve as your Chair, and we are thrilled to guide you through an engaging and insightful discussion on the two topics "Integrating Biodiversity Protection into Urban Planning and Infrastructure Development" and "Promoting Sustainable Energy Transition in Developing Nations".

With rapid urbanization shaping our cities and landscapes, biodiversity faces unprecedented threats. Urban development often leads to habitat destruction, ecosystem fragmentation, and species decline. However, sustainable urban planning offers an opportunity to incorporate biodiversity conservation into city development, making urban spaces more resilient and environmentally sustainable.

This guide will provide you with a comprehensive overview of the two topics, including background information, case studies, policy frameworks, and potential solutions. Your role as delegates is to debate, propose policies, and work collaboratively to find innovative approaches to protecting biodiversity while meeting urban development needs.

We encourage you to conduct further research, engage critically with the issues, and prepare thoroughly for our sessions. We look forward to seeing the creative and diplomatic solutions you will bring to the table!

Best regards,

Maximilian and Katharina

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## Introduction to the Environmental Assembly

The United Nations Environment Assembly (UNEA) is the world's highest-level decision-making body on environmental issues. It was established in 2012 following the Rio+20 Conference and operates under the auspices of the United Nations Environment Programme (UNEP). Comprising all 193 UN Member States, it convenes biennially at UNEP headquarters in Nairobi, Kenya.

As a universal platform for international environmental governance, UNEA brings together governments, scientists, civil society, and the private sector to address critical environmental challenges and promote global sustainability. The Assembly discusses a broad range of topics such as climate change, biodiversity loss, pollution, and sustainable consumption and production. Through resolutions, declarations, and policy frameworks, UNEA shapes the global environmental agenda and supports Member States in implementing multilateral environmental agreements and the environmental dimensions of the Sustainable Development Goals (SDGs).

With its inclusive and action-oriented mandate, the United Nations Environment Assembly embodies the global community's shared responsibility to safeguard the planet for present and future generations.

This year's topics for our FlensMUN will be:

1. Integrating Biodiversity Protection into Urban Planning and Infrastructure Development
2. Promoting Sustainable Energy Transition in Developing Nations

# Integrating Biodiversity Protection into Urban Planning and Infrastructure Development

## 1.1 Introduction

Urbanization is one of the most significant drivers of environmental change in the 21st century. While cities cover only 3% of the Earth's land surface, they house over 55% of the global population - a figure expected to rise to nearly 70% by 2050. This rapid expansion has come at a dramatic cost: urban growth often encroaches on natural habitats, leading to biodiversity loss, air and water pollution, and climate change challenges<sup>1</sup>.

However, sustainable urban planning provides an opportunity to integrate biodiversity protection into infrastructure development and a broader view into the future of our way of living. Strategies such as nature-based solutions (NbS), green infrastructure, and biodiversity-sensitive urban design (BSUD) can help reconcile development with ecological conservation<sup>2</sup>.

This study guide will explore the intersections between urbanization and biodiversity, analyse relevant international frameworks, and examine case studies of successful biodiversity integration in cities worldwide. You as delegates will be expected to assess current challenges, propose policy solutions, and contribute to a forward-thinking vision for sustainable urban environments. This document gives only a brief outline of the content of this issue so you have an overview of what the topic contains. To get a better insight into the stance of the country you are representing please do not hesitate to research more in detail on the actions your country took or did not take on this pressing issue so far.

## 1.2 Background

### The Relationship Between Urban Development and Biodiversity

#### Urbanization and Habitat Loss

Rapid urban expansion often results in the conversion of natural ecosystems into built environments. This process disrupts local flora and fauna, leading to habitat fragmentation which means the process by which large, continuous natural habitats are divided into smaller, isolated patches, often due to

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<sup>1</sup><https://environment.yale.edu/news/article/cities-can-be-part-solution-sustaining-species#:~:text=Urban%20and%20expansion%20of%20up,habitats%20can%20mitigate%20the%20i mpact>

<sup>2</sup> [https://www.srs.fs.usda.gov/pubs/ja/2016/ja\\_2016\\_zipperer\\_001.pdf](https://www.srs.fs.usda.gov/pubs/ja/2016/ja_2016_zipperer_001.pdf)

human activities such as urban development, agriculture, and road construction. Such habitat fragmentation happens when wildlife corridors are frequently interrupted by roads, buildings, and other infrastructure, which makes it difficult for species to migrate, find food, and reproduce. This results in urban areas which become biodiversity hotspots where species must adapt or risk extinction<sup>3</sup>.

