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Chapter 1: **Introduction** 2 February 2007

This manual is for you. Whether you are a public official or citizen, we encourage you to download it from www.climatemanual.org and share it with as many people as you want.

Protecting the climate is the defining challenge of our time. Every era has its opportunity to improve the world. This is ours. How we deal with the very real threats to the stability of the climate will shape our future, the economy and the sort of a world we will leave to our grandchildren. It will determine whether many species, perhaps even our own, will live or die.

This manual will show mayors how to reduce greenhouse gas emissions in his/her unique community.

This manual has gone through an extensive peer review process. And was released at the ICLEI Sundance Summit, for comment from the mayors and city officials assembled there. But the world of climate protection is changing very rapidly. Please contact us if you have corrections, additions, suggestions for improvement, or if you want help in implementing the ideas contained here. Natural Capitalism offers consulting services in climate protection, and implementation of sustainability to communities, companies and countries worldwide.

What follows is a brief summary of each of the documents that comprise the seven chapters of this manual.

Chapter 2 begins the manual by concisely describing the benefits of taking action now. It echoes the conclusion of the International Panel on Climate Change 2007 report, issued in Paris, which, "In a grim and powerful assessment of the future of the planet, the leading international network of climate scientists has concluded for the first time that global warming is "unequivocal" and that human activity is the main driver….". The report stated that, "the world was in for centuries of climbing temperatures, rising seas and shifting weather patterns - unavoidable results of the buildup of heat-trapping gases in the atmosphere." But in the only hope offered by the report, it concluded that, "warming and its harmful consequences could be substantially blunted by prompt action."[1]

The purpose of this Chapter is to arm mayors with the ammunition they need to build political support for their leadership by making the business case, the tax-savings case, the environmental case, the public health case, etc., for climate protection. This chapter has five different sections, each of which can be used individually, as needed.

The next section of the Manual follows ICLEI's Cities for Climate Protection Campaign proven five-step methodology. This process starts with conducting a baseline inventory. It then requires that a city make a commitment to reduce global warming emissions. The amount of time each city needs to complete each milestone depends on its size and complexity, the availability of data, staff and resources. A city then moves to create a plan, implement that plan, measure its success, verify that and report on it.

[1] New York Times, www.nytimes.com/2007/02/03/science/earth/03climate.html?_r=1&ref=todayspaper&oref=slogin, 1 February 2007.

The five steps of ICLEI's CCP milestone process are:[2]

1. Develop a baseline inventory of GHG emissions
2. Establish a target to lower emissions
3. Develop a local climate action plan to implement actions that reduce GHG emissions
4. Implement the local action plan
5. Measure, verify and report performance

The five-step methodology provides a simple, effective, standardized means a community can use to reduce the emissions from both government operations and the community as a whole. The various steps can be worked on concurrently, but each should receive separate consideration in the process of developing a Local Action Plan.

Chapter 3 describes the purpose of a baseline emissions inventory, why it is important and what will be involved. It provides cities with the tools and options available to conduct a baseline inventory, which include the ICLEI CACP tool, the use of outside consultants and performing a self inventory.

A baseline inventory identifies and quantifies the global warming pollution produced by a city's public and private sectors in a particular year. The inventory should also include a forecast of probable future emissions that will result if nothing is done. This provides a benchmark against which the city can measure progress in terms of its own operations and the community as a whole. The emissions analysis identifies activities that contribute to global warming pollution and the quantity of pollution generated by each of these activities.

An inventory is established by collecting energy use and waste data. A local government can calculate global warming pollution for a base year (e.g., 1990, 2000 or any other year for which the city has good data) and for a forecast year (e.g., 2012). Expertise in climate science, outside technical expertise or consultants are not necessary, although many cities do hire such outside expertise. Government staff members, employees from public works, environment and facilities departments can conduct an inventory. The differences in standards and how to conduct an inventory to make a standard more useful for the following steps are explained. Finally, this chapter provides examples of completed inventories.

Chapter 4 discusses setting a reduction target for greenhouse gas emissions by creating a tangible goal and metric (system of measurements) to guide the planning and implementation of a community's action plan. The target in the U.S. Mayors Climate Protection Agreement is to reduce emissions by a minimum of 7% below 1990 levels by 2012. Current science, however, indicates a need to reduce GHG emission dramatically below that in the next 10 years. The chapter explains the background science and provides examples of the timeframe and goals that cities and other organizations are currently setting. It also works through a 15-step process cities can use to establish their own emission reduction goals.

Chapter 5 presents 5 sections and 15 sub-sections (18 documents total in the Table of Contents). These look at all the elements involved in developing and implementing a Local Climate Action Plan. A Plan is a customized roadmap that includes a timeline, costs and financing mechanisms, assignments to city departments and actions the city must implement to achieve its target. This large chapter provides resources, tools, programs and case studies of how cities and communities have worked to reduce their emissions, reduce the impact of their current emissions and adapt to the changes created by global warming.

The first section in chapter 5, stakeholder engagement, presents different strategies cities can use to work with their community leaders in developing and implementing climate protection programs. It recommends creating partnerships with various stakeholders to create momentum, longevity and success for programs. The remaining four sections of Chapter 5 present the best bets actions for the short term, as well as long term initiative programs that cities can implement to reduce emissions and adapt to climate impacts that are already inevitable.

[2] ICLEI's First Responder Handbook, www.coolmayors.org.

The 9 sub-sections in "Best Bets" describe initiatives that have lower initial costs, short payback, positive return on investment and can quickly reduce GHG emissions. In evaluating what programs cities should put in place, cities should consider first the greatest sources of emissions, as shown by the baseline inventory and then create the best package of programs to quickly control emissions.

