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Changing the Conversation

**What are the Co-Benefits of Climate Action?**

**Climate Change Adaptation and Mitigation e-Dialogues:**

**Integrated Planning Series**

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## Participants

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**Assistant Professor Sarah Burch**, Canada Research Chair in Sustainability Governance and Innovation, University of Waterloo

**Devin Causley**, Manager of Climate Change Programs, Federation of Canadian Municipalities

**Yuill Herbert**, Director, Sustainability Solutions Group

**Alastair Moore**, Doctoral Scholar, Meeting the Climate Change Challenge (MC3), Royal Roads University

**Rob Newell**, Doctoral Student, Meeting the Climate Change Challenge (MC3), Royal Roads University

**Dr. Lenore Newman**, Canada Research Chair in Food Security and Environment, University of Fraser Valley

**Dr. Alison Shaw**, Principal, FlipSide Sustainability

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### Ann Dale

Today, we are going to be discussing the co-benefits of acting on climate change. Doing the 'right' thing often leads to other 'right' things, kinda like a virtuous cycle. But quite often, because we are focused on the main outcome, we miss the unanticipated ones, and of course, it is often hard to prove cause and effect, but nevertheless, it is important to uncover both the planned and the unplanned.

We have an interesting line-up of researchers from across the country and practitioners. Before we begin our conversation, could you please briefly introduce yourself to our e-audience?

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### Lenore Newman

Good morning all. I'm Dr. Lenore Newman, and hold a Canada Research Chair in Food Studies at the University of the Fraser Valley. The topic today is close to my own heart

—my research group has been looking at positive health impacts of localizing food production.

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### Ann Dale

Welcome, Dr. Newman, it has been a while since you joined an e-Dialogue and I look forward to your participation. What's the weather like there?

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### Lenore Newman

It's a lovely day today, Ann. Very warm, brightly sunny, a little low fog off of the ocean. And lots of crops coming ready!

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### Rob Newell

Hi, everyone. My name is Rob Newell, and I work with Ann as a researcher for the Meeting the Climate Change Challenge Project (MC3). We have been working on a map of climate action co-benefits for the last few weeks, and it is quite an interesting topic. I am looking forward to this conversation to discuss co-benefits, and perhaps uncover some unintuitive, unanticipated or unintentional benefits that can arise from communities acting on climate change.

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### Ann Dale

Welcome, Rob, hope you had a good flight home. We are just waiting on a few others to join us, and some very interesting people in our e-audience, who will make invaluable contributions to our discussion as well.

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### Alison Shaw

Hi everyone. My name is Alison Shaw. I am Principal Consultant and Coach at [FlipSide Sustainability](#). FlipSide is the result of many years of working with Ann, Sarah and others in the University context. The goal is to move cutting-edge knowledge into action in different sectors. Co-benefits are of utmost importance to doing this. Thank you for including me in the discussion!

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### Alastair Moore

Hi everyone, nice to be with you all. I'm Alastair Moore, a doctoral researcher working on the Meeting the Climate Change Challenge 2 (MC3-2) project. My research interests include the role of everyday (tacit) practices in sustainability transformation processes, especially those related to the current energy transition. I am Director with the [One Earth Initiative Society](#) and co-founder of [Greenworks Building Supply](#) (Canada's first all-green building material supply company). Before that, I worked as community energy manager with the City of Richmond. It's bright and sunny, and hot where I am in France. No fog!

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## Ann Dale

We have now been joined by Alison Shaw, a former post-doctoral scholar with our project who now owns her own company, and Devin Causley, from the Federation of Canadian Municipalities, as well as Alastair Moore, from France. Just waiting on Sarah Burch from the University of Waterloo and we are ready to rock and roll. So, let's move on to our first question, can you describe what is meant by the co-benefits of acting on climate change and are they always unintended?

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## Sarah Burch

Hi all—I think this is where I should be posting! I'm Sarah Burch and I'm a professor at the University of Waterloo. I hold a Canada Research Chair in Sustainability Governance and Innovation, and I work on urban sustainability transitions.

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## Devin Causley

Hi all. I am also just joining the right forum. I am Devin Causley, Manager Climate Change Programs with the Federation of Canadian Municipalities. I engage local governments across Canada to take action on climate change.

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## Yuill Herbert

Hi everyone,

Sorry I'm late. I'm Yuill Herbert and I work with municipalities on identifying opportunities to climate action and to identify deep emissions reductions. We also look to illustrate the co-benefits of these activities.