### **Biodiversity Benefits to Cities**

Biodiversity plays a critical role in urban ecosystems by improving air and water quality, regulating temperatures, and offering natural flood management. Vegetation absorbs pollutants, while green spaces such as parks and wetlands act as carbon sinks. Additionally, biodiverse environments contribute to human well-being by reducing stress levels, promoting mental health, and encouraging outdoor recreation<sup>4</sup>.

### **Threats to Urban Biodiversity**

Several factors contribute to biodiversity loss in urban settings, including but not limited to pollution, the introduction of invasive species, climate change, and unsustainable land use. The destruction of wetlands, forests, and grasslands for urban expansion not only leads to species decline but also reduces ecosystem services such as flood management, temperature regulation or carbon sequestration<sup>5</sup> that benefit human populations<sup>6</sup>.

## **Nature-Based Solutions (NbS)**

### **Definition**

Nature-based solutions refer to actions that utilize natural processes and ecosystems to address societal challenges while simultaneously providing environmental, social, and economic benefits. NbS is an umbrella term that includes various green initiatives aimed at increasing urban resilience to climate change and protecting biodiversity<sup>7</sup>. Some well-known NbS include the creation of urban forests, the restoration of wetlands, and the implementation of green roofs and walls. Urban wetlands help regulate floodwaters, while green corridors support the movement of wildlife through

<sup>3</sup> [https://www.srs.fs.usda.gov/pubs/ja/2016/ja\\_2016\\_zipperer\\_001.pdf](https://www.srs.fs.usda.gov/pubs/ja/2016/ja_2016_zipperer_001.pdf)

<sup>4</sup> [https://en.wikipedia.org/wiki/Urban\\_ecology](https://en.wikipedia.org/wiki/Urban_ecology)

<sup>5</sup> <https://www.sciencedirect.com/science/article/abs/pii/S0301479722027281>

<sup>6</sup> [https://wwf.panda.org/discover/our\\_focus/wildlife\\_practice/problems/habitat\\_loss\\_degradation/](https://wwf.panda.org/discover/our_focus/wildlife_practice/problems/habitat_loss_degradation/)

<sup>7</sup> <https://oppla.eu/nbs/case-studies>

built environments. Green roofs improve air quality, insulate buildings, and support pollinators like bees and butterflies<sup>8</sup>.

### Advantages

NbS offer multiple benefits, including enhanced biodiversity, improved climate resilience, and strengthened ecosystem services. By incorporating these solutions into urban planning, cities can mitigate the adverse effects of urbanization while fostering a more sustainable and livable environment for residents<sup>9</sup>.

## 1.3 Current Situation and Statistical Trends

The rapid pace of urbanization presents significant challenges and opportunities for biodiversity conservation. As cities expand, the manner in which urban development is managed will critically influence global biodiversity outcomes.

### Global Urban Expansion and Its Impact on Biodiversity

- **Extent of Urbanization:** Projections indicate that by 2030, urban land cover will increase by up to 1.53 million square kilometers, with more than 60% of the area expected to be urban by that time yet to be constructed. This expansion poses as a dual-edged sword: it can lead to extensive habitat destruction if not managed sustainably, or it can offer opportunities to incorporate green infrastructure that supports biodiversity from the outset<sup>10</sup>.
- **Habitat Loss and Fragmentation:** Urban expansion is a leading cause of habitat loss and fragmentation. Studies estimate that by 2050, urban growth could impact approximately 26% to 39% of terrestrial vertebrate species, with up to 855 species potentially losing at least 10% of their habitat. This loss is particularly pronounced in biodiversity hotspots such as sub-Saharan Africa, South America, Mesoamerica, and Southeast Asia<sup>11</sup>.
- **Species at Risk:** The International Union for Conservation of Nature (IUCN) reports that over one million species are threatened with extinction due to human activities, including urbanization. The encroachment of cities into previously undisturbed natural areas

