

MULTI-LEVEL GOVERNANCE AND PLACE-BASED POLICY MAKING FOR CLIMATE CHANGE ADAPTATION:

The European Experience and Lessons for British Columbia

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Climate change is a “glocal” problem that operates simultaneously at several levels, and ... attention to the global, supranational and national level, often obscures the need for attention to what happens within the “black box” of the national level, to the division of responsibility between different actors in society as well as the adoption of initiative within national systems. (Gupta 2007, 132-33)

IN LIGHT OF IMPORTANT environmental issues in British Columbia, this article focuses on applying European policy solutions to Canada. By looking at European Union (EU) efforts of multi-level, or “polycentric,” governance, including recent attempts to enhance local place-based efforts, British Columbia can gain valuable insights (Gupta 2007; Alber and Kern 2008). In multi-level systems (such as the Canadian federal state) institutions and actors operate across different policy sectors and at and between the different levels of governance that shape the general framework for climate change adaptation and mitigation. This significantly affects the range of issues that can be addressed by subnational actors such as British Columbia as well as the timing of their interventions (Harrison 1996; Curry 2005).

Both adaptation and mitigation can be developed with local input or from the top-down. “Adaptation is planning (either reactively or proactively) to account for the positive and negative effects of climate change” (Picketts 2010, 17); mitigation, on the other hand, focuses on the root causes of climate change problems and aims to reduce the amount of greenhouse gases emitted into the atmosphere or to increase the earth’s ability to absorb them. In recent years, most governments, including those at the federal and provincial levels in Canada, have favoured adaptation strategies, partly because mitigation efforts have

failed to reverse global warming. For all that, lessons learned from mitigation initiatives are relevant to adaptation even if they are largely negative (Crabbe and Robin 2006).

In Canada, the prolonged Kyoto debate left provincial policy development in a state of paralysis. Provinces were not formally authorized to discuss the terms of the accord and no binding climate legislation was developed by or for them. Instead, there were “national consultation processes,” “round tables,” and “stakeholder consultations” in which provinces were participants. Also, federal government and some provinces have passed responsibilities back and forth, while making weak commitments at times of heightened public interest. And the division of powers in Canada reinforces this trend. According to Schreurs (2011), the federal government’s unwillingness to act in reaching Kyoto goals, and Canada’s withdrawal from the Accord in December 2011, have tarnished the country’s reputation. In 2009, however, the Conservatives signed the Copenhagen Accord, a non-binding agreement for the greenhouse gas (GHG) emission reduction target of 17 percent below 2005 levels by 2020. In fact, courts had to force the federal government to acknowledge and exercise its jurisdiction in environmental policy (Harrison 1996), and recent (2012) bills amending landmark federal environmental assessment, fisheries, and environmental protection legislation have severely restricted the capacity of the federal government to lead in this area (Gibson 2012).

Given this lack of federal leadership and jurisdictional limits on their own powers, the provinces have struggled to shape their own climate change policies. They confront “a legacy of aging ... infrastructure whose location often conflicts with current development pressures and of past but currently inadequate planning decisions” (Crabbe and Robin 2006, 119), and they often lack information about the impact of climate change on infrastructure design and performance. As a result of these problems, at the provincial level, in turn, much climate change work has devolved to municipalities in which climate change impacts are acute, but in which resource and jurisdictional issues are even more confounding.

Municipalities also face many external and internal institutional barriers to action as they hold few financial resources and enjoy very little autonomy in areas such as industrial policy, water, resource or agricultural management, which are key to effective adaptation. In general, cities and towns also lack the capacity to plan for the long term, and in Canada “municipal culture (has been) characterized by

management-by-crisis, which leads municipalities to rely excessively on emergency measures, on inertia, and on oral communication with key personnel” (Crabbe and Robin 2006, 123).

Canada is still in the early stages of local community climate change adaptation, however, and governments at all levels – including provinces such as British Columbia and its municipal governments – can learn much from the climate change adaptation efforts of other jurisdictions that have faced similar multi-level governance issues and problems. The EU exemplifies how local community resilience can be enhanced under a multi-level government system and suggests that key governance concepts such as *subsidiarity*, key ideas such as *transition management*, and key institutions such as *trans-municipal networking* developed there can be usefully be applied to Canada and British Columbia.