The purpose of chapter 5 is to provide you a variety of programs and case studies. The sections show how these programs have worked for other cities, describe their return on investment (ROI) and provide resources for more information. Chapter 5's Best Bets Section (9 documents) highlights best practices cities can implement within their own municipal operations, as well as programs cities can put into place to help residents and businesses reduce their emissions and become more energy efficient (bold green text signifies best practices).

Best bets include:

In municipal buildings cities can retrofit city buildings with energy efficient lighting and appliances, establish LEED/energy efficient standards for new municipal construction and major renovations, and perform energy audits for existing municipal buildings.

For other infrastructure within the city, best practices include installing Light-Emitting Diode (LED) traffic signals and traffic flow management systems, updating to high efficiency street lighting, increasing efficiency of water and wastewater utilities and establishing landfill to gas energy projects.

Municipalilities can modify city transportation in addition to the residential transportation options (see residential transportation below). Cities can reduce emissions from municipal vehicle fleets through the use of hybrids, alternative fuel vehicles and idle reduction policies and campaigns as well as establishing programs to reduce city employee driving. Municipalities can also modify school buses, waste haulers, ambulance services and other contracts to use alternative fuels.

Municipal waste reduction and recycling programs can reduce emissions.

The city can also establish purchasing programs to procure energy efficient appliances, purchase materials that require less energy, and reduce the amount of waste it produces. The best practice is to create efficiency standards for office equipment, adopt recycled/salvage product use policies, and develop local purchasing programs.

Finally cities can work to encourage utility providers to offer energy efficiency services and to have a minimum commodity that is to be from renewable sources.

Cities can work to support local businesses in their transition to energy efficient technology and practices. The best practices in doing this are: promoting the use of audits, provide incentive programs for private developers to provide higher energy efficiency standards, establishing energy efficiency standards in city building codes, work with power plants and other significant emitters, while helping small and local businesses to save money by undertaking energy savings measures.

The best ways to support residents in increasing their energy efficiency at home is by supporting residential home efficiency upgrades, establishing local policies to promote renewable energy, providing lower-income weatherization assistance, addressing split-incentives in renter occupied homes, creating home size restrictions and taxing large residential energy consumers, and promoting energy and water efficiency by smart metering, price signals and price structuring.

The residential transportation section discusses how after public transportation options are established, cities can offer residents and businesses incentives to modify their transportation uses. The best practices are to first make cities pedestrian and bicycle friendly, implement school and campus transportation management programs, encourage or require local businesses to implement commuter trip reduction programs, provide better

access to public transportation, install park & ride facilities and provide car sharing programs, offer location efficient mortgages and provide incentives for hybrid or low emission vehicle use.

Chapter 5's Long Term Initiatives section (5 sub-sections) gives cities a look at more comprehensive carbon reduction opportunities. It packages the best bets with those that have lower or longer paybacks. That way, fast payback measures can "subsidize" the longer-payback measures, enabling cities to achieve even greater carbon reductions. This section describes the issues that need to be considered in the transition to radically reduced emissions.

Long term initiatives include:

Sustainable urban planning, including case studies of cities using smart growth concepts in the redesign of the community or housing;

Sustainable agriculture, including examples of how communities are supporting the conversion to organics, no-till and sustainable practices;

Transitioning to alternative fuels, including examples of cities supporting the diversification of fuel as well as discussing ethanol, biodiesel, wind powered, plug-in electric/hybrid;

Sustainable energy planning, including information on sustainable energy options and distributed generation;

Education, including examples of educational programs and materials that cities are using to promote energy efficiency and climate protection; and

Waste management, including waste disposal options and waste reduction goals.

The last two sections of chapter 5 discuss ways to reduce the impact of continuing emissions (including urban reforestation, sequestration, and carbon offset and cap and trade programs). It also discusses policies cities can implement to help residents adapt to climate impacts, making the adjustments to survive the global warming already underway.

Chapter 6 covers how cities should monitor the reductions they achieve through implementation of actions to reduce GHG emissions. Tracking progress builds political support, informs the process and often drives more investment by the city in advancing climate protection. Verification of progress ensures integrity and accuracy in the city's efforts to achieve its GHG reduction target. This chapter discusses metrics, how to measure performance and how often to do it. Any system of metrics should include not only actual emissions reductions, but also a way to evaluate progress on a city's long term goals with the use of indicators. The chapter recommends that a city celebrate its successes to build on momentum and encourage future participation. Examples of awards are provided.

Chapter 7 Successful implementation of actions identified in the Local Climate Action Plan depends on a number of factors including management and staffing, financing, a realistic timeline and stakeholder involvement in appropriate aspects of the plan to build community support. Most cities find it useful to appoint a climate coordinator to ensure continued implementation. This manual includes a list of city and state climate action plans in the last chapter 7.

The Chapter also presents the extensive resources that Natural Capitalism Solutions, manual contributors and reviewers have collected while writing and editing this manual. This section includes sample Local Climate Action Plans, which will be very useful to those cities just initiating this process.

Notes on reading this manual

These documents have been through a peer-review process. But they can always be made better. Please contact office@natcapsolutions.org with any questions, comments you have, or mistakes you find.

An effort has been made to archive all .pdf document referenced on the Natural Capitalism Solutions web site to ensure access to these documents in the future. Unfortunately, this precaution cannot be taken for web pages, which may go out of date over time. The day each site was accessed is included in the footnotes.

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