

Preparing for CLIMATE CHANGE IMPACTS in local, regional and state governments

by Elizabeth Willmott

In 2007, the Intergovernmental Panel on Climate Change released its fourth major assessment report, making the statement that global warming is “unequivocal” and that “most of the observed increase in global average temperatures since the mid-20th century is very likely” a result of increased human emissions of greenhouse gases.

Global climate change is expected to have increasing impacts on the built, natural and human systems of our world, with serious social, economic and environmental consequences. Local and regional governments are on the front lines of those impacts, from planning for sea level rise in coastal areas to coping with reduced water supply in regions dependent on snowpack. Public officials at the local, regional and state level must take steps to prepare their communities for tough decisions ahead, to limit the consequences to their residents, assets and natural resources.

Public decision makers now have a tool to support them in these challenging decisions: *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*, written by the Climate Impacts Group at the University of Washington and the office of King County Executive Ron Sims, in association with ICLEI - Local Governments for Sustainability. The co-authors have

shared this guidebook with Canadian municipalities, and are exploring how to support its use in Canada.

“The future ain’t what it used to be”

In October 2005, King County, Washington held a conference titled “The Future Ain’t What It Used to Be”, on climate change impacts to Washington State. The conference underscored the seriousness of the projections for the region: climate change is expected to lead to declining snowpack, lower summer streamflow, increased competition for water, greater forest fire risk, and increased stress for the region’s iconic salmon species. It became clear during the planning and hosting of this event that the decades ahead would bring great change to the ways that Washington State residents rely on their built and natural environment. The region’s future would be very different from its past, unless government officials took steps to adapt.

Efforts to understand, limit and prepare for climate change had actually begun over 15 years prior. Bruce Laing and Ron Sims – King County Council members at the time – had proposed an “office of global warming” to study the effects of climate change on the region. That first attempt did not succeed. In February 2007, however, building on a

Summary

Global climate change is expected to have increasing impacts on the built, natural and human systems of our world, and local and regional governments are on the front lines of those impacts. Now, public decision makers have a tool to support them in reducing the present and future harms of these impacts: “Preparing for Climate Change: A Guidebook for Local, Regional and State Governments”, written by the Climate Impacts Group at the University of Washington and the office of King County Executive Ron Sims, in association with ICLEI – Local Governments for Sustainability.

Résumé

Les changements climatiques planétaires vont entraîner des répercussions croissantes sur le domaine bâti, les systèmes naturels et les systèmes humains du monde entier; les autorités locales et régionales vont se retrouver aux premières lignes de ces répercussions. Les décideurs publics disposent maintenant d’un outil pour les aider à réduire les effets nocifs actuels et futurs de ces répercussions : *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*, un guide écrit par le Climate Impacts Group de l’Université de l’état de Washington et le bureau du directeur de King County, Ron Sims, en association avec l’organisme ICLEI – Local Governments for Sustainability.

decade and a half of efforts, the county published its first comprehensive climate change action plan to address known and projected impacts and to reduce operational and regional greenhouse gas emissions.

Then, in September 2007, King County, the Climate Impacts Group, and ICLEI - Local Governments for Sustainability released a guidebook for local, regional and state governments on how to prepare for climate change impacts. The idea for this guidebook was proposed by Ron Sims in response to the 2005 conference, and is intended to capture the lessons that King County has

learned while developing and implementing climate preparedness solutions. The guidebook is based on the process of creating those strategies, and is being used as a tool to help governments of the region and across the world start to prepare for such impacts.

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King County's experience may seem unique, but a common message can be sent to government leaders and planners worldwide: climate change is underway. The costs of its impacts will be felt by regional governments – and potentially very heavily. Natural resources, homes, infrastructure and the nuts and bolts of government services will be increasingly vulnerable to climate change. Depending on the region, this could mean public health consequences, water shortages, flooding damage, changing ocean conditions and more extreme weather. Local, regional and state governments must prepare to cope effectively with this shifting landscape.

Local and regional climate change impacts

Local and regional governments like King County will increasingly face stresses to the fabric of their communities as a result of climate change. A range of built, natural and human systems may be vulnerable to impacts, including:

- Water supply, which may be vulnerable to declines in snowpack and summer streamflow.
- Wastewater treatment operations, which may be susceptible to sea level rise in coastal areas, flooding in river areas, or other concerns.
- Already-fragile sites and artifacts of historical, cultural and natural heritage, such as glaciers, coral reefs, and indigenous religious sites, which may be vulnerable to increased summer heat, more frequent or intense flooding, sea level rise, changes in ocean temperature, or other concerns.