COMPARING EU AND CANADIAN CLIMATE CHANGE POLICY

Generally speaking, Canada and the EU are comparable systems sharing many similar institutional and cultural characteristics. Both are, effectively, large federal systems; Canada has ten provinces and three territories; the EU has twenty-seven member states. Both have relatively weak federal or central authority with much policy making devolved to lower levels, including regional and local governments. In both systems, higher levels of government decide and often fund climate change plans, but implementation remains the responsibility of provinces, regions, or municipalities (Schreurs 2011).

Unlike Canada, the EU has a system of shared decision-making competences that is non-hierarchical and non-majoritarian, while governance patterns are highly dynamic (Kaiser and Prange 2002; Kohler-Koch 1999; Eriksen and Fossum 2004). This arrangement differs from many traditional federal systems, in which levels or orders of government are arranged vertically, but it bears comparison with the systems that exist in many subnational jurisdictions – such as between provincial or state governments and local or municipal ones. In general, the trend in the EU has been to transfer national competences to EU institutions even as “the focus has shifted from an interlinked set of programs and funding mechanisms with a primarily redistributive mechanism tied to national objectives of the individual member states to a more coordinated one geared to community-wide goals and objectives” (Dahl 1999; Wolfe 2011, 6). However, significantly for local governments and efforts

at enhanced “place-based policymaking” which characterize much climate change and environmental policy making, the European system entrenches the decentralization and deconcentration of powers in the concept of “subsidiarity,” or the idea that decision making on a subject should always be pushed down to the “lowest” level possible (van Hecke 2003), allowing state, regional, and local governments more capacity to react and adapt to pressing policy issues such as climate change. The range of practices and experiences that have resulted can be emulated in other jurisdictions with similar governance arrangements, like British Columbia (Bennett and Howlett 1992).

The Multi-Level Environmental Policy Situation in the EU

Currently, given the complex dynamics and institutional arrangements there, all levels of government in Europe are involved in environmental issues. Some communities are able to connect with each other, as discussed below, but most still need help from higher levels of government to address cross-border interdependencies and to break inefficiencies (Barca 2009). In the climate change field, the EU and the national and subnational governments of its member states also share competencies. Thus, some aspects remain exclusively national issues, while others are decided at the EU level and much implementation takes place at the subnational level. This is similar to the environmental policy-making situation in Canada.

A good example of the general trend towards local or place-based environmental policy-making processes in the EU noted above, however, is provided by recent efforts to develop a climate and energy package with a legally binding 2020 target for GHG emissions, an increased share of renewable energy and improvements in energy efficiency, and a revised Emission Trading System (ETS). In January 2008, the European Commission proposed binding legislation to implement 2020 climate targets. This “climate and energy package” was agreed to by the European Parliament and Council in December 2008 and became law in June 2009. The core of the package comprises four pieces of complementary legislation: (1) a revision and strengthening of the ETS, the EU’s key tool for cutting emissions cost-effectively; (2) an “Effort Sharing Decision” governing emissions from sectors not covered by the EU ETS, such as transport, housing, agriculture, and waste; (3) binding national targets for renewable energy that, collectively, will lift the average renewable share across the EU to 20 percent by 2020; and (4) a legal framework to

promote the development and safe use of carbon capture and storage (ccs) (European Commission 2009). This package was approved in December 2008 and was followed by a White Paper in 2009. This White Paper, ‘Adapting to Climate Change: Towards a European Framework for Action’, overtly promoted a local, place-based approach to adaptation, offering a framework for adaptation measures and policies in order to reduce the vulnerability of the EU to the impacts of climate change.

As a result of this, and other similar initiatives, a multi-actor structure is supported in EU documents and through grassroots developments, and it is taking shape in emerging sets of “transnational municipal networks” (TMNs). There is also an emerging relationship between European regions, called the “community-based collaborative approach,” which mainly derives from grassroots frustration with governmental inabilities to muster the resources and political will needed to find implementable solutions to both local and global environmental problems (Marshall 2008). The development of this system, in particular, has many lessons for place-based policy making in the Canadian multi-level governance context. This is also true of a second EU-wide initiative, discussed below, which has also been led by state and local governments – the effort to plan and to introduce more sustainable practices through efforts aimed at “transition management” (TM) (Rotmans and Loorbach 2009;).

