

1.2 HOW TO USE THIS GUIDE

This guide's **planning process** is organized around a four-module strategic planning approach that incorporates innovative decision-making tools with a participatory, community-based methodology. It can be used to **support city climate change planning processes** and as a stand-alone **capacity building resource and training tool**.

The planning process is organized into **four modules** that are illustrated in Section 4 Planning for Climate Change: The planning cycle. Each module asks a specific planning question and requires guide users to go through a corresponding set of individual **steps**, which are supported by 42 different planning **tools**. The planning tools are provided in a companion document, *Planning for Climate Change: A strategic values-based approach for urban planners – Toolkit*.

Additional supporting tools and supplementary information resources (guides, web sites, on-line tools and calculators, etc.) are provided in Appendix 2: Other resources.

A glossary of common climate change and planning terms and principles is provided in Appendix 3, while a summary of global climate change initiatives, city alliances and funding opportunities is profiled in Appendix 4.

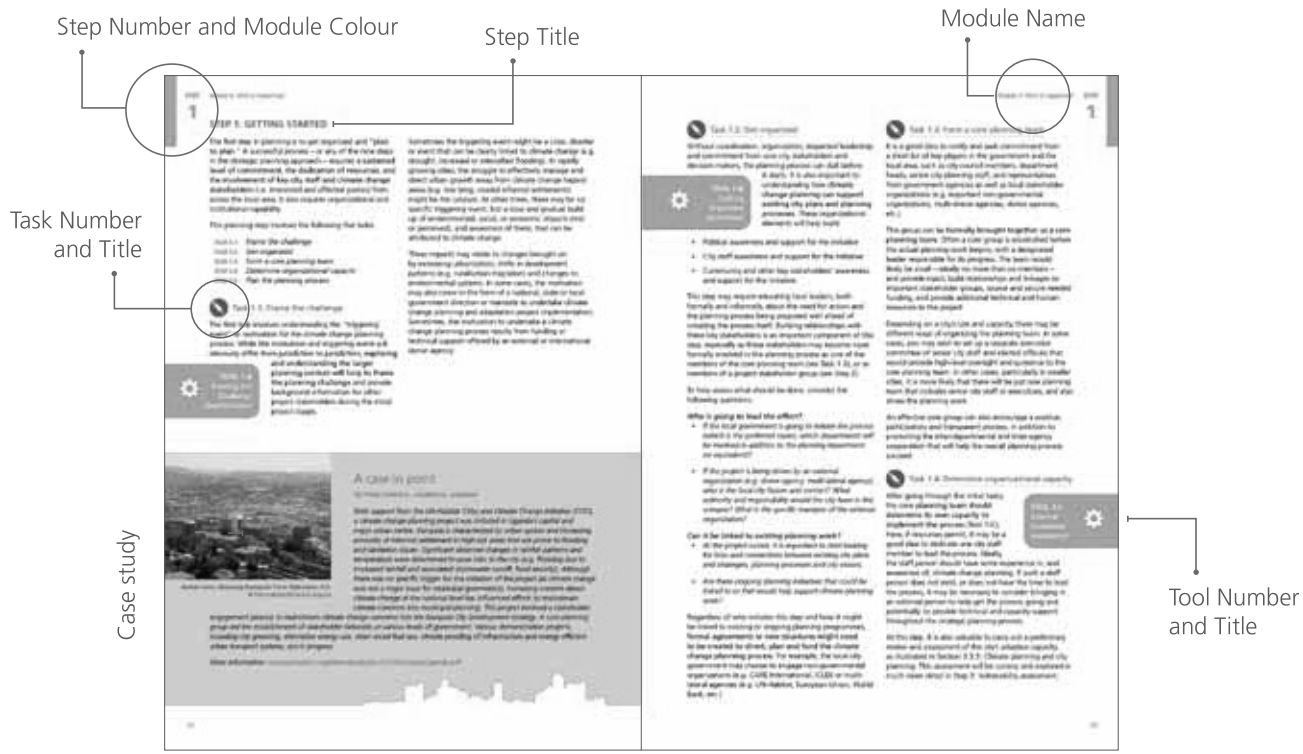
As illustrated, we have designed a navigation system so users can more easily navigate the guide to see where they are in the process at all times.