<sup>8</sup> <https://oppla.eu/nbs/case-studies>

<sup>9</sup> <https://www.mdpi.com/2071-1050/13/9/5021>

<sup>10</sup> <https://environment.yale.edu/news/article/cities-can-be-part-solution-sustaining-species#:~:text=Urban%20and%20expansion%20of%20up,habitats%20can%20mitigate%20the%20i mpact>

<sup>11</sup> <https://www.pnas.org/doi/10.1073/pnas.2117297119>

intensifies pressures on wildlife, leading to declines in population sizes and genetic diversity<sup>12</sup>.

## Current Trends in Biodiversity Decline

- **Reduction in Species Abundance:** Urbanization contributes to significant declines in local species populations. Research indicates that urban land changes can result in an average loss of 52% in the relative total abundance of species. This decline is attributed to factors such as habitat alteration, pollution, and increased human-wildlife conflicts<sup>13</sup>.
- **Ecosystem Homogenization:** The spread of urban areas often leads to the proliferation of generalist and non-native species, while specialist and native species decline. This process, known as biotic homogenization, reduces the uniqueness of local ecosystems and diminishes overall biodiversity<sup>14</sup>.
- **Altered Species Interactions:** Urban environments disrupt natural interactions among species, such as pollination, predation, and symbiotic relationships. These disruptions can have cascading effects on ecosystem functionality and resilience, further exacerbating biodiversity loss<sup>15</sup>.

## Policy Gaps and Challenges

- **Lack of Integrated Urban Planning:** Many municipalities lack comprehensive policies that incorporate biodiversity conservation into urban development. This oversight often results in fragmented habitats and insufficient green spaces, undermining efforts to preserve urban biodiversity<sup>16</sup>.
- **Implementation Barriers:** Even when policies exist, their effective implementation is frequently hindered by challenges such as limited funding, inadequate technical expertise, and weak enforcement mechanisms. These barriers create a gap between policy intentions and actual conservation outcomes<sup>17</sup>.
- **Case Study – Berlin's Südgelände:** An example of successful urban biodiversity integration is Berlin's Südgelände, a former railway yard transformed into a thriving ecosystem. This project demonstrates how neglected urban areas can be repurposed to support diverse plant

<sup>12</sup> [https://www.panda.org/discover/our\\_focus/wildlife\\_practice/problems/habitat\\_loss\\_degradation/](https://www.panda.org/discover/our_focus/wildlife_practice/problems/habitat_loss_degradation/)

<sup>13</sup> <https://academic.oup.com/bioscience/article-abstract/52/10/883/354714?redirectedFrom=fulltext&login=false>

<sup>14</sup> [https://www.srs.fs.usda.gov/pubs/ja/2016/ja\\_2016\\_zipperer\\_001.pdf](https://www.srs.fs.usda.gov/pubs/ja/2016/ja_2016_zipperer_001.pdf)

<sup>15</sup> [https://www.srs.fs.usda.gov/pubs/ja/2016/ja\\_2016\\_zipperer\\_001.pdf](https://www.srs.fs.usda.gov/pubs/ja/2016/ja_2016_zipperer_001.pdf)

<sup>16</sup> <https://ecologyandsociety.org/vol28/iss2/art25/>

<sup>17</sup> <https://ecologyandsociety.org/vol28/iss2/art25/>



and animal species, highlighting the potential for innovative urban planning to enhance biodiversity<sup>18</sup>.

Addressing these challenges requires a multifaceted approach that includes developing and enforcing robust urban planning policies, securing funding for conservation initiatives, fostering collaboration between urban planners and environmental scientists, and engaging local communities in biodiversity conservation efforts.

## 1.4 Case Studies and Practical Applications

### Berlin's Südgelände Nature Park (Germany)

This project transformed an abandoned railway yard into a biodiverse urban nature reserve. The site features a mix of open grasslands, woodlands, and wetlands, creating a habitat for numerous plant and animal species. The initiative also integrates public access with nature preservation, offering educational programs to raise awareness about urban biodiversity<sup>19</sup>.