Emerging Transnational Municipal Networks in Europe

Europe’s emerging transnational municipal networks have three defining characteristics: first, member cities are autonomous and free to join or leave; second, because they appear to be non-hierarchical, horizontal, and polycentric, such networks are often characterized as a form of self-governance, although they have a significant government component and membership; third, decisions taken within a network are directly implemented by its members (Kern and Bulkeley 2009, 309-10). With these elements, TMNs have adapted to the opportunity structure present in the subsidiarity-driven EU multi-level system to have access to key decision makers as well as resources (Ladrech 2005). Most networks concentrate on two goals: (1) representing the interest of their members at the European level and (2) facilitating the exchange of experience and transnational learning among their constituents.

Two TMNs important for environmental and climate change policy – the “Climate Alliance” and “Eurocities” initiatives – have similar set-ups and supporting mechanisms. The Climate Alliance is a European network of local authorities committed to the protection of the

world's climate. The member cities and municipalities aim to reduce GHG emissions at their source (Climate Alliance 2012). Eurocities unites the local governments of cities in over thirty European countries. Policy priorities in this network are climate, economy, and inclusion as well as reinforcing the role of local governments (Eurocities 2012).

Both networks support the exchange of best practices between cities or regions and help to coordinate local, national, and European levels of government. The Climate Alliance offers a "climate toolbox" as well as a "roadmap" and a benchmarking and emissions calculating system for members. The toolbox contains a database for climate change projects and events, advertising material and the opportunity for nation-wide campaign participation. The roadmap, or "climate compass," gives advice on how to develop a local climate action plan, and the "climate cities benchmark" is a systematic approach for visualization and analysis of local actions – basically, learning from other cities or regions. The policy priorities of the Eurocities network are climate, economy, and inclusion while reinforcing the role of local governments in their attainment. Eurocities works with the European Commission, both at the political and technical levels, as well as with the European Parliament, the Committee of the Regions, and EU member states to ensure that those issues are addressed properly (Eurocities 2012). Membership in the Climate Alliance, founded in 1990, now exceeds sixteen hundred cities, municipalities, and districts in eighteen European countries; and Eurocities, founded in 1986 with six large cities (Barcelona, Birmingham, Frankfurt, Lyon, Milan, and Rotterdam) spans the local governments of more than 140 cities. In sum, both networks bring advantages to their members by promoting the exchange of experience; showcasing achievements; providing recommendations, aids, and tools; lobbying for improved framework conditions for local climate change policies; and developing and coordinating European projects and campaigns (Climate Alliance 2012).

All of these activities are carried out through internal and external government activity. Internal activities occur within the network and include information exchange, communication, project funding and cooperation as well as recognition, benchmarking, and certification. Since there is no enforcement of goals or benchmarking initiatives, member cities or organizations can be characterized as active or passive network members. External activities involve "seeking to influence governmental actors, forms of interdependence with non-governmental actors and other TMNs and strategies for intermediation between actors

at the network level and at the municipal level” (Kern and Bulkeley 2009, 324). These two elements of TMNS bring advantages for higher levels of governance because they seek to achieve policy goals on the ground without necessarily engaging directly with national or local governments. And municipalities are able to more fully exploit their powers through strategic networking. They have thus become major players in EU climate change action without changing existing legislation (Alber and Kern 2008).

These examples of TMNS, illustrate two governance modes – “self-governing” and “governing through enabling”¹ – in which municipalities have high levels of discretion and decision-making power. Self-governing is “the capacity of local government to govern its own activities, such as the improvement of energy efficiency in governmental offices and other municipality-owned buildings” (Alber and Kern 2008, 5). But beyond such activities, municipalities have also shown that they can find more creative ways to take charge of climate change adaptation – not by following national or European mitigation processes but by innovating climate solutions. “Governing through enabling” emphasizes the role of local government in coordinating and facilitating partnerships with private actors and encouraging community engagement – mainly through positive incentives. The Climate Alliance clearly gears its activities towards exactly those aspects by helping to organize campaigns to facilitate citizen awareness of climate issues or by providing advertising material. This makes cities active participants in the area of climate change instead of entities that merely implement policies established at other levels. A development that is also possible in Canada despite the formally hierarchical relationships existing between levels of government in the Canadian context (Bulkeley and Betsill 2003)

European Transition Management Efforts

A second key area in which Canada can learn from EU experiences concerns recent efforts in many European nations to analyze and plan for significant transitions in underlying socio-economic systems in what is referred to as “transition management” activities. Climate change is seen in Europe as a persistent and complex problem, not

¹ TMNS are also growing in importance in the United States. Under the ICLEI’s Carbon Disclosure Project, at least thirty US urban centres, including New York, Las Vegas, Denver, West Palm Beach, St. Paul, and New Orleans, will use ICLEI’s Local Government Operations Protocol and software tools to assess their GHG emissions profile and then will disclose this inventory data to the CDP online reporting (ICLEI Global 2008).

least because it is deeply embedded in societal structures, is connected to structural uncertainty, and is difficult to manage with a variety of actors who have diverse interests (Rotmans and Loorbach 2009;). To tackle environmental issues in connection with societal structures, the concept of transition (or transition management) was developed in the Netherlands and implemented as part of the Dutch National Environmental Policy Plan (NEPP). From there it has spread to other countries and governments in the region and around the world (Kern and Smith 2008; Loorbach 2010; Rotmans et al. 2001).