1.3 CLIMATE CHANGE ADAPTATION AND MITIGATION

Urban planners are involved in land use, infrastructure development and urban expansion, municipal service provision, growth management, environmental planning, solid and liquid waste management, housing and building development, and site design. Because climate change adaptation involves actions in these areas, this guide focuses on related activities, strategies, plans and policies.

Adaptation is a process through which communities **prepare to cope with an uncertain future climate**. While the specific measures vary greatly across sectors – ranging from physical land use plans that limit development in hazardous areas, to protecting and preserving certain ecosystems to minimize potential climate impacts (e.g. flooding and erosion) – there are four areas that are particularly important in climate adaptation planning:

- ✓ **Improving the adaptive capacity** (awareness, knowledge, skills and resources) of planning institutions and stakeholders.
- ✓ **Addressing and managing the socio-economic impacts of climate change, particularly their effect on vulnerable populations** (e.g. managing rural-urban migration, supporting economic resilience, improving local food security issues, upgrading emergency response systems).



- ✓ Enhancing the opportunity for **coordination and cooperation between and amongst climate stakeholders** at the city-level and between the local, regional, state and national governments.
- ✓ **Mainstreaming climate change adaptation** (and mitigation) into existing city plans, policies, programmes and planning processes.

Adaptation does not mean that the negative impacts of climate change will be completely avoided, only that they will be less severe than if no planning had occurred. A city with more adaptive capacity is also a more **resilient** city, able to better withstand, manage and reduce climate change vulnerabilities. Climate change resilience is often defined as the capacity of people, organizations and systems to prepare for, respond to, recover from and thrive in the face of hazards, and to adjust to continual change.

Mitigation activities, on the other hand, **help to reduce the rate or magnitude of climate change by helping to reduce human-generated greenhouse gas emissions.** Cities consume most of the global energy supply and subsequently are responsible for a significant proportion of the greenhouse gas emissions that are released into the atmosphere when fossil fuels are burned for energy generation. Land use practices that exacerbate global warming (e.g. deforestation) are often driven by urban expansion or consumption patterns. Therefore **cities must be leaders in mitigating climate change, reducing greenhouse gases used in energy systems** (e.g. the energy used for transportation, electricity, heating, industrial processes, and waste disposal) and **containing urban areas to minimize land clearing.**

