HARNESSING BEHAVIOR CHANGE FOR URBAN CLIMATE ACTION

A Guide for Local Policy Makers
CONTENTS

FORWARD 4
INTRODUCTION 5
CITIES AND BEHAVIOR CHANGE 6
The Science of Behavior Change 7
What influences sustainable urban behavior? 9

1. Develop Interventions 11
Scope 13
Audience 13
Vision 14
Engage 14

2. Deliver Interventions 15
Easy 18
Attractive 19
Social 20
Timely 21

3. Measure and Scale Intervention 23
Pilot 25
Learn 25
Evaluate 25
Adapt 25
Scale 25
Empower 25
Checklist for success 26

FOOD AND BEHAVIOR CHANGE 27

Table 1: Applied Behavior Change in the Urban Food System 30
Rosario, Argentina 32
Petaling Jaya, Malaysia 33
Amsterdam, the Netherlands 34
Mexico City, Mexico 35
Helsingborg, Sweden 36

TRANSPORTATION AND BEHAVIOR CHANGE 37

Table 2: Applied Behavior Change in Transportation Systems 40
Tshwane, South Africa 42
Seattle, USA 43
Malmö, Sweden 44
Addis Ababa, Ethiopia 45
Bari, Italy 46

ENERGY AND BEHAVIOR CHANGE 47

Table 3: Applied Behavior Change in Energy 50
Zurich, Switzerland 52
Brighton, UK 53
Seoul, South Korea 54
Beijing, China 55
Cape Town, South Africa 56

Key Resources 57
Key Acronyms 57
The way we use natural resources and energy must be immediately transformed, or we will face accelerating impacts from catastrophic climate change and biodiversity loss. These impacts to the natural world are already costing lives and derailing development; our world has no more time to waste. To solve these compounding crises, we must not only adopt more efficient technology, and advance sustainable policy and planning, but harness a deeper understanding of human behavior.

Influencing human behavior is key to unlocking the mass mobilization of citizens. Without this, we will not reach the Paris Agreement’s critical limit of 1.5 °C global warming, nor meet the Post-2020 Global Biodiversity Framework. WWF has long worked to halve humanity’s ecological footprint and reduce consumption of natural resources and consequent production. To effectively deliver on these goals, we must mobilize citizens globally to adopt sustainable behaviors.

For the survival of the planet and its amazing diversity of life, we must shift toward more sustainable behaviors that help protect and restore nature while minimizing climate change impacts.

Where better to do this than in our cities? Home to 55% of the global population, 75% of natural resource consumption and 70% of carbon emissions, cities also offer some of the most innovative ways to tackle global challenges. Urban citizens can revolutionize our food, transport and energy systems when local governments empower them to adopt more sustainable alternatives.

This is not a new idea. Governments, businesses and NGOs, including WWF, increasingly prioritize social science tactics to plan and advance wide-reaching initiatives and on-the-ground activities. As science shows, focusing on citizen behavior can be transformative, especially when combined with political leadership and triple bottom line economics. While recognizing the critical role of behavior change, this must be accompanied and supported by strong governments and private sector actions to collectively bend the curve and move towards more climate-resilient and nature-positive societies.

This latest behavior change guide builds on WWF’s Save Nature Please framework, harnessing its principles and making them relevant and powerful learning tools for local governments – key players to mobilize the urban masses. Empowering local governments to use science-based behavior interventions will not only accelerate a transition to low-carbon, nature-positive and resilient cities, but embolden citizens to engage in the transformation of our socio-ecological systems.

FORWARD

MARCO LAMBERTINI
Director General of WWF International
INTRODUCTION

We must drastically address the crises of climate change, nature loss and pollution, as further underscored in the 2022 IPCC report on the Impacts, Adaptation and Vulnerability. This requires applying technological and policy solutions, as well as better understanding the role of citizen choice and how to encourage more sustainable behaviors, especially in our cities – home to over half of the human population. Thankfully the science and tools of behavior change continue to expand, and cities provide critical testbeds to explore how they can foster more sustainable urban development, including to help cities align to the Paris Agreement.

Supporting cities alignment to Paris and its 1.5 °C maximum global warming goal is central to WWF’s One Planet City Challenge (OPCC) where over 700 cities and local governments have engaged, including 280 cities in 2021-2022 alone. In joining the OPCC, cities transparently report their climate data, and receive guidance on setting science-based targets to explore strategies to move closer to 1.5 °C.