The general idea of transition management is to break with the old “plan-and-implement” approach to environmental policy making and, rather, to implement process management, thus shifting existing economies and societies to a more sustainable future. This process includes managing different development stages – from predevelopment and the take-off of new technologies to a breakthrough and stabilization phase of transition to sustainability. In this there is room for both top-down and bottom-up developments as well as the articulation and attainment of both short-term and long-term goals developed by diverse actors (Rotmans and Loorbach 2009; Kemp and Parto 2005).

Like that of transnational municipal networks, the concept of transition management also addresses the complexity of sustainable development and climate change adaptation at multiple levels of government and over time. The model conceptualizes the challenge for climate change policy as a transition process (Kemp and Parto 2005), or set of connected changes, which reinforce each other but take place in several different areas, such as technology, the economy, institutions, behaviour, culture, ecology, and belief systems (Rotmans, Kemp, and Van Asselt 2001). In this process, transitions are seen not as the product of a single government or subsystem, such as industrial policy but, rather, as developments in various domains and jurisdictions that sustain each other at the local, state, and transnational levels. This is one of the reasons the concept fits well with climate change as it mirrors and acknowledges the complexity of the field and offers solutions for handling its uncertainties and difficulties (Kemp and Loorbach 2003).

In TM, governments have a “facilitator-stimulator-controller-director” role, depending on the stage of transition. Governments at different levels take on new roles in the transition management model, as needed, and work with other actors in new ways to support these processes. All these players are unlikely to work together easily, which is why a commitment to transition by all parties is important and

governments as democratic authoritative actors play a key role (Kemp and Parto 2005). While governments often cannot control transition dynamics entirely – including diverse actor involvement – they can steer and govern developments (Kemp 2009). The government component in the transition management concept is situated between two alternatives: “the incremental learning-by-doing approach and the blueprint planning approach” (6).

One activity in which local governments in Europe have been involved is in setting up transition arenas that create a virtual dynamic network, in which different perspectives, different expectations, and different agendas are confronted, discussed, and (if possible) aligned (Kemp and Loorbach 2003). In the Netherlands, the government created seven transition platforms in which individuals from the private and public sectors, academia, and civil society could come together to develop a common ambition for particular areas, develop pathways, and suggest transition experiments. In each platform a government official serves as a “linking pin” with policy. Each platform has ten to fifteen members: “They are selected by the chair on the basis of personal knowledge of, and visions related to the theme in question; they are not invited as representatives of particular interests” (Dietz et al. 2008, 223). They are expected to develop new ways to address problems and move sectoral arrangements towards sustainability or, in the climate change area, towards resilience, mitigation, and adaptation.

In sum, transition management has the following characteristics (Rotmans, Kemp, and Van Asselt 2001

- Long-term thinking (at least 25 years) as a framework for shaping short-term policy);
- Thinking about more than one domain (multi-domain), different actors (multi-actor) and different scale levels (multi-level);
- A focus on learning and a special learning philosophy (learning-by-doing and doing-by-learning);
- Keeping a large number of options (wide playing field).
- Transition management has yet to be adopted in Canada, but like transnational municipal networking it holds out some promise to enable successful adaptation to climate change in complex multi-level systems such as ours (Dolowitz and Marsh 2000).

LESSON-DRAWING FOR THE CANADIAN AND BC CONTEXTS

It is widely acknowledged that dealing with the “glocal” problem of climate change requires multi-level governance with strong horizontal linkages, high-capacity national and local leadership, and the resources needed to sustain and organize both. This is as true for Canada as it is for Europe, and therein lies the appeal of “place-based” policy approaches: “territorially grounded policies that are multi-level in their governance structure and tailored to the reality of individual regions” (Wolfe 2011, 1).