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## Sarah Burch

Thanks for the question, Ann. I view co-benefits as all of the positive outcomes that can emerge as a result of pursuing climate change action (either reducing greenhouse gases or protecting communities from climate change impacts). They don't have to be happy coincidences—we can intentionally design policies that yield multiple co-benefits (and of course the flip side of avoiding tradeoffs).

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## Ann Dale

That's an important point, avoiding tradeoffs, can you expand on this a little? Good to hear from you, Sarah, seems everyone is enjoying good weather across the country.

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## Alison Shaw

I agree with Sarah. Co-benefits are the mutual benefits that derive from taking climate action. One of the sample co-benefits that people relate to is the realization that by reducing greenhouse gas emissions, communities simultaneously increase air quality and reduce of urban exposures to air particulate matter. This co-benefit can be easily integrated into community planning. There are many less obvious ones too, which we will get into today.

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## Sarah Burch

Right—avoiding tradeoffs. One example is green buildings—a common complaint is that they are too expensive for the average person to afford. So, even though we're reducing greenhouse gas emissions, we might be deepening social inequality or poverty. Similarly, if we build a wall to keep out rising sea levels, we might be damaging a fragile ecosystem. If we explicitly aim for achieving, monitoring, and communicating about co-benefits, we can avoid some of these issues.

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## Alastair Moore

For me, co-benefits flowing from climate action lie beyond direct reductions in GHGs or fossil fuel consumption. These include both expected and more unpredictable/emergent returns on action/investment.

Expected: improved air quality and subsequent drops in rates of asthma; potential for retention of energy dollars in local economy; reduced dependency on energy imports; energy/water-related pollution funds freed up for other social needs/projects; increase in jobs in renewables sector; etc.

Unexpected/emergent: feelings of pride among energy workers causing investments and education in sustainable energy technologies to increase; reduced fuel/energy poverty due to territorialization of energy; enhanced atmosphere of innovation; increased product quality, and lower maintenance/operating costs; increased public awareness and knowledge about the connectedness between nature and society, and subsequent blurring of the traditional nature/society divide; greater levels of bicycle/pedestrian commuting, hence personal fitness in the case of cycling infrastructure.

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## Ann Dale

Alastair, can you please unpack what you mean by "territorialization of energy"? Thanks.

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## Alastair Moore

Territorialization, that is, bringing control over energy production (management, decision-making, etc.) to local residents and stakeholders. Typically, people see energy as something that is 'out there' or from 'way over there' in some undefined place. As a result, we've become quite energy un-aware. The idea is to bring energy issues to the interest-holders that matter, that is, the communities that use the energy.

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## Lenore Newman

My post seems to have vanished somehow, but here it is again—I see co-benefits as a common outcome of addressing environmental concerns, and they might include better built form, improved community health, or even better economic outcomes. I don't see them as needing to be unintentional, as they can be a powerful tool for getting buy-in on an action. However, I think we need to be careful as some actions to address climate change, given years of inaction, will now be very expensive economically and perhaps even difficult socially. That doesn't mean we can avoid them.

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## Sarah Burch

That's a good point, Lenore. While there are many win-win opportunities, it's not universally the case that responding to climate change will be cheap, easy, or without tradeoffs.

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## Yuill Herbert

Agreed. One piece of the analysis that we have not addressed is the transition costs of moving from the current economy to a decarbonised economy. There will be many disruptions—in pieces as simple as electric cars not requiring maintenance to the extent that internal combustion engines do. There are many mechanics across the country that could no longer have a job in ten years, for example.

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## Devin Causley

In the local government context, the co-benefit can often be the leading cause for action. For example, many municipalities who are economically depressed will see renewable energy projects, such as wind or solar, as opportunities to develop a new marketplace. Thus they approach the issue from one of economic development with the co-benefit being climate response—mitigation of external emissions or local resiliency. The key is to understand the local motivators and then tie in the climate connections.

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## Alastair Moore

You've raised a good point Devin. I know that some municipal councils actively re-orient environmental/climate policy to address more 'sellable' co-benefits like local

jobs and innovation. Lending weight to the idea that understanding the difference between expected/unexpected or maybe, direct/indirect(?) benefits is crucial for policy-makers.

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## Alison Shaw

Alastair's examples of unexpected co-benefits are very important and are often underreported. Qualitative experiences such as pride for taking "green" action are certainly beneficial. Similar to Devin's response, taking action on GHG reductions in communities poses new opportunities for alternative transportation options (e.g. active transportation), energy conservation (e.g. education and density planning) and also renewable energy options that keep energy monies within the community. Dawson Creek's wind energy is a good example of the latter. I wonder how they're faring with the oil and gas downturn. These types of strategies, taken at a community or organizational scale, can have significant ecological outcomes and social ones too (e.g. pride, energy sovereignty, resilience, etc.).