- Coastal parks, footpaths, roads and special landscapes, such as beaches and bluffs, which may be impacted by rising sea levels, more variable coastal weather, or other concerns.
- Biodiversity and threatened and endangered species, which could be affected in a variety of ways, including more frequent forest fires or declines in streamflow.

Climate change will also have particular impacts on public health, especially in economically disadvantaged communities that are already under existing health stresses. For more information about specific climate change impacts in your region, develop a long-term relationship with a regional climate science advisor. More resources for Canadian municipalities are listed at the end of this article.

These impacts will not be uniform across regions of the world, but one lesson is common for all governments: the imperative to prepare is becoming increasingly clear.

Decision makers in local and regional governments can start to prepare for climate change today.

Preparing for climate change impacts: a process

Decision makers in local and regional governments can start to prepare for climate change today. The following suggested steps are adapted from *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*.

- **Ask the climate question.** Inquire “How could climate change affect our community? Do these impacts pose a risk to our government services, property, health and natural resources?” Collect and review important information from experts at your local universities or broadly respected scientific institutes about regional climate changes. Find out the existing trends of temperature, precipitation, sea level and other relevant climate variables in your region. Know the credibility of your sources, and how confident their forecasts are. Keep a log of your answers.

- **Raise public awareness.** In addition to King County's 2005 conference on climate change impacts, which attracted over 600 scientists, public officials, citizens and other stakeholders, the county has also hosted a number of workshops, “brown bag” lunch presentations and other outreach events to raise public awareness about climate change. Consider holding a conference or a workshop, with a focus on how climate change is expected to affect your community.
- **Build technical capacity to prepare for climate change, and strengthen long-term relationships between regional scientists and municipal decision makers.** King County works closely with the Climate Impacts Group to incorporate the most updated projections of climate impacts to the US Pacific Northwest into regional plans, policies and infrastructure investments. The Climate Impacts Group is part of the Joint Institute for the Study of Atmosphere and Oceans at the University of Washington, and is one of eight groups across the US funded by the National Oceanic and Atmospheric Administration to provide geographically relevant climate information to decision makers. Try to identify an established and trusted source of information in your region, such as a university or other respected institute.
- **Assess the vulnerability of built, natural and human systems to climate change impacts.** King County's climate team is looking at how public and private assets – like wastewater treatment plants and roads – will be vulnerable to the increased flooding and sea level rise that are expected to occur as a result of climate change. The team has also identified ways in which the region's natural resources are vulnerable, and is beginning to study the impacts of climate change on public health, especially for vulnerable populations and economically-disadvantaged communities. When possible, create geographical maps of expected climate change impacts to be visually compelling to decision makers.

- **Seek solutions that mitigate greenhouse gas emissions and prepare for impacts.** Adaptive capacity can be considered the ability of built, natural and human systems to accommodate changes in climate with minimum disruption or additional cost. One illustration of adaptive capacity in King County is the construction of a “reclaimed water” backbone that will provide treated wastewater to irrigation and industry when fully operational, reducing pressure on the region’s drinking water supply. Another example is the county’s Flood Control Zone District, created in 2007 to fund new adaptive capacity in the form of renovated regional levees. King County has also pursued solutions that simultaneously support adaptation and reduce greenhouse gas emissions — such as green buildings. Certain green building elements can provide natural stormwater drainage in times of heavy rains, stormy weather or flooding, while also reducing building energy consumption and therefore greenhouse gas emissions. Such solutions reflect that climate change adaptation and mitigation can go hand-in-hand.

Conclusion

No silver bullet exists to prepare the built, natural and human systems of municipalities for the impacts of climate change. Indeed, we must continue to limit the worst future harms of global climate change by reducing our collective greenhouse gas emissions now. For local and regional communities, however, some impacts will be inevitable. Preparing for them will only become more imperative.

Preparing for Climate Change: A Guidebook for Local, Regional and State Governments can be downloaded at:

<http://www.cses.washington.edu/cig/fpt/guidebook.shtml>. For more information on how the guidebook is being used in Canadian municipalities, please contact Elizabeth Willmott at: elizabeth.willmott@kingcounty.gov. ■

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Further Resources for Canadian Municipalities

Natural Resources Canada – Climate Change Impacts and Adaptation Program
<http://adaptation.nrcan.gc.ca/>

Canadian Climate Impacts and Adaptation Research Network (C-CIARN)
<http://www.c-ciarn.ca/>

Alliance for Resilient Cities
<http://www.cleanairpartnership.org/arc.php>

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