Strategies such as trans-municipal networking and transition management adopted in Europe hold a great deal of promise in this area but they can encounter ‘spatial resource-mandate mismatch’ problems in which the *subsidiarity* principle of decentralizing tasks to the lowest level of governance clashes with the capacity to conduct it satisfactorily. This is due to missing resources at lower levels of action, not enough knowledge about local circumstances at higher levels or a lack of horizontal collaboration within regions (Marshall 2008; Alber and Kern 2008).

European efforts to provide lower levels of government with adequate resources, or capacities, to act, however, have not been matched in Canada (Curry 2005, 39). Trans-municipal networking, for example, involves creating an organizational structure with multiple, relatively independent centres that open up opportunities for locally appropriate institutions to evolve by tightening monitoring and feedback loops and by enhancing associated institutional incentives (Carlsson and Sandström 2008). Adapting some of these European climate change elements into Canadian practice would require a change in policy processes as well as new policy tools.

Simply adding new tools to the existing arsenal without sufficient thought to their impact on the overall regulatory strategy (Gunningham and Grabosky 1998), however, may lead to contradictory and inefficient climate change governance. Hence, accurate transmission of policy lessons is crucial (Dolowitz and Marsh 2000, Rose 1991). European experience suggests that effective place-based policy making requires the creation of new types of environmental policy processes and the development and adoption of policy tools that can function in a multi-level networked setting to enhance socio-economic and socio-technical transitions (Jordan et al. 2003). The application of “new” policy instruments in network contexts requires not just new “substantive” tools but also

new “procedural” ones tailored to enhancing governance arrangements in complex multi-level situations (Howlett 2000).

The Situation in British Columbia

Some efforts to apply new environmental tools in British Columbia have been counterproductive because they have been layered on top of existing tools without due attention to their procedural components. A 2012 report by the David Suzuki Foundation, for example, found that, “although government introduced a low carbon fuel standard in January 2010 to reduce carbon content of fuels being used in the province, the regulations include[d] major loopholes that allow[ed] more polluting oil from the oil sands to be counted as conventional oil and that ignore[d] some emissions created in the production of biofuels” (Holmes 2012, 17). Likewise, there are drawbacks to the fact that “public institutions are required to purchase offsets through the Pacific Carbon Trust, which invests in projects owned by private companies only, instead of having the flexibility to invest in the energy efficiency of their own operations” (18). Some of the companies receiving public funds are among the province’s largest industrial polluters. This takes away much needed funds from ecofriendly activities as payments and penalties are usually insufficient to significantly raise their relative profitability compared to damaging activities (Dudley 2007).

Transportation policies are also deviating from climate change goals: while some efforts have been made in the area of public transportation, such as subway construction and the use of alternate fuel buses, for the reduction of GHG pollution, British Columbia recently invested \$1 billion in subsidies to the oil and gas sector and provided funding for new highway construction, including twinning the Port Mann Bridge and expanding Highway 1 within Metro Vancouver. Meanwhile, the provincial government is discussing the option of logging forest reserves, which would affect biodiversity and emission levels, as British Columbia’s forest ecosystems rank among the highest carbon storage areas per hectare on the planet.

On the procedural side, the provincial government often pays for networking at the regional level but does not take advantage of recommendations that emerge from these processes. Especially in the past two years, BC government climate change efforts have lost momentum. Of twenty-one actions deemed desirable by the David Suzuki Foundation, encompassing strategies for mitigation (14), GHG emission trends

(3), adaptation (2), governance and accountability (2), four were not met in British Columbia. These were: setting an upper limit for pre-industrial temperatures, developing a policy program for the protection of natural carbon stores in forests and peatlands, having reduced emission compared to 1990 levels, and fulfilling the Kyoto targets. In addition, announced actions on building codes and transportation remain to be implemented.

In general, though, British Columbia has made an independent and voluntary effort to set and meet more ambitious climate change goals than has the federal government. British Columbia set itself apart not only from other Canadian provinces but also from North America in general by introducing a carbon tax (Crossman 2010; Schreurs 2011, 106). The province's very ambitious goals in this area involve local communities reducing GHG emission to 33 percent below 2007 levels by 2020, and 80 percent by 2050. Further climate action focuses on the production of clean electricity and having a carbon-neutral government (British Columbia, Ministry of Environment Climate Action Secretariat, 2011). British Columbia also became the first Canadian province to join the Western Climate Initiative (wci) – a group now composed of one US state and four provinces (although initially it was much larger).² The wci focuses on and is developing a regional cap-and-trade system to reduce GHG emissions. In British Columbia, this initiative is supported by the Greenhouse Gas Reduction Targets Act.