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## Rob Newell

Devin made an important point because it really shows that climate action can be approached from multiple angles. I'm thinking in particular of communities that are focused on increasing local health and 'well-being'. This can often involve things like more walkable cities and access to local parks, ultimately reducing traffic and increasing green space, which can be considered climate action strategies. In this way, it becomes a matter of engaging in climate action without necessarily focusing on climate action.

There is power in this that it allows for more routes to climate action, and these routes might be more socially or politically favourable to some communities. However, I also wonder if this creates a situation where the climate imperative is less strongly communicated. There's a paper by [Markowitz and Shariff \(2012\)](#) that refer to this as a 'Trojan horse' approach.

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## Alastair Moore

Building on your point Rob (re: the co-benefits of green space), access to green space, and regular use of these spaces, disrupts the usual conversion of socio-economic inequality to health inequality relationship according to: (Mitchell, Richard et al. Urban environment, green space and socio-economic inequalities in mental well being: an international observational study. Centre for Research on Environment, Society and Health. University of Glasgow & Edinburgh)

And,

City greening programmes can correct the issues of physical disorder (suggested by broken windows and graffiti), and increase community pride and social capital. (Sadler, Richard. A land bank greening program as a blight elimination tool in a shrinking city. Department of Family Medicine, Michigan State University)

This is promising research, but more empirical study of these relations is needed to make these arguments/logics acceptable to a broad audience.

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## Ann Dale

Besides pride and energy sovereignty, I would add that many also contribute to increasing social capital in communities. For example, our case study on the [Ontario Energy Renewables Cooperative \(OREC\)](#) revealed that their business model of investing in sustainable energy projects also resulted in increased social capital through both the cooperative model and their outreach to different neighbourhoods. Combined with Alison's idea of pride, this is a powerful momentum for local innovation, especially when their return on investment is equal to the more conservative market investment, and you are also directly investing in your community.

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## Yuill Herbert

And an even more powerful example is the role of renewable energy cooperatives in Europe. There are over [1,000 cooperatives with 3,000 members](#) that have emerged mainly in the past 10 years.

There are also many district energy cooperatives in Germany, Denmark, Finland and Sweden.

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## Alison Shaw

Absolutely Ann. One of the exciting parts of planning for co-benefits is the influence it has on business as usual business models. The opportunity for innovation in business and organizational models is huge. For instance, there is a fundamental rise among manufacturers to partner with their clients directly, in order to co-develop products that are cost-effective and efficient to make, and that minimize waste in the supply chain. Sarah Steel's example is a great one. Most industries are starting to move in the direction of partnership and co-creation, fundamentally altering conventional business models.

Yes. The temporal dimension is certainly important. An example I am currently working on is in the Village of Salmo, a small BC town with a population of 1200. They are hybridizing their Integrated Sustainable Community Plan with their Official Community Plan in order to identify both the short-term (e.g. active transportation) and long-term (e.g. transportation/infrastructure planning, renewable energy) opportunities. This integrated planning combines the social and ecological dimensions of a community. The process we are generating explicitly emphasizes increasing social connectedness and lowering the environmental and carbon footprint over time. This type of integrated planning approach contributes to a long-term vision for a Sustainable Salmo twenty to fifty years from now and contributes to new ways of thinking about community and infrastructural development, even in rural areas. We hope it will be viewed as best practice for rural communities across Canada.

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## Alastair Moore

I think Alison is right on this one regarding the importance of highlighting business innovations and recounting 'stories' of what social/economic benefits flowed from climate actions. In my research, I've spoken with many builders who proudly exclaim how they are now adjusting their traditional business models to respond to climate-related issues like energy efficiency. These folks are proud and happy to be innovating, and contributing to a public good. Can we amplify these stories for decision-makers? Yes, I think we can. How? Something to brainstorm!

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## Sarah Burch

Yup, storytelling is crucial. This is something that [Sustainable Waterloo Region](#) tries to do, here.

And I know that Climate Smart (in Vancouver) spends a heap of time [telling the great stories from businesses](#) that it works with, and many of these stories are about co-benefits.

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## Rob Newell

The storytelling also happens through case studies, such as those we did for [MC3](#) and FCM also has a section for funded [Green Municipal Funds](#) initiatives. The question is around knowledge mobilization and how best to get this 'collection of stories' out to community actors and decision-makers?

Along the same lines, the 'storytelling process' has been discussed as a co-benefit for T'Sou-ke when I visited the community recently. Their solar operations have been such an [impressive innovation](#), and this has drawn attention from communities across the country and internationally. Ultimately, this has led to a fairly active local eco-tourism operation. This is a co-benefit for those who are on the leading edge.

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## Sarah Burch

A number of us have already brought up the importance of co-benefits as a communication tool. I agree. For me, focusing explicitly on co-benefits allows scholars and practitioners to engage much more meaningfully with a wider variety of audiences. We can talk about social equity and affordability, nature, public health, economic development etc., while weaving sustainability or climate change throughout—rather than forcing an issue that some audiences are not particularly receptive to.

A co-benefits lens also helps us to articulate the real value of acting on climate change—i.e. a climate policy would create x jobs, improve employee retention in this way, reduce \$x of public health care costs etc.—and not just articulating the value in terms of greenhouse gas reduction (which is pretty abstract to most of us!)



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## Ann Dale

We seem to be converging on the idea that co-benefits can both be intentional and also emergent as we are dealing with complex, coupled living systems. This is one of the objectives of this discussion today is to reveal intentionality as perhaps a key government strategy for moving forward in the next round of climate innovations in our province and provinces across the country. For example, I don't recall the specific details but the Mayor de Blasio of New York City directed his officials to increase housing density, but at the same time changed the rules of the game so that all new developments were within a 45 minute public transit ride. [Michael Enright](#) had an [interesting interview](#) this past Sunday on their planning innovations

So, let's explore concrete examples of co-benefits in Canada. Try and be as specific as you can with any examples you can provide? And if there is any "proof" that would be great?

For example, every \$1 invested in urban trees realizes \$1.88 to \$12.70 of benefits (from BC Ministry of Community, Sport and Cultural Development, with thanks).

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## Sarah Burch

I always like talking about the co-benefits associated with nature-based solutions (i.e. constructed wetlands), but I think instead I'll share this [private sector example](#).

This is a steel fabricator and manufacturer I'm learning about here in Ontario. The CEO has reduced emissions to ZERO (and the vast majority of these reductions are 'real' ones, not carbon offsets), and they are now significantly more profitable. The stories that [VeriForm](#) can now tell, I think, hold potential for improved employee retention, increased market share, improved workplace health, etc.

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## Devin Causley

We should also consider a possible distinction between short term co-benefits and long term co-benefits. This arises particularly in the case of emissions reductions targets. Low targets like at 10% reductions are more easily associated with quick wins and short term payback. Deep reductions targets, like 30% and beyond, often mean a delay in the associated benefit. For example, a carbon price in the short term will lead to investments in more transit however those systems may take 10 years to build. The Paris Climate Agreement will make this situation even more acute.

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## Sarah Burch

I agree Devin, but I also think that deep reduction targets offer the opportunity for more 'transformative' solutions at the community scale. Since we also want improved public health (say, though more active transportation), improved biodiversity, more beautiful public spaces etc., these are the kinds of things that we could get if we think about radically reducing emissions and transforming communities.

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## Devin Causley

Absolutely. We need to put ourselves in the shoes of decision makers driving these policies too. Most operate in five year electoral cycles. Rightly or wrongly, the need to associate a public investment with a return to the taxpayer. The longer that return period the more public support they need behind them. This in fact is a driver for hosting deep reduction commitments at arm's length of government.

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## Ann Dale

Devin raises an interesting point of time, and it may be important to think about differentiating short-term and longer-term co-benefits of acting, especially for decision-makers?

From the BC Ministry again, some of the proven co-benefits from good land-use and infrastructure decisions are the following:

### Economic

- a. Reduce congestion costs: Ease congestion and increase competitiveness
- b. "We know that congestion costs the region significant dollars, not only for commuters but also for goods movement, and so we recognize it has a significant effect not only fiscally but also from an emissions point of view" Minister Fassbender, Nov. 2, 2015.
- c. Canada scores poorly relative to competitors on transportation measures, e.g. freight + personal congestion, personal transit costs (PWC, 2011; Toronto Board of Trade, 2011)
- d. Canada is ranked at the bottom of OECD in energy productivity (Conference Board, 2013); energy productivity is a strategic factor for 40% of global revenue (McKinsey, 2009)
- e. Energy productivity investments has wide benefits across households, businesses, communities and the province; every \$1 million invested creates 30 to 57 job years of employment (NRCan, 2014)
- f. Reduce infrastructure costs and personal spending (including household affordability, tax and fee increases):
- g. Results from Prince George use of the Community Lifecycle Infrastructure Costing Tool – Per household annual property and user fee savings of ~\$1,300; Per household annual savings on private and external cost (home energy, driving, vehicle collision, air pollution and climate change) savings of ~4,800 per year; Per household annualized lifecycle (capital, operating, replacement) savings of ~\$4400 for community services (roads, sewers, stormwater, schools, recreation centres, transit, fire, police and waste management)
- h. Focusing growth + investing in transit can reduce infrastructure spending 30% and personal transport spending 50% (Littman in Calderon + Stern et al , 2014)

- i. Low density, auto oriented development in Canada is up to 3x more costly to serve as complete, compact, connected neighbourhoods (Thompson, 2013)
- j. Municipal infrastructure debts and property taxes are rising to support this form of growth
- k. All levels of government spend \$30 billion/yr on roads – 4x transit (Transport Canada, 2011)
- l. Increase housing and transportation affordability. Research has shown that in BC households spend 30% of household income on housing + 18% on transport (Stats Can, 2014), but that transit, walkable neighbourhoods, car share and focused growth can cut personal transportation spending 50%. An average car costs \$10,000/year to own and operate (CAA, Globe Drive, 2010)
- m. Every \$1 invested in urban trees realizes \$1.88 to \$12.70 of benefits

### **Health costs**

- a. Reduced accidents and reduce burden of poor health on medical system
- b. Improve health – quality of life, health:
  - i. Inactivity + obesity are amongst Canada’s greatest causes of preventable death + disease (Public Health Agency of Canada)
  - ii. Higher rates of inactivity, obesity and diabetes are correlated with lower density, residential neighbourhoods (Glazier, 2014)
  - iii. One of the greatest determinants of physical activity propensity is neighbourhood design (CMHC, 2000; Frank, 2004)
  - iv. Reduce inactivity and obesity disease and death rates. For example, research has shown that a 60-year-old Swede is fitter than the 26-year-old Canadian because of his bike to the bakery and walk to work – >40% of trips by Swedes are by foot or bike, 33% by car; 8% of trips by Canadians are by foot or bike, 75% by car

### **Improved resiliency to climate change**

- a. With growing volatility, price increases and climate-related production constraints globally, agriculture has great growth potential in BC, but only if land is protected.
- b. Canada lost 2% of farm land to suburbanization in the last decade alone (Stats Can, 2014)
- c. Actively farmed land in BC dropped 8% in 2006–2011 alone, twice the national average (Stats Can, 2012)

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## **Alastair Moore**

One example comes from Vancouver. Efforts to mitigate transport emissions and foster local food production is stimulating a robust organic/local food market in the Lower

Mainland of Vancouver. Although this was a hoped for benefit, City officials see the dramatic cause-effect relations as quite an unexpected co-benefit. It's also enculturating the practice of veggie gardens and public garden plots. Energy/climate were the entry points but healthy food is now providing the motive force behind increased social interactions (at markets and around plots), and greater appreciation of the importance of good food for personal health.

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### Lenore Newman

Yes, very true. We just finished a project where we found in addition that the presence of diverse local food sources can really boost community health outcomes. If fresh local food is available, people eat it!

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### Alastair Moore

Yes, Lenore, and when you eat it, you like it, and when you and your friends like it, the market will innovate to respond to your new favourite thing!

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### Rob Newell

There is a lot of potential for local food systems and co-benefits. And, speaking of Vancouver and local produce, the organization, [Sole Food](#), provides a powerful example of this potential. Sole Food operates urban farms in the Downtown Eastside area of Vancouver, so it does contribute to what you are discussing, Alastair, with local food operations and mitigation of transportation emissions. However, what is also interesting is that Sole Food provides employment for people of marginalized and at-risk groups in the local area. So, this becomes a co-benefit upon co-benefit, and gives an idea of how to engage in strategies that integrate the environmental, social and economic.

Of course, there is the question of scale, that is, how do we make it so these types of operations actually do provide a more significant percentage of a community's food needs (and also employment needs)? However, the approach does illustrate ways of thinking/operating in a more holistic manner.

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### Yuill Herbert

One of the best examples is the study for the City of Calgary titled: [The Implications of Alternative Growth Patterns](#). The analysis found that the costs to the City of accommodating 1.3 million additional people would be 33% if a more compact city plan was adopted—\$23 billion instead of \$33 billion. This study inspired a similar analysis by [Halifax Regional Municipality](#).