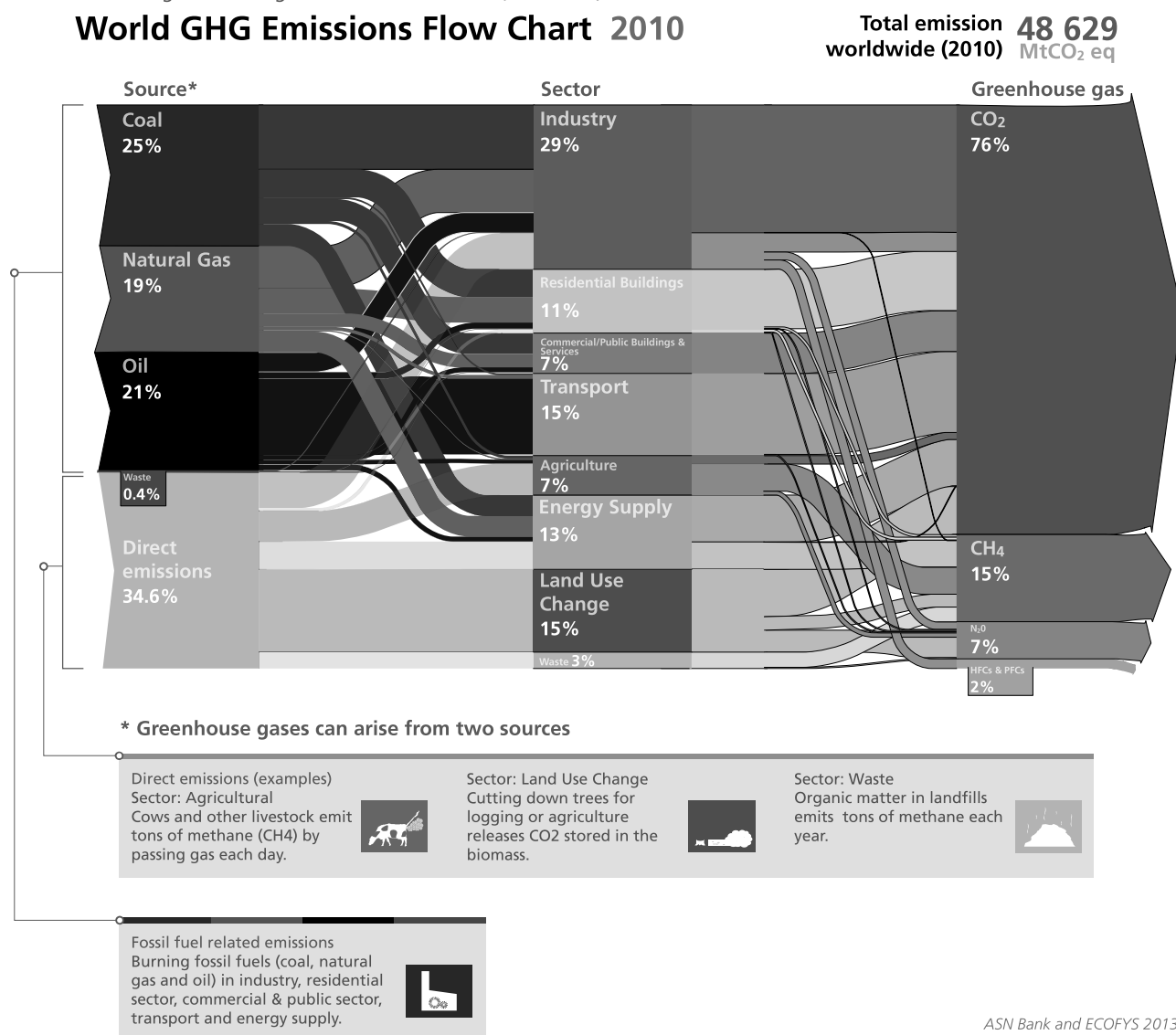
While mitigation is not the primary focus of this guide, **it is a key component of climate change planning.** Planners can help to mitigate climate change by leading the way in reducing greenhouse gas emissions through actions such as:

- Supporting and leading more sustainable, compact urban design.
- Encouraging and facilitating new green building technologies and development (buildings are major energy consumers and greenhouse gas emitters in both their construction and operation).
- Improving transport networks with options that both reduce urban traffic congestion and support greener modes of transport (public transport, bus transport, cycling, walking, etc.).
- Encouraging new technologies and development for the treatment of liquid and solid wastes (wastewater treatment plants and landfills are sources of energy that can reduce the reliance on other, higher emissions energy sources by using a powerful greenhouse gas, methane, that otherwise escapes into the atmosphere).
- Supporting sustainable energy production and distribution systems (e.g. urban solar and wind power, district energy systems).
- Supporting the conservation and rehabilitation of ecosystems for the mitigation services they provide (e.g. carbon sinks provided by forests).



Mangrove rehabilitation efforts strengthen resilience and protect biodiversity on the coast of Sorsogon City, Philippines.
© Sorsogon City

FIGURE 1: World greenhouse gas emissions flow chart (2010 data)



While cities definitely contribute to mitigation, the direction, mandate, resources and policy guidance to undertake broad-based mitigation activities most often come from higher levels of government (typically national governments). National standards for vehicle emissions and building codes are a few examples, as are carbon cap and trade or carbon tax regimes. Certainly, there have been many cases, especially in the developed world, where cities have been leaders of mitigation activities before there were national mandates for mitigation. Cities can also work together and lobby national governments to take action.