Moreover, strong regional governments exist alongside municipalities in the province and are actively involved in governing urban businesses. The Greater Vancouver Regional District (GVRD), for example, has significant powers with regard to enforcement and implementation of air quality standards in the Lower Mainland. There are also city programs to cut GHG emissions from transportation, waste disposal, and buildings. The City of Vancouver's Corporate Climate Change Action Plan identifies the risks of climate change for Vancouver and contains several measures to reduce GHG emissions that affect civic facilities (e.g., supporting alternative energy), the corporate fleet (e.g., shifting to diesel vehicles), street/park lightning and traffic control signals, and corporate demand-side management. Quasi-government organizations, such as the Pacific Institute for Climate Solutions (PICS), are heavily involved in building the knowledge foundation and monitoring tools

² On 17 November 2011, six US states – New Mexico, Arizona, Washington, Oregon, Montana and Utah – formally withdrew from the Western Climate Initiative (wci), a multi-state GHG reduction and cap-and-trade partnership. The remaining participants in the wci are California and the Canadian provinces of British Columbia, Manitoba, Ontario, and Quebec.

for conducting further government work and enhancing the climate change network within British Columbia and beyond. To date, however, these organizations have failed to develop an integrated set of goals and procedures such as is found in European transition management efforts.

Some efforts at enhanced networking among urban, local, and regional governments have also been made in the province. Several smaller cities (including Kelowna, Kamloops, Prince George, and Campbell River) have developed climate change action plans that aim for local emission reduction and that look at solutions specific to each setting. Communities like these assert significant influence on local land use, transportation patterns, building energy use, and solid waste management – all significant contributors to GHG emissions: In fact, local governments ... influence approximately 50 percent of greenhouse gas emissions when decisions are made to support the walkability of a community, transit, smaller and more energy efficient housing types and more (City of Campbell River 2011). There are common elements that reoccur in every community, but there are also initiatives that address specific challenges, such as the preservation of fish species abundance or addressing changing land conditions in areas with a high risk of flooding. To date, however, the provincial and federal governments have failed to utilize these municipalities in effective environmental policy monitoring and evaluation. Several of these plans are summarized in Table 1 below.

Vancouver is also part of two different climate change networks: the Sustainable Cities Network and the ICLEI – Local Governments for Sustainability. In recognition of its leadership in addressing climate change, Vancouver is one of four original member cities of the UN's Climate Neutral Network.

All of these networks are based on the following idea:

Cities can exert an influence reducing climate impacts in at least two ways. They are responsible for making sure that in their own administration and activities (their governance role) they are moving towards climate-neutrality as fast as they can. They also influence their citizens' and other actors' behaviour, for example industry and transport. This is their role as players in the community. So they can motivate others and enlist them to take part in reducing emissions. (UNEP 2008)

In Canada, however, there is still a lack of fit between the federal government and local action as provinces and municipalities show far greater willingness to engage with climate mitigation efforts than does

TABLE 1

Selected city efforts of climate change adaptation and mitigation

| SELECTED CITIES | CLIMATE CHANGE EFFECTS | ADAPTATION AND MITIGATION |
|-----------------|---|---|
| Campbell River | Adaptation and mitigation efforts address ocean and land-use conditions in favour of fish species as this community depends on fishing and aquaculture. | Signed BC Climate Action Charter ⁱ Green City Strategy Number of activities, studies, programs, and bylaws that contribute to the sustainable use of energy and reduction of GHG emissions, e.g.: • First municipality in BC to complete an intensive and extensive green roof renovation to an existing civic building; • Participation in the Pembina Institute's Municipal Green Building Leadership program for new green buildings (Campbell River 2010). ⁱⁱ |
| Prince George | First, due to warmer winters, the mountain pine beetle spread led to big areas of dead trees, which have caused increased forest fire risks and removed much of the forest base for the city's large forest industries. Second, ice-related flooding as extensive erosion has led to relocation of residents. | Development of the "myPG" sustainability plan addressing changes in forests inside and outside the city supported by the Natural Resources Canada Regional Adaptation Collaborative (RAC) project. ⁱⁱⁱ Prince George achieved all five milestones of the Partners for Climate Protection (PCP) program in defining the goals for GHG emission reduction, ^{iv} including the development of a local action plan and continuous mentoring and reporting of emissions. (Prince George 2011, 2012) |
| Kamloops | Increased intensity of storms, mountain pine beetle infestation, forest fire activity, impacts on fisheries, and change to outdoor recreation opportunities that have affected its forest and tourism industries | Development of a sustainability plan (2010) based on the Pacific Climate Impacts Consortium (PCIC) predictions of probable climate changes by 2050. Actions taken in connection to the goal to reduce GHG reduction emissions, such as the protection of the South Thompson watershed or increasing stormwater management. (Kamloops 2011) |
| Kelowna | Higher levels of GHG emission in the area from on-road transportation and warmer, wetter winters as well as hotter, drier summers | Aims to reduce community greenhouse gases by 33 percent below 2007 levels by the year 2020. Community Climate Action Plan's focusing on walking paths, bicycle routes, and public transportation. (Kelowna 2012) |