In a time when municipalities are struggling to cover infrastructure and operating costs, building a low carbon city also dramatically lowers their capital and operating costs.

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## Alastair Moore

One example that implicates the power/influence of the private sector involves a [AAA-rated commercial office building in Vancouver](#).

Vancouver's policy to intentionally (reduce or hold constant) parking spaces in the downtown area, coupled with enhanced cycling infrastructure, is encouraging many motorists to cancel gym memberships in favour of some daily bicycle riding. My brother's office building in Vancouver now provides full cycling amenities to occupants including: dozens of showers, spaces for hundreds of bikes, lockers, clean towels, soap/shampoo, laundry machines, hair dryers, etc. The commercial real estate development community is not a usual suspect in support of climate action, but they are the first to recognize an opportunity to differentiate themselves in the market and they are investing accordingly. In addition to the investment effects, the health benefits streaming from daily cycle commutes will surely pay dividends down the road. Also, the development of alternatives to the car, (coupled with the expense of owning/operating) is causing more and more young people to hold-off getting their driving license as they now understand that there are viable transportation options.

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## Sarah Burch

Many of us seem to be hovering around this idea of how to evaluate or quantify co-benefits. I think we should keep in mind that it's important to do this both through quantitative indicators as well as stories. Not everything can be reduced to a dollar value (although of course, as you say Devin, decision-makers need to communicate to taxpayers how their money is being spent). The extent to which cities are inclusive, for instance, is one that is tough to measure—but a powerful determinant of community desirability.

I'm thinking of a constructed wetland that purifies water, sinks carbon, improves biodiversity, creates recreational opportunities, and even improves the value of declining neighbourhoods.

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## Yuill Herbert

Another co-benefit is that the deep emissions reductions require a lot of work, much of which is challenging and meaningful. From installing renewables to retrofitting buildings, from local food production to increased tree cover, this is a major economic transition which will involve many new jobs. In some of our projects we have calculated that thousands of new jobs are involved in small towns and cities.

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## Lenore Newman

I would add that there is one unfortunate side effect of how effectively building for climate change provides co-benefits—almost all of the things we are discussing help to push rapid gentrification and rise in property prices. Ann and I wondered about this

a decade or so ago, but we couldn't have imagined how bad it would get—London, NYC, San Francisco, Vancouver—the places doing the most are now enclaves for the richest people in the world. Ultimately, we might need to pair climate action with action against inequality, if we are to avoid creating islands of sustainability in a sea of poverty and damage.

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### Ann Dale

Interesting pairing, Lenore. We are working on a video about spatial justice that we hope to release in September to show the distributional effects of place and space and accessibility. It gets back to what Sarah first raised, intentionality, and in this case being aware of the negative co-benefits, such as our work on homophily?

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### Sarah Burch

I totally agree, Lenore. And this is a microcosm of the developed/developing country split, where the poor are commonly the most highly exposed to extreme climatic events, poor air quality, etc. Climate policy is deeply regressive if it creates low carbon, healthy, beautiful spaces that are only for the rich.

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### Lenore Newman

Yes, the separation can be striking. I recently visited a "public" garden on top of a building in London, and it was a simply lovely space that was absorbing carbon, addressing rainwater, and mitigating the heat island effect, but to access it you had to leave your passport with the doorman, and had to meet a certain dress code. And such spaces are becoming much more common.

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### Yuill Herbert

This is an interesting point, Lenore. It is remarkable to watch many how quickly major international companies are seizing this opportunity. This brings up the question as to whether it will be the wealthy who reap the benefits of the transition to a low carbon world, or can this transition be used to advance social justice? We have been thinking about cooperatives as a form of enterprise that can enhance local community control while getting the job done and [published a short paper](#) to support this discussion.

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### Devin Causley

An area of opportunity that should be further engaged to illustrate co-benefits is on improving resilience to climate or other disasters through mitigation solutions. Major events like wildfires, floods, storms not only garner public attention (at least in the short term) but their long term response provide co-benefits. For example, distributed energy is more efficient and often renewable and can ensure local power and heating supplies in times of grid outage. Funding can also be leveraged from disaster recovery programs or infrastructure investments targeted to emergency response.