### Singapore's Biophilic Urban Design<sup>20</sup>

Singapore's "City in a Garden" initiative incorporates biophilic architecture, vertical gardens, and green rooftops to enhance urban biodiversity. The project demonstrates how dense urban environments can integrate natural elements without compromising infrastructure development. Programs such as the Park Connector Network ensure that green spaces remain interconnected, providing safe passage for wildlife and maintaining ecological balance.

### Bogotá's Wetland Restoration (Colombia)

Bogotá has successfully restored several urban wetlands, improving water management, increasing local biodiversity, and creating recreational spaces for residents. Wetlands such as La Conejera and Juan Amarillo act as natural flood control systems while providing habitats for migratory birds, amphibians, and insects. The restoration efforts have also engaged local communities, fostering a sense of environmental stewardship<sup>21</sup>.

<sup>18</sup> <https://www.thetimes.com/life-style/property-home/article/dont-sprawl-into-the-green-belt-build-upwards-8m09t8nlt>

<sup>19</sup> <https://www.thetimes.com/life-style/property-home/article/dont-sprawl-into-the-green-belt-build-upwards-8m09t8nlt>

<sup>20</sup> [https://knowledge.csc.gov.sg/ethos-issue-19/growing-a-biophilic-city-in-a-garden/?utm\\_source=chatgpt.com](https://knowledge.csc.gov.sg/ethos-issue-19/growing-a-biophilic-city-in-a-garden/?utm_source=chatgpt.com)

<sup>21</sup> <https://oppla.eu/nbs/case-studies>

## Malmö's Bo01 Sustainable Housing Development (Sweden)

The Bo01 district in Malmö is a model for integrating biodiversity-sensitive urban design. This development includes extensive green roofs, permeable surfaces for water retention, and protected green areas designed to support local species. The project incorporates a mix of residential and commercial spaces, demonstrating that biodiversity conservation and urban growth can coexist<sup>22</sup>.

## 1.5 International and National Policy Frameworks

### United Nations Environment Assembly (UNEA) Resolutions

UNEA resolutions emphasize the importance of integrating nature-based solutions into urban planning. Resolutions such as UNEA-5/5 encourage member states to adopt biodiversity-sensitive urban policies.

- **UNEA-5/5 on Nature-Based Solutions for Sustainable Development:** This resolution highlights the critical role of nature-based solutions in sustainable urban planning. It urges member states to develop policies that integrate green infrastructure, ensuring that biodiversity considerations are embedded in urban development projects<sup>23</sup>.
- **UNEA-4/4 on Sustainable Infrastructure and Innovation:** This resolution calls for the adoption of sustainable infrastructure planning that incorporates ecosystem-based approaches to mitigate biodiversity loss caused by urban expansion. It encourages investment in green technologies that support biodiversity conservation<sup>24</sup>.
- **UNEA-3/6 on Air Pollution and Urban Biodiversity:** Acknowledging the link between air pollution and declining biodiversity, this resolution advocates for cleaner energy sources and urban green spaces to enhance ecological resilience. It promotes cross-sectoral cooperation between environmental ministries, urban planners, and biodiversity experts<sup>25</sup>.
- **UNEA-2/8 on Enhancing Climate Resilience through Ecosystem-Based Adaptation:** This resolution recognizes urban biodiversity as a key component of climate adaptation

<sup>22</sup> <https://oppla.eu/nbs/case-studies>

<sup>23</sup> <https://www.c40knowledgehub.org/s/topic/0TOVo00000061cXOAQ/urban-planning-for-naturebased-solutions>

<sup>24</sup> <https://www.c40knowledgehub.org/s/topic/0TOVo00000061cXOAQ/urban-planning-for-naturebased-solutions>

<sup>25</sup> <https://www.c40knowledgehub.org/s/topic/0TOVo00000061cXOAQ/urban-planning-for-naturebased-solutions>

strategies. It encourages the integration of green spaces into cities to provide ecosystem services such as carbon sequestration, temperature regulation, and flood management<sup>26</sup>.