the federal government. Just as the European city networks require EU-level backing to gain (financial) support and political momentum for climate change initiatives, so do city networks in Canada require federal-level support. *For the EU approach of city networks and more active and independent local governance to work in Canada, senior governments need to take a more flexible approach to program management and to involve key local actors.* It is not about general decentralization but, rather, about “how the targets are fixed and by whom” (OECD 2001, 17). Further, European experience shows that central coordination units must allow for horizontal and vertical connections and relationships.

The same is true of transition management. The Dutch transition platforms pursue the idea of an open dynamic network, in which different perspectives, expectations, and agendas are discussed. In British Columbia, only the first steps towards this have been taken. They include initiatives such as the pccs Climate Solutions Network, the government-informing Climate Action Working Groups, and the signing of two

ⁱ Most BC communities have made the commitment to become carbon neutral by 2012. Out of 188 municipalities, 180 have signed the BC Climate Action Charter. By signing the Charter, local governments commit to measuring and reporting on their community's GHG emissions profile. They will also work to create compact, more energy-efficient communities. The Charter is available at https://ubcm.civicweb.net/Documents/DocumentList.aspx?ID=1683#http://www.cd.gov.bc.ca/ministry/whatsnew/climate_action_charter_update.htm.

ⁱⁱ Since buildings account for 12 percent of the province's total GHG emissions, the Pembina Institute, a non-profit think tank that advances innovative sustainable energy solutions, realized that the province and local governments would need to find innovative ways of reducing emissions from homes and buildings in order to meet their commitments. Spearheading the Municipal Green Building Leaders Project, Pembina aims to develop local government regulations that improve building operation efficiency so that the province reaches its targets (Real Estate Foundation of British Columbia 2010).

ⁱⁱⁱ In order to prepare effectively for climate change and its impacts, decision makers need regionally relevant tools and knowledge to work closely with local stakeholder and resource managers. The program, Preparing for Climate Change: Securing BC's Water Future (also known as the BC Regional Adaptation Collaborative [RAC]) consists of twenty-one collaborative projects across the province to support decision making on: water allocation and use, forest and watershed management, flood protection and floodplain management, and community planning. The emphasis is on building regionally relevant tools and information as well as on integrating climate change adaptation into planning and decision making (British Columbia, Ministry of Environment, 2011).

^{iv} The Partners for Climate Protection (PCP) program is a network of Canadian municipal governments that have committed to reducing greenhouse gases and acting on climate change. PCP is the Canadian component of ICLEI's Cities for Climate Protection (CCP) network, which involves more than nine hundred communities worldwide. PCP is a partnership between the Federation of Canadian Municipalities (FCM) and ICLEI – Local Governments for Sustainability. PCP receives financial support from FCM's Green Municipal Fund (Federation of Canadian Municipalities 2012).

climate action plans with Washington to strengthen cross-border efforts to reduce carbon emissions while advancing the low-carbon economy. The Joint Action Plan on Carbon Neutral Government and the Joint Action Plan on Awareness and Outreach for Coastal Impacts of Climate Change include provisions for sharing information on how to create a carbon-neutral public sector and exchanging observations on rising sea levels in critical shoreland areas and communities (British Columbia, Ministry of Environment, 2011).

The PICS network was established by the BC government to bring together research from and beyond British Columbia and to provide a link to other global institutions. It has been designed to facilitate communication and collaboration among researchers, scientists, policy makers, and other stakeholders in the area of climate change. PICS also supports researchers with fellowships for continuing climate change research. In connection with government and industry, the institute frames questions, develops policy options and technological solutions, assesses the implications, and communicates the issues and opportunities to government, industry, and the general public (PICS 2012). Further, through its work with communities, PICS is a crucial outreach tool for communicating local challenges. Overall, PICS conducts and communicates climate change research to all players, which enhances their linkage and raises awareness. Its community-based elements are especially important for enabling local governments to understand and adapt to environmental changes.

The Climate Action Working Groups, on the other hand, work with government to provide input, to help define a vision, to build partnerships, and to recommend critical research priorities (British Columbia 2010). The Pacific Climate Impacts Consortium (PCIC) is a regional climate service centre at the University of Victoria that conducts quantitative studies on the impacts of climate change and climate variability in the Pacific and Yukon regions. Results from this work provide regional climate stakeholders with the information they need to develop plans for reducing the risks associated with climate variability and change. In this way, PCIC plays an important bridging function between climate research and the practical application of that knowledge on the part of decision makers (PCIC 2011).

Other elements of public and private involvement in climate change in British Columbia include the advisory panel on carbon neutrality, which comes closest to what, in the Dutch case, is described as a “platform.” It is a group of representatives from the private and public sectors, and

its intention is to build a shared understanding and to provide advice on the carbon offset portfolio used to meet clients' carbon neutrality requirements. There are also several engagement frameworks in place at the regional and community levels that could serve to foster bottom-up initiatives in this area. These include the seven regional Citizens' Conservation Councils (cccs) on climate action established in 2008. The councils engage representatives of their region's youth, seniors, municipal government, local businesses, First Nations, community groups, and educational institutions. They have helped to form a grassroots regional network that aims to stimulate climate action in every region of the province (British Columbia 2010, 7). For communities there are also engagement tools that can be used. The Pacific Resource Conservation Society and Destination Conservation, for example, have developed different models according to specific community needs, or the "Natural Step" five-level framework for strategic sustainable development, which can be adapted to engagement goals. According to these findings, and based on European experience, BC cities should continue to discuss and embrace climate protection targets while working on enhanced horizontal connections between public, private, and non-profit actors connected to climate change governance for transition management.

Vancouver, already part of two environmental networks, is lacking local partnerships. Thus, it faces a lack of critical mass. According to an OECD study (2001) on partnerships, this can be overcome through the "identification of common objectives at [the] local level" (72) and the "spatial consistency of objectives" (73). Both enable the network to be more consistent across levels and to stimulate bottom-up policy design. This can then be followed by increased horizontal cooperation as goals become more transparent, relatable, and reliable.

CONCLUSION: EVALUATING BRITISH COLUMBIA'S EXISTING POLICY MIX FOR CLIMATE CHANGE ADAPTATION

The evaluation of the current policy mix for climate change adaptation in British Columbia based on an assessment of European multi-level governance initiatives shows that both better networking and the development of an over-arching model such as transitions management are critical to the achievement of significant emission reductions. To be successful in reducing GHG levels, federal, other provincial, and neighbouring policies have to change not only to avoid a possible "free-

“rider” problem – because non-participating regions may benefit from BC actions without paying the costs (Gupta et al. 2007; Kousky and Schneider 2003) – but also in order to leverage and develop existing initiatives and to move them forward in a coherent fashion. This is the reason partnerships and networking are crucial for addressing climate change and why lessons drawn from the European experience in these areas will be useful for implementing measures in British Columbia and beyond.

Some networking activities are in place in British Columbia. And such initiatives as the Pacific Climate Institute and the Impact Consortia can help to develop policy frameworks and to propagate lessons from jurisdictions such as the EU through linkages or support for local governments that are frustrated with the disappointing past or projected outcomes of existing policies and governance arrangements (Brunner and Lynch 2010).

On a larger scale, British Columbia is linked to the cross-border regional wci, but this has shrunk, with only California, British Columbia, Manitoba, Ontario, and Quebec remaining as members since 2011. This limits the chances for the wci’s becoming a European-like network across North America and emphasizes the importance of place-based thinking in pursuit of climate change goals in British Columbia.

Climate-related policies cannot, and should not, be applied in isolation by single levels of government in a multi-level system. Local initiatives overlap with other national policies relating to the environment, forestry, agriculture, waste management, transport, and energy and therefore require linkages between the levels of government and a coherent set of ideas and practices that deal with different aspects of these issues. The European experience has shown that networks devoted to areas such as trans-municipal cooperation or transition management can give individual jurisdictions new impetus. These lessons should not be ignored in Canada and British Columbia, which face many of the same kinds of issues within the same general institutional and ideational setting (Sorrell and Sijm 2003).

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