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## Alison Shaw

Spot on, Devin. The co-benefits of adapting to real and projected climate impacts are also considerable. I met with a CAO in a BC community. He was a very vocal climate change denier. Yet when I pressed him on the fact that he was concentrating development in his town, preventing development in longer-term high risk areas (e.g. near hill slopes and in wetlands), and supporting collective taxis that moved people across his town and region, his response was “It just makes sense”. The concentration of the community footprint leads to water and energy conservation (which helps to retain current supply without having to develop alternative reservoirs, etc., into the future). The prevention of development in risky areas (e.g. new zoning for wildfire and flood protection) minimized potential damage to infrastructure and also minimized the increasing liability for municipalities as insurance companies begin to consider their options in regard to climate change and high-risk development. (He cited an example of noticing more rain events that were increasing risks of landslides, but this was an observation without causal explanation). His support of cooperative transport was not about reducing emissions but about building well-being for residents. Many of these strategies that we associate with climate action, both emissions reductions and adaptive strategies, also just make good business sense!

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## Alastair Moore

Here's another story that relates to your comments, Alison. Businesses don't need to actively promote climate action to achieve climate action. In fact, it may be better when they don't.

**G4 Insights Inc.** (Burnaby BC) is developing a technology to convert waste forestry biomass into pipeline-grade natural gas. This company is primarily motivated, not by a need to mitigate climate change, rather they see an opportunity to innovate using waste materials and their technical expertise to maximize shareholder returns. They are part of a growing energy innovations movement that is attracting young, progressive graduates who are interested in contributing to a positive energy future.

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## Ann Dale

Here is an interesting question from our e-audience—trying to keep up with two lively discussions. "Good to see mention of some of the very important 'qualitative' aspects of co-benefits such as pride etc.—I would be interested to hear panelists thoughts on how these can be recorded/'quantified' in a way that is engaging to planners, governors, etc.?"

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## Sarah Burch

In response to one of the audience questions, these are tough co-benefits to capture! I think that 'pride' shapes things like workplace culture, employee retention, business

growth, and worker productivity. These might be some of the implications of pride that could be measured and shared.

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### Alison Shaw

This is definitely an approach in the private sector, Sarah. In fact, what I'm finding is that the 'trojan horse' in business (mentioned by Alastair too) is that emphasizing a healthy organizational culture that support intrapreneurs (the buzz word for innovative employees) is synonymous with workplace satisfaction (as employees have increasing autonomy and inclusion) and with organizational efficiency (reduced energy, water and waste costs). These co-benefits are being measured. What is more difficult to measure is the innovation, both real and potential, that can emerge out of thinking through the social and ecological dimensions of organizational health.

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### Ann Dale

Does anyone know of any local government tracking the cost savings of co-benefits? Any figures out there?

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### Alistair Moore

In my experience Ann, many co-benefits are usually only referred to quietly as they are considered too difficult to monitor/measure and report out on.

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### Ann Dale

From Maureen Cureton from VanCity: "Another e.g. In offset marketplace, "charismatic" offsets sell at a higher price (i.e. those with co-benefits). Vancity's offset purchase decisions include weight and evaluate social and environmental co-benefits. Also, we invested in rights to offsets on land on Quadra Island (to protect it from being forested). Co-benefits were important to us in this investment decision: ecosystem benefits (beyond GHG reductions) e.g. protection of a wildlife corridor, recreational land use benefits (community benefits) & First Nation heritage protection (cultural benefits)."

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### Ann Dale

Dear colleagues, we have one or two very stimulating questions from the e-audience you may wish to address and we now move to our last question. Given your expertise and experience, do you have any ideas on how we can accelerate the take-up of climate innovations, using the lens of co-benefits. I believe it was Devin and others who suggested communities often use a narrower lens, such as energy efficiency to get climate innovations, and ideally, sustainability planning in the long term?

From our e-audience: "are there any ideas out there on how government policies could curb negative co-benefits? Perhaps focusing on it in vulnerability assessments?" And an observation, "having data, and finding solutions that are measurable, especially if



they are in real or near real time would support many of the projects currently in the discussion?"

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### **Alastair Moore**

Are you referring to impact assessments? I think you've raised a good point. Unfortunately, local governments often don't have the in-house resources or funds to procure external expertise to do this sort of work, save for the very largest/highest profile projects.

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### **Yuill Herbert**

One of the negative co-benefits that is interesting is that when density increases (allowing people to walk and cycle more and therefore reducing GHG emissions), they tend to be more exposed to particulate matter (air pollution) from vehicles and combustion for heating and cooling, which are more concentrated, and kids in particular are right at the level of vehicle exhausts. Urban design, for example screens of trees, can help to mitigate this effect, as well as technology improvements (electrification of vehicles).