- **Implementation and Challenges:** Despite the ambitious goals outlined in UNEA resolutions, many cities struggle with implementation due to lack of funding, limited technical expertise, and competing urban development priorities. To address these challenges, UNEA encourages capacity-building initiatives, knowledge-sharing platforms, and international financial support mechanisms such as the Global Environment Facility (GEF) and the Green Climate Fund (GCF)<sup>27</sup>.

## The Convention on Biological Diversity (CBD) and the Post-2020 Global Biodiversity Framework

- **Overview:** The Convention on Biological Diversity (CBD) is an international treaty aimed at promoting biodiversity conservation, sustainable use, and the fair and equitable sharing of benefits arising from genetic resources. Adopted in 1992, it serves as the foundation for global efforts to preserve ecosystems and species<sup>28</sup>.
- **Post-2020 Global Biodiversity Framework:** This framework builds on previous biodiversity targets and provides a roadmap for the integration of biodiversity considerations into national and local policies. One of its key objectives is to ensure that biodiversity loss is halted and reversed by 2030<sup>29</sup>.
- **Targets for Urban Biodiversity Integration:** The framework includes specific targets related to urban biodiversity, such as promoting green infrastructure, ensuring that cities contribute positively to biodiversity conservation, and encouraging sustainable land-use planning. Governments are encouraged to incorporate biodiversity-sensitive urban designs and develop action plans that align with the framework's objectives<sup>30</sup>.
- **Policy Shifts and Implementation Challenges:** Achieving these goals requires a fundamental shift in how cities are planned and developed. Many countries face difficulties in aligning their urban policies with biodiversity conservation goals due to regulatory gaps, lack of technical expertise, and financial constraints. The framework provides guidance on

<sup>26</sup> Report of the United Nations Environment Assembly of the United Nations Environment Programme Second session (Nairobi, 23-27 May 2016)

<sup>27</sup> Report of the United Nations Environment Assembly of the United Nations Environment Programme Second session (Nairobi, 23-27 May 2016)

<sup>28</sup> [https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-l-02-en.pdf?utm\\_source=chatgpt.com](https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-l-02-en.pdf?utm_source=chatgpt.com)

<sup>29</sup> <https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-l-02-en.pdf>

<sup>30</sup> <https://www.cbd.int/doc/c/409e/19ae/369752b245f05e88f760aeb3/wg2020-05-l-02-en.pdf>

overcoming these barriers through knowledge-sharing, financial mechanisms, and collaborative governance<sup>31</sup>.

## The Sustainable Development Goals (SDGs)

- **Goal 11: Sustainable Cities and Communities**

- This goal emphasizes the importance of making cities inclusive, safe, resilient, and sustainable. It advocates for urban planning strategies that integrate green spaces, sustainable transport, and climate adaptation measures.
- Key indicators under this goal include the percentage of urban areas allocated to green and public spaces, air quality levels, and the extent of integrated urban planning policies that consider biodiversity.
- Implementing this goal requires governments to invest in sustainable housing, promote efficient land-use management, and ensure urban expansion does not compromise ecological integrity<sup>32</sup>.

- **Goal 15: Life on Land**

- This goal focuses on protecting, restoring, and promoting the sustainable use of terrestrial ecosystems, combating desertification, and halting biodiversity loss.
- Specific targets under this goal include reversing land degradation, increasing efforts to prevent habitat destruction, and integrating biodiversity values into national and local planning.
- Urbanization is a major driver of land degradation and biodiversity decline. To address this, cities must adopt measures that protect existing natural habitats and incorporate green infrastructure into development projects.
- Collaborative approaches between urban planners, environmental policymakers, and local communities are necessary to meet the objectives outlined in Goal 15. This includes financial incentives for biodiversity-friendly infrastructure, public awareness campaigns, and stricter enforcement of conservation regulations<sup>33</sup>.

By aligning urban development strategies with the principles outlined in the CBD and SDGs, cities can become drivers of biodiversity conservation rather than contributors to its decline. Successful implementation will require a mix of regulatory measures, community involvement, and financial

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<sup>31</sup> <https://iucn.org/resources/issues-brief/post-2020-global-biodiversity-framework>

<sup>32</sup> [https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024\\_-inf-4-draft\\_work\\_programme\\_and\\_budget\\_2024.pdf](https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024_-inf-4-draft_work_programme_and_budget_2024.pdf)

<sup>33</sup> [https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024\\_-inf-4-draft\\_work\\_programme\\_and\\_budget\\_2024.pdf](https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024_-inf-4-draft_work_programme_and_budget_2024.pdf)

investments to create sustainable urban environments that support both human well-being and ecological resilience.