Getting to 1.5 °C alignment in cities requires more than the ambitious actions, policy and planning of local governments. It requires understanding what influences the behavior choices of urban citizens and how to encourage more sustainable behavior, including in daily decisions related to energy, food, and transportation behaviors.

Building on WWF’s Save Nature Please framework, this guide provides tools for local governments to encourage behavior change among citizens, exploring: (1) cities and behavior change, (2) behavior change interventions, and (3) behavior change tactics and case studies on energy, food and transportation. We hope you enjoy this guide and welcome you to reach out to us to find out more about WWF’s work with cities!

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CITIES AND BEHAVIOR CHANGE

Climate Action – the Role of Urban Citizens

Home to 55% of the global population and 80% of GDP, cities are responsible for over 70% of CO₂ emissions, 75% of natural resource consumption – and some of the most ambitious actions to tackle sustainability challenges. Cities hold untapped potential to decarbonize the economy, invest in more resilient and flexible shared infrastructure, prioritize nature-based solutions, support biodiversity protection, transform the food system, and advance public health. However, local governments cannot act through planning alone. To develop real and lasting solutions, cities must enable, empower and mobilize their citizens.

Cities are rising to the challenge to act as transformation catalysts and create integrated and inclusive climate action plans in line with 1.5 °C, while also addressing urban resilience. But then what? How can we convince citizens to opt for a newly installed bike lane or bus route, instead of a slightly faster trip by car? To take up the local public utility district’s offer for a free energy audit or install subsidized solar panels? To opt for a planet-based meal? Unless local governments encourage, embolden, and provide tools and pathways for citizens to act and begin to change their behavior, no amount of information, awareness, infrastructure, or opportunity alone will move the needle enough.

To implement critical transformations, individual and collective climate actions, and their corresponding behaviors, must be unlocked. The onus, however, is not completely on individuals. National governments, local governments and private-sector corporations yield substantial power in our current system and should not be let off the hook – they are critical in creating systemic change.

Mobilizing individuals through bottom-up initiatives in conjunction with top-down solutions are crucial. But altering behavior, no matter how urgently it is needed, is not an easy task. Psychology tells us that before change can happen there must first be active listening with empathy to build, connect and create influence. Cities must therefore deeply engage with their target audiences to understand current behaviors, motivators, barriers to change, needs and goals. Changing behavior must be a co-created process, led by citizens and supported by the municipality.
Successful public policy has always relied on behavioral insights to advance citizen wellbeing. The mechanism of "fine people so they won't do it," while less nuanced, is social science at work, just like "educate people about the benefits." Cities, public utility districts, national governments and the United Nations have used behavior change interventions to mobilize citizens. More recently, governments globally have created behavioral science-based units within existing programs to institutionalize these techniques. This is important to recognize, because we are not starting with behavior change programs from scratch – but building a more holistic strategy to make use of behavior change. Now we must embark on an even greater challenge to advance climate action in cities, including shifting diets, mobility patterns, and reducing energy consumption.
Citizens must have the knowledge and ability to act in a manner that is consistent with global and local sustainability initiatives. After all, human decisions are not always rational. Humans are subject to cognition, resource, and time limitations that prevent us from carefully weighing options. Instead, we often use habits or educated guesses to avoid rational decision-making. The good news is, we now have a better understanding of how to use behavior change tools in the environmental field, including what interventions work for specific behaviors, audiences and contexts. These strategies, when used with public policy, have the potential to mobilize urban citizens to act.

The psychology of behavior change has many theories and approaches\(^1\) to deliver interventions. We selected a few best practices based on WWF’s work with cities and city leaders for over a decade.

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Questions to ask when defining your audience’s behavior:

What behavior(s) should be **promoted** and how?

Who in a **target group** is most likely to change?

What **conditions will an individual face** to adopt a specific targeted behavior?
WHAT INFLUENCES SUSTAINABLE URBAN BEHAVIOR?