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### **Lenore Newman**

That is such a great question. I think at this stage just understanding negative co-benefits are possible is a move forward. As we are all still fighting the denier camp, not enough attention has been placed on unintended consequences.

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### **Yuill Herbert**

Sometimes it is most important for co-benefits to be the driver, particularly health impacts and economic impacts, with the GHG emissions along for the ride. But sometimes it also goes the other way around, as the champions who will actually take the lead are motivated to address climate change. In other words, climate change is a powerful driver for a few, and those few can make a disproportionate impact. To achieve broader uptake beyond these few, demonstrating the co-benefits is critical.

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### **Lenore Newman**

I think a co-benefits map could be a good starting point to inform a vulnerability assessment, or perhaps a resilience assessment. Because co-benefits by definition can straddle sectors/domains, any definitive mapping exercise will have its challenges.

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### **Rob Newell**

I think this is important to keep in mind that this is not just impact assessment as we understand it in terms of adapting to changing climate. That is, this is not just about understanding who is going to be affected by the changes in climate. I want to keep in

mind Lenore's comments around this also being about who is affected negatively by climate policies, i.e., wealthy versus poor. This will be the impact of our actions to addressing climate change, not just about who is vulnerable to changing climate.

Climate action + social justice

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### Alison Shaw

The thing about climate action is that it is unique in two ways: First, it is an exercise in risk assessment. Due to projected impacts, decision makers are thrust into decisions about short and long-term risks and associated social and ecological trade-offs. For example, increased density conserves water and energy, has the potential to increase social connectedness, justifies alternative transportation systems, prevents encroachment on arable lands and yet it leads to smaller living environments, increased exposure to concentrations of people, poses some air quality challenges (raised by Yuill), etc. Yes, we can record these, weigh them, enact and measure them but in the end these decisions and their associated trade-offs are made based on what is valued. Which leads to the second point. Climate action is not only about response and trade-offs. It is about envisioning the future we want and strategically considering key decision points for getting us to a desirable future. Presumably this future is one based on minimizing environmental and carbon footprints and increasing community health and well-being. There is no prescription. Trade-offs are just that—they are choices made based on values that direct those choices.

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### Ann Dale

We are nearing the end of our conversation, and it has indeed been most interesting on the topic of co-benefits. We will be publishing a co-benefits map next week in the share section of this website. We have a rich repository of ideas, ways forward on how to make co-benefits a more powerful incentive for further climate innovation across the country. I cannot thank my panelists enough for their time and commitment to our work, and I owe all of you a fine glass of wine in the future. With respect to the last question, the way to quantify the more qualitative aspects of co-benefits is through community engagement I believe, just as OCPs and ICSPs should be developed in partnerships with the community, a type of expanded policy development process, but that is a discussion for another day. Last comments, everyone.

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### Sarah Burch

Thanks all for the interesting conversation! I would just leave it with a few points:

- thinking about long-term sustainability in a community also reveals potential for short term gains, but with a potentially transformative outcome in the future
- telling stories about the less-quantifiable co-benefits of climate change action, and having 'trusted messengers' be the ones to craft/deliver these stories is pretty important

- tradeoffs (negative co-benefits) may be inevitable, but if we take a systems lens and think holistically, we can avoid many of them, or at least communicate honestly about them
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## Rob Newell

Thank you everyone for a great conversation. A fast-paced dialogue with a lot of food for thought.

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## Alastair Moore

Thanks for an interesting conversation. Few closing thoughts:

Our work should aim to make sustainable energy and climate action normative for the average person. People always catch on to a great idea when their collective imagination is captured! This means focusing on how people currently understand their daily activities (turning on the home heating, commuting, lighting their homes/offices, showering, buying groceries, cooking, etc.) and looking at ways to reconfigure these understandings by tinkering with the imagery, logic and materials involved. Artists, designers and sociologists (those trained to look at meaning) could be enlisted to help in the development of policies.

We should also take a good look at the structural forces and traditional institutional arrangements that encourage the status quo to see how these can be tweaked, interrupted or redirected.

We should be raising awareness about positive innovations where meanings and imagery are being reconfigured to make new, more sustainable activities, logical, smart and progressive. As researchers we can promote these innovations through our publications. We can also bring these to the attention of policy makers and private sector actors as these latter parties are especially influential in creating social norms.

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## Alison Shaw

Thank you Ann and everyone for the interesting and lively discussion!