## 1.6 Challenges and Possible Solutions

This part is meant to give you a brief overview of the possible challenges and solutions which come with the topic but there are many more solutions and challenges so please do not hesitate to do your own research and tailor the challenges to the countries aspects of your delegation.

### Policy Development and Governance Challenges

- Weak or inconsistent policies on biodiversity protection often result in ineffective urban planning that fails to integrate conservation efforts. Governments need to adopt comprehensive policies that mandate biodiversity-sensitive urban planning, ensuring long-term sustainability.
- Coordination between different levels of governance - local, national, and international - is crucial for effective biodiversity integration. Many policies remain fragmented, leading to inefficiencies in conservation efforts<sup>34</sup>.

### Urban Planning Barriers

- Conventional urban development often prioritizes short-term economic gains over long-term ecological sustainability. This results in the destruction of green spaces and the failure to incorporate natural habitats into city planning.
- Zoning laws and land-use regulations need to be revised to facilitate the inclusion of biodiversity-friendly designs, such as green roofs, vertical gardens, and urban forests<sup>35</sup>.

### Financial Constraints and Investment Gaps

- Implementing biodiversity-sensitive urban planning requires significant funding, which many cities struggle to allocate. Governments should establish financial incentives, such as tax breaks and grants, to encourage developers to integrate green infrastructure.
- Public-private partnerships can provide additional funding sources, leveraging corporate social responsibility initiatives to support biodiversity protection in urban projects<sup>36</sup>.

<sup>34</sup> [https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024\\_-inf-4-draft\\_work\\_programme\\_and\\_budget\\_2024.pdf](https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024_-inf-4-draft_work_programme_and_budget_2024.pdf)

<sup>35</sup> [https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024\\_-inf-4-draft\\_work\\_programme\\_and\\_budget\\_2024.pdf](https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024_-inf-4-draft_work_programme_and_budget_2024.pdf)

## Community Engagement and Public Awareness

- Successful urban biodiversity initiatives require active participation from local communities. Educational campaigns and citizen science programs can help increase public awareness and engagement.
- Municipal governments should collaborate with NGOs and research institutions to provide accessible information on the benefits of biodiversity and sustainable urban planning<sup>37</sup>.

## Technological and Data-Driven Solutions

- Geographic Information Systems (GIS) and AI-powered data analysis can be used to monitor urban biodiversity and plan conservation efforts more effectively.
- Cities should invest in biodiversity monitoring programs that track species distribution and ecosystem health, ensuring that policies are informed by scientific data<sup>38</sup>.

### 1.7 Guiding Questions

- How can urban development be made more compatible with biodiversity conservation?
- What nature-based solutions could be realistically implemented in cities, and what barriers might exist?
- How do international frameworks like the Convention on Biological Diversity and the Sustainable Development Goals influence national urban planning policies?
- What role do local communities and private stakeholders play in promoting biodiversity-friendly urban infrastructure?
- What trade-offs exist between economic development, infrastructure needs, and biodiversity protection, and how can they be addressed?

### 1.8 Glossary

**Biodiversity:** The variety of all living organisms in an area, including plants, animals, fungi, and microorganisms.

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<sup>36</sup> [https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024\\_-inf-4-draft\\_work\\_programme\\_and\\_budget\\_2024.pdf](https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024_-inf-4-draft_work_programme_and_budget_2024.pdf)

<sup>37</sup> [https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024\\_-inf-4-draft\\_work\\_programme\\_and\\_budget\\_2024.pdf](https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024_-inf-4-draft_work_programme_and_budget_2024.pdf)

<sup>38</sup> [https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024\\_-inf-4-draft\\_work\\_programme\\_and\\_budget\\_2024.pdf](https://unhabitat.org/sites/default/files/2024/04/hsp-eb-2024_-inf-4-draft_work_programme_and_budget_2024.pdf)

**Biodiversity-Sensitive Urban Design (BSUD):** Urban planning that considers and supports local ecosystems by including natural habitats, green spaces, and wildlife corridors.