Our relationship to our natural and social environment is influenced by a range of complex interactions and cognitive biases that determine our behavior. Broadly, people make decisions based on their emotions, what other people do, and what others expect them to do. The behavioral cycle is complex, but psychology now has a deeper understanding of how to intervene. There are six levers developed by Rare Center for Behavior and the Environment that influence behavior and can easily be applied by policymakers. As a conservation organization, Rare leverages the best behavioral insights and design thinking approaches to tackle environmental issues. Working with local communities around the world, they particularly focus on co-creation.
WWF encourages city leaders to use these six levers as a guiding framework and inspiration when developing, delivering, and evaluating interventions as described throughout the rest of this guide. Sections 1-3 provides examples on putting these into practice for food, transportation, and energy interventions.

CREATE SOCIAL INFLUENCE: Leverage others’ behavior, beliefs, and expectations. Make the behavior observable and the perceived norm, for example through social media. Eliminate excuses for not participating in the behavior for example, through public pledges.

INFORM: Provide information about what the desired behavior is, why it matters, and how to do it. Offer instruction, guidance, and build awareness and understanding through forums, meetings, and materials. Communicate effectively and use positive language.

APPEAL TO EMOTIONS: Use messages to leverage certain emotions (pride, joy, interest etc.) Use pictures, names, and local evidence to make it personal and show benefits to the local community.

CREATE INCENTIVE: Change the perceived costs and benefits of an action, regarding time, money and effort. Make the action easy and give rewards, while making the alternative hard and with penalties.

CHANGE CHOICE ARCHITECTURE: Change the context in which decisions are made, including the physical environment. Direct attention to the behavior by making it the default option and simplify messages and choices. Use timely moments and prompt the behavior as well as helping residents to plan and goal set.

REGULATE: Create rules or policies that mandate or restrict behavior.

Upon knowing methods to influence behavior, how can we put these principles into practice?

Adopted from Rare, www.behavior.rare.org
1. DEVELOP INTERVENTIONS
Before delivering an intervention, urban practitioners must understand the problem and the desired outcome. It is then crucial to engage in a collaborative co-design and co-understanding process with citizens to understand the behaviors’ context, what needs to be changed, and how this could be done, depending on the audience.

WWF’s Save Nature Please an in-depth behavioral guide, outlines three steps to putting behavioral change principles into practice. This begins with SAVE (Scope, Audience, Vision and Engage) when developing your interventions.
SCOPE THE PROBLEM AND THE GOAL

- Determine a problem’s political, market and social drivers. What is causing it?
- Define the problem and goal related to the targeted behavior. What is the entire scope of what you want to accomplish?
- Conduct desk research. How do other cities or stakeholders address it?

AUDIENCE

UNDERSTAND TARGET AUDIENCE AND BEHAVIOR

There is no “one size fits all” in behavior change. It is critical to understand your target audience and tailor campaigns and interventions for these groups.

- Remember that cities are not homogeneous and have a wide range of demographics and psychographics. Evaluate whose and what behavior needs changing. What are the individual characteristics of different groups?
- Build a list of “micro-behaviors” that you wish each group to adopt before focusing on the one(s) that will have the most impact.
- Explore the “who, what, when, where, and why” of various population’s decisions. Intend on planning multiple tailored interventions for each.
- Define goals for each target group and their desired adopted behaviors; put numbers to them with SMART goals. Map the decision-making journey to understand every detail.
- Know your heroes – often neighborhood leaders and influential community members can be critical in spreading a message or seeing that it is taken up by the community. Which stakeholders and partners could help?

Recognize barriers to Sustainable Behavior

Barriers persist to justify existing behaviors. Understanding barriers is critical before implementing a behavior change program or encouraging citizens to adopt preferred behaviors. Analyze behavior drivers to understand why an audience is acting in a particular way and how to shift barriers to benefits in the future. Common barriers include:

- Lack of awareness: people do not know an alternative behavior or its benefits.
- Lack of alternatives: people who know may perceive the alternative behavior has significant (real or imagined) challenges for adoption.
- Lack of ease: it is easier to continue the existing behavior or the one with the least burden (practicality argument).
- Temporal or place discrepancy: attitudes shift over time or place (e.g. approval of nuclear energy just after the 2011 Fukushima Daiichi nuclear disaster vs. years later) or support for renewable energy based on its location (Not In My Backyard phenomenon).
- Attitude-behavior measurement: measured attitudes of surveyed respondents may be broader than the behavior they measure. Respondents may thus perceive themselves as living a sustainable lifestyle. Questions such as “Do you care about the environment?” or “Do you recycle?” may not offer measurable results to analyze behavior.