While even aggressive measures by one city acting alone will not have a significant effect on global greenhouse gas conditions, proactive steps by **many cities around the world may well slow climate change impacts**. Therefore cities should take measures to reduce greenhouse gas emissions within their sphere of influence. This is particularly true in growing urban areas in developing nations, where some urban populations are projected to increase significantly – even double – over the next 20-years. Paired with an increase in wealth, this

population increase will have major impacts on emissions through urban expansion and redevelopment, increases in individual car ownership, changes in settlement patterns and pressures on municipal infrastructure. Global growth in greenhouse gas emissions will likely occur primarily in the building and transport sectors in low – and middle-income countries. Better urban planning and growth management today will help limit and mitigate future emissions, as well as increase the ability of urban areas to cope with the impacts of climate change.

Finding **synergies between adaptation and mitigation efforts** can help to facilitate action on climate change on two fronts at the same time. The strategic planning approach outlined in this guide includes a key step to prioritize climate adaptation actions by considering how they would (and could) also support mitigation. The accompanying tools will help urban planners to identify mitigation measures within their sphere of influence, and figure out **how to integrate them into existing city policy instruments** (e.g. city plans, programmes, guidelines).

1.4 KEY PRINCIPLES AND TERMS

Throughout this guide, you will read about several key principles for responding to climate change in cities and towns. This sub-section briefly introduces the most important principles and planning terms.

Most terms used in this guide are based on those used by the Intergovernmental Panel on Climate Change (IPCC), an intergovernmental scientific body tasked with evaluating the risk of climate change caused by human activity,¹ and by the United Nations Framework Convention on Climate Change (UNFCCC). A more comprehensive Glossary of Terms in Appendix 3 supplements the following list of key terms. More information on some of the terms is also provided in the document itself.

- **Adaptation:** UNFCCC defines adaptation as “the adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices and structures to moderate potential damages or to benefit from opportunities associated with climate change”. Adaptation does not mean that the negative impacts will be avoided, only that they will be less severe than if no planning had occurred.
- **Adaptive capacity:** The degree to which people, places, institutions and sectors are able to adapt to climate change impacts. Adaptive capacity typically is indicated by socio-economic and environmental factors and local realities that enable a city or community to adjust its system in view of current and future risks. It may also include factors and conditions that leverage new climate conditions to become new opportunities (i.e. more precipitation in particular areas may lead to new opportunities in urban agriculture or rain water harvesting).
- **Climate change:** A change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable periods.
- **Exposure:** How a city is exposed to changes in the climate: what changes can already be observed, what will the climate be like in the future? Exposure considers both current and projected changes based on a review of historic and current climate information (e.g. precipitation, temperature, extreme weather events) and projected climate scenarios for your city or region. It also identifies the climate change hazards associated with the change (drought, flooding, sea level rise, increased frequency in storms) their biophysical manifestations (groundwater depletion, landslides, riverbank erosion, coastal erosion, etc.), including their current and future magnitude and frequency. For coastal communities, climate change-driven sea-level rise and coastal inundation is also considered.
- **Impact:** An effect of climate change on the structure or function of a city or town.
- **Mitigation:** Activities that help to reduce the rate or magnitude of climate change by reducing human-generated greenhouse gas emissions or land use practices that contribute to climate change, such as deforestation.
- **Mainstreaming:** The process by which climate risks are considered in city plans, programmes, activities and policies, and by which adjustments are made to address the risks. Mainstreaming assumes that other projects can be enhanced – e.g. poverty reduction, urban sustainability – and their benefits increased by integrating climate planning with existing city plans and policy instruments (plans, strategies, programmes, guidelines). Mainstreaming helps to ensure that a city’s plans and policies are not at odds with climate risks now and in the future.
- **Resilience:** The ability of a city or town and its citizens to withstand impacts and rebuild or re-organize itself when necessary.
- **Sensitivity:** The degree to which exposed people, places, institutions and sectors are impacted, either positively or negatively, by climate change today and the degree to which they could be impacted in the future. As with exposure, sensitivity may be immediately related to a change in climate (e.g. a change in city water supply due to climate change-related decreases in precipitation may leave 50 per cent of the population without drinking water for 20 hours per day during the dry season), or less direct (e.g. artisans depending on a steady water supply to dye fabric lose their livelihoods). The sensitivity analysis is based on the socio-economic and physical realities, which represent the underlying causes for a climate change impact (e.g. poverty situation, drainage design/technology limitations, undiversified livelihood sources).
- **Strategic planning:** A systematic, transparent and objective decision-making process to determine priorities, make wise choices and allocate scarce resources (i.e. time, money, skills).
- **Participatory planning:** A planning approach that works to involve all sectors of a community in city planning, including the private sector, community and local stakeholder groups and, most importantly, traditionally under-represented and vulnerable groups (such as women, youth, urban poor).