**Biotic Homogenization:** The process where different ecosystems become more similar due to the spread of generalist species and decline of unique native species.

**Carbon Sink:** A natural system, such as a forest or wetland, that absorbs more carbon dioxide than it releases.

**Climate Resilience:** The ability of a system (such as a city or ecosystem) to prepare for, adapt to, and recover from climate-related challenges.

**Convention on Biological Diversity (CBD):** An international treaty focused on conserving biodiversity, using it sustainably, and sharing benefits fairly.

**Ecosystem Services:** Benefits provided by nature, like clean water, air purification, temperature regulation, and pollination.

**Geographic Information Systems (GIS):** Technology used to collect, analyze, and visualize geographic and spatial data, often for planning and environmental purposes.

**Green Infrastructure:** A system of natural and semi-natural areas (like green roofs, parks, or tree-lined streets) that deliver ecosystem and social benefits in urban settings.

**Habitat Fragmentation:** The division of large, continuous habitats into smaller, isolated patches, often due to roads, cities, or agriculture.

**Invasive Species:** Non-native species that spread quickly and can harm local ecosystems by outcompeting native species.

**Nature-Based Solutions (NbS):** Strategies that use natural systems to address urban or climate-related challenges while also supporting biodiversity.

**Post-2020 Global Biodiversity Framework:** A global plan under the CBD aimed at reversing biodiversity loss and promoting ecosystem sustainability by 2030.

**Sustainable Development Goals (SDGs):** A United Nations framework of 17 goals for sustainable global development, including environmental protection.

**Wildlife Corridor:** A strip of natural land that connects separated habitats, allowing animals to move safely between them.

**Zoning Laws:** Local government rules that define how land can be used—such as for housing, industry, conservation, or recreation.

## 1.9 Bibliography

Cited directly with foot notes.



## Promoting Sustainable Energy Transition in Developing Nations

### 2.1. Introduction

The transition to sustainable energy is one of the defining challenges of the 21st century. While many industrialized nations have made significant progress in shifting toward renewable energy sources, some developing countries continue to struggle with energy security, economic constraints, and infrastructural deficiencies. Many of these nations remain heavily reliant on fossil fuels while lacking access to modern, sustainable energy solutions.

This committee guide will explore the political, economic, and technological challenges associated with transitioning to sustainable energy in developing countries. It will also present strategies, case studies, and policy recommendations for achieving an equitable and effective energy transformation.

### 2.2. Background

Energy is the foundation of modern economies. Industrialization, economic development, and quality of life all depend on affordable, accessible, and reliable energy sources. However, the world's current energy system is heavily carbon-intensive, with coal, oil, and natural gas still dominating global consumption.

In contrast, sustainable energy sources—such as solar, wind, hydropower, and bioenergy—offer a path toward decarbonization and energy security. Yet, many developing nations face financial, technological, and institutional challenges that limit their ability to invest in and implement renewable energy solutions.

The concept of energy transition refers to the systematic shift from fossil fuel dependency to sustainable and renewable energy production. It is particularly critical in developing nations, where energy poverty and climate vulnerability pose additional challenges.

The United Nations Sustainable Development Goal 7 (SDG 7) calls for universal access to affordable, reliable, and sustainable energy by 2030. Achieving this goal requires strong governance, investment in infrastructure, international cooperation, and the mobilization of financial resources.

## 2.3. Current Situation

### Renewable Energy Potential in Developing Nations

Many developing nations have high renewable energy potential due to abundant solar, wind, hydro, and geothermal resources. Countries in Africa, Latin America, and Southeast Asia have some of the world's highest solar energy potential, while regions such as the Andes, the Himalayas, and East Africa offer significant hydropower capacity.

However, despite these natural advantages, renewable energy penetration remains low in many developing regions. For example:

- Sub-Saharan Africa has only 48% electrification rates and remains dependent on biomass for household energy use.
- Southeast Asia still relies heavily on coal-fired power plants, despite ambitious renewable energy targets.
- Latin American countries lead in hydropower development, yet face challenges with grid stability and environmental impacts.