SET A VISION FOR FUTURE BEHAVIOR

☑ Seek out opportunities to engage with your targeted group and co-create future visions with them. Use in-person workshops or interactive polling and virtual facilitation tools.

☑ Determine what your group thinks, believes, and does regarding the behavior you want to change, where possible. What are they already doing well and where do they struggle? What works and what does not?

☑ Develop a conceptual map with citizens to determine steps, barriers and benefits, to change their behavior.

ENGAGE

☑ Engage citizens, local and virtual influencers, stakeholders, and all collaborators throughout the intervention co-creation process. How can we tap into their insight?
CREATING BEHAVIOR CHANGE INTERVENTIONS

2. DELIVER INTERVENTIONS
Once you know your audience, context, the behavior you are trying to target and explored interventions with citizens, you can deliver your intervention. A simple and effective framework for local governments to use when applying behavioral insights is to make it Easy, Attractive, Social, and Timely (EAST model) developed by the Behavioral Insights Team (BIT). BIT applies behavioral insights to policy design at the forefront of evidence-based policymaking, notably their Decision Lab conducts scientific problem solving. ³

³ WWF builds upon the EAST approach in Save Nature Please to deliver interventions through the (NATURE) model.
Influencing someone to change their behavior is difficult, no matter how well you understand their current behaviors, so you may need to use a combination of these strategies.

**Shifting Barriers to Benefits – strategies to increase sustainable behavior**

To **shift to sustainable behavior**, programs must remove perceived barriers (e.g. assuming the desired behavior requires too much time or hassle) and enhance benefits. There are 4 ways to do this:

- **Increase** the benefits to the target behavior
- **Decrease** the barriers to the target behavior
- **Decrease** the benefits of competing behaviors
- **Increase** the barriers of competing behaviors

Each of the interventions in the EAST model uses one of these 4 strategies.

**Other tips & strategies? Try Community-Based Social Marketing**

Local governments often targeted large-scale behavior and set out to build a critical mass or movement of concerned citizens. Community-Based Social Marketing (CBSM) builds awareness to shift behavior, assuming that behavior change is most effective when carried out at the community level through direct contact with the target audience.

Often environmental campaigns utilize conventional marketing techniques to stimulate behavior change, where the targeted behavior is viewed as a product to be sold. Such advertising is effective in altering consumer preferences between brands; however, altering consumer preferences to promote sustainable behavior does not involve choosing between like products.

CBSM complements local policy work and builds on a set of behavior change techniques. It emphasizes working with community representatives to better understand local needs and the feasibility of a behavior-change program. Local governments may engage pilot groups in workshops to define community values and needs to cater relevant behavior programs to the target audience. After evaluation, if the test results from the pilot are effective, the program can be extended to the wider community.
MAKE IT EASY

Small details that make a task more challenging can deter one’s decision. When employing behavior change principles, it is best to make the desired behavior as easy as possible.

- **Change the default:** we like to keep the status quo and go with the preset option. When the sustainable choice is the default, we are more likely to choose it.
- **Simplify:** it should be easy to understand and carry out the desired behavior. Simplify messages and break goals into achievable steps. “Chunk” information (breakdown and group bits together). Focus on a clear call to action.
- **Reduce effort:** reduce barriers to the desired behavior (while increasing barriers to the undesired behavior).

**Boost personal engagement:** if we feel empowered, we are more likely to persist when facing difficulties. Building confidence boosts peoples’ abilities to act even when it’s not easy.

**Reduce Effort:** In Sweden, Malmö’s Environment Program states that it should be “easy to do the right thing” across a host of activities and behaviors, including on transportation. From 2005 - 2007, new residents received a letter, signed by the Streets and Parks Department Director, explaining why it is easier to get around Malmö without a car. The letter followed with phone advice. Those using a car were offered a one-month bus card or rental bicycle; those already using public transport or cycling could win a new bicycle.