¹ The World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), two organizations of the United Nations, established the IPCC in 1988.

- **Vulnerability:** Refers to the degree to which people, places, institutions and sectors are susceptible to, and unable to cope with, climate change impacts and hazards.
- **Vulnerable groups:** Traditionally under-represented communities including women, youth and marginalized groups, such as the urban poor, that are often more susceptible to climate change-driven impacts given their limited adaptive capacity and by living in or near particularly sensitive places (e.g. informal communities located on flood prone river banks or unprotected coastal areas).

In terms of planning principles, UN-Habitat recognizes the importance of planners in guiding more sustainable and environmentally friendly urban development, which itself is a critical component of planning for climate change.

At the heart of these new planning principles is the concept of broad-based sustainability, with environmental, social, economic and cultural dimensions. Effective planning for climate change requires that careful attention be paid to balancing these different dimensions of sustainability.

A balanced environmental, social and economic response to climate change – a paradigm shift towards sustainable urban development – is the underlying vision of this publication.



Ongoing construction of a water tunnel in Bugesera, Rwanda.
© UN-Habitat/Julius Mwelu

NEW URBAN PLANNING – THE VANCOUVER DECLARATION

At the World Planners Congress in Vancouver, Canada in 2006, a position paper on urban planning was released called the *Vancouver Declaration*. It called for a new approach to urban planning focusing on sustainability and making the connections between people, economic opportunity and the environment. The approach is based around the following ten principles, all of which have climate change planning implications and underscore the fact that good urban planning supports and creates a foundation for climate planning.²

1. **Sustainability:** A practical focus on integrating social, economic and environmental considerations in human settlements development that considers the impact of today's developments on future generations.
2. **Integrated:** An integrated approach that combines and coordinates economic planning, physical planning and environmental planning to deliver efficiency and effectiveness by adding value through policies that support, rather than undercut, each other.
3. **Integrated with budgets:** A recognition that successful plans effectively link to private and public sector budgetary processes. Neither a plan by itself, nor unregulated market processes, can deliver more sustainable settlements.
4. **Planning with partners:** Plan with all sectors of the community with a stake in the place, including governments, private sector organizations, voluntary agencies and civil society. New Urban Planning fosters voluntary collaboration amongst all these actors.
5. **Subsidiarity:** While national governments have important roles in setting national urban development policies and programmes, subsidiarity recognizes the need for decentralization, with local governments playing a leading role, and the empowerment of community-based organizations for neighbourhood-level planning.
6. **Market responsive:** New Urban Planning understands market demand, particularly in land and property markets, and is aware of the dynamics and potential of the informal sectors. It is responsive, but not reactive.
7. **Access to land:** A supply of land in safe and accessible locations to meet the needs of all sectors of society is fundamental to achieving efficient and equitable settlements. Traditional town planning has too often under-estimated needs, particularly those of the poor. Equitable systems of land ownership and land management need to underpin successful urban planning.
8. **Appropriate tools:** Urban development regulation and control should be strategic, affordable, effective and sensitive to the needs of the poor while conserving essential ecological resources. New Urban Planning recognizes that rigid urban containment is not a feasible, equitable or affordable policy in conditions of rapid urbanization.
9. **Pro-poor and inclusive:** Successful planning is inclusive, pro-poor, recognizes diversity and promotes equality. Plans can and should be driven by the objectives and priorities as expressed by all groups in the city.
10. **Cultural variation:** New Urban Planning allows for a variety of outcomes according to cultural priorities and preferences.

² Adapted from: *Reinventing Planning: A new governance paradigm for managing human settlements. World Planners Congress, June 2006.*