### Role of Government and Policy Frameworks

Government policy is the most critical driver of energy transition. Countries with clear energy policies, carbon pricing mechanisms, and green incentives have seen higher renewable energy adoption rates. For example, China's feed-in tariffs (FITs) and renewable portfolio standards (RPS) have helped it become the global leader in solar and wind energy.

However, in many developing nations, policies remain inconsistent, poorly enforced, or insufficiently funded. Fossil fuel subsidies continue to hinder renewable energy growth, while weak governance structures slow progress.

### Role of International Institutions and Private Investment

Organizations such as the World Bank, the International Renewable Energy Agency (IRENA), and the Green Climate Fund (GCF) have played an essential role in financing and supporting renewable energy projects. Additionally, public-private partnerships (PPPs) are increasingly seen as a viable mechanism to fund clean energy infrastructure.

However, developing countries still face challenges in attracting private-sector investment due to perceived risks, policy uncertainty, and limited access to capital markets.

## 2.4. Problems and Approaches to Solutions

### Key Challenges

Despite growing awareness of climate change and the pressure to reduce emissions, developing nations face significant barriers in their energy transition efforts:

1. Economic and Financial Constraints
  - High upfront costs for renewable energy infrastructure.
  - Limited access to green finance and international funding.
  - Dependence on fossil fuel revenues for national budgets (e.g., Nigeria, Venezuela).
2. Weak Governance and Policy Gaps
  - Inconsistent regulatory frameworks and weak enforcement.
  - Political instability affecting investment climate.
  - Corruption and inefficiencies in energy management.
3. Technological and Infrastructure Barriers
  - Limited access to modern energy grids and transmission networks.
  - Poor energy storage capacity and intermittent power supply issues.
  - Insufficient local expertise in renewable energy technologies.
4. Fossil Fuel Dependency and Resistance to Change
  - Strong lobbying from coal, oil, and gas industries.
  - Social and economic dependence on fossil fuel jobs.
  - Lack of alternative employment opportunities in the clean energy sector.

### Strategies for Accelerating Energy Transition

1. Strengthening Policy and Governance
  - Implement carbon pricing, feed-in tariffs (FiTs), and renewable energy mandates.
  - Remove fossil fuel subsidies and redirect funds toward clean energy projects.
  - Enhance regional cooperation on energy trade and interconnectivity.
2. Expanding International Climate Finance
  - Scale up GCF contributions.
  - Develop blended finance models to de-risk private investments.
  - Strengthen PPPs to attract capital.
3. Investing in Technological Innovation and Infrastructure
  - Deploy smart grids and energy storage solutions to improve reliability.
  - Encourage decentralized renewable energy projects (mini-grids, off-grid solar).
  - Support research and development (R&D) in energy-efficient technologies.

#### 4. Promoting a Just Energy Transition

- Establish green job retraining programs for fossil fuel workers.
- Address energy access inequalities, particularly in rural and marginalized communities.
- Ensure social inclusion and local participation in energy transition projects.

### 2.5. Guiding Questions

- How can governments incentivize private-sector investment in sustainable energy?
- What role should multilateral institutions play in supporting energy transition in developing nations?
- How can countries balance economic growth and energy security while transitioning to renewables?
- What policy tools have been most effective in driving energy transition?
- How can the international community support just energy transitions in fossil-fuel-dependent economies?

### 2.6. Glossary

**Carbon Pricing:** Economic tools such as carbon taxes or emissions trading systems (ETS) that place a cost on CO<sub>2</sub> emissions.

**Feed-in Tariffs (FiTs):** A policy mechanism that guarantees fixed payments to renewable energy producers.

**Blended Finance:** The use of public and private capital to de-risk investments in clean energy projects.

**Smart Grids:** Digitally enhanced electricity networks that improve efficiency and integration of renewables.

**Just Transition:** A policy approach that ensures fair economic restructuring for workers affected by decarbonization.

## 2.7. Optional Reading

- International Energy Agency (IEA) – World Energy Outlook 2023
- UN Sustainable Development Goal 7 Report
- World Bank: Green Energy Transition in Emerging Markets

## 2.8. Bibliography

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