**Change the Default:** In Santiago de Chile, urban innovation lab, Ciudad Emergente, piloted a programme called Shared Streets for Low Carbon Districts, together with the local authority. What was once an area dedicated for cars, was for several weeks, a public space painted to look like an extended living room. Cars could pass, but people were prioritized. Picnic tables gathered neighbors; musicians performed; politicians and neighbors voiced support; and cyclists and pedestrians traveled safely. In 2018, a permanent bike lane was built on the site, after neighbors and the local government learned to perceive new ways of using the space. Cycling grew 560% and CO2 emissions reduced ninefold, with a significant decrease in noise and air pollution and an improvement in public safety.
MAKE IT ATTRACTIVE

Local government initiatives are not always known for being attractive. Making the action or initiative more appealing can draw attention to it – a simple yet effective way to increase engagement.

- **Capture attention**: use sharp, attractive wording and vivid color to grab attention and concentrate on a single desired behavior change. Help residents see what is less visible (e.g. showing energy consumption displays).
- **Make it meaningful**: use human insight and empathy. Instinctive emotional decision-making drives 90% of our choices.
- **Make it personal**: show the costs and benefits to the local community or even the wallet. Use peoples’ names, photography, and local evidence.
- **Make it rewarding**: provide incentives such as lotteries, prizes or upfront rewards. Payments are motivating, especially when combined with disincentives such as taxes or fines.
- **Make it fun**: use gamification, collaborations, or competitions.
- **Harness the sense of scarcity**: create appeal; if products or services are limited in time or number, they become more attractive.
- **Frame the message**: illustrate positive aspects of adopting a behavior (e.g. how a behavior can reinforce core values, such as health).

**Make it rewarding**: Market Match is a healthy food incentive program coordinated between California state and regional governments in the US. When customers use their food assistance aid at farmers markets, they receive a matching dollar amount (up to $20) to spend on fruits and vegetables at the market. This incentive increases access to shop local and consume produce.

**Frame the message**: In Truro, UK, Sainsbury supermarket café increased consumption of their “Meat-Free Sausage and Mash” by 76% simply by changing the name to “Cumberland-Spiced Veggie Sausage & Mash.” Message framing can be as easy as adopting more appealing language to boost interest in plant-rich food. By replacing “vegetarian” and “meat-free” with indulgent language that explored origin, flavor, and food’s look and feel the café made the food more attractive to customers.
MAKE IT SOCIAL (NORMAL)

Social identity matters! As humans we desire to fit in with social and cultural norms. The key is making those norms sustainable.

- **Provoke commitment**: ask residents to commit. By agreeing to a small request (e.g. signing a petition) the same citizen(s) are more likely to agree to a larger request after (e.g. financially contributing to a project of the same nature). Asking residents to publicly commit can be even more effective – such public commitments are more likely to be honored, as people have an internal desire to appear consistent.

- **Create social proof**: highlight that most people perform the targeted behavior and describe what they do. It can be as simple as stating “9 in 10 people say they recycle paper,” while ensuring this is based on accurate and transparent data sources. Creating social proof increases the visibility of the behavior in the public space, helping normalize it.

- **Model**: draw on peer networks, celebrities and trusted advisors that model the social acceptability of targeted behaviors. Governments can enable networks to spread action peer-to-peer.

**Create social proof**: As part of WWF’s 2018 We Love Cities campaign, the City of Magdalena, Peru, aimed to make waste reduction the norm. To establish social proof and make the actions as visible as possible, the city organized public events about recycling, using mascots and games. People met their neighbors and public leaders who showed up in the public space to commit to reducing waste. Magdalena created competitions among younger residents to pick up trash and recycle, demonstrating how these actions could be the norm.

**Provoke Commitment**: In 2020, British Columbia, Canada, and Washington, Oregon, California in the US, with the cities of Vancouver, Seattle, Portland, San Francisco, Oakland, and Los Angeles signed the Pacific Coast Food Waste Commitment. Run by WWF, Resource Partners ReFed, WRAP and Cascadia Policy Solutions, this commitment supports each city in reducing food waste, providing technical assistance through two channels to accelerate food waste reduction: (1) helping business signatories to measure and publicly report their food waste data each year, and (2) coordinating pre-competitive working groups and pilot projects to measurably address shared waste hotspots. Before participating, each city had to sign the commitment, publicly agreeing to reduce food waste by 50% by 2030 and report wasted food annually. This strategy, based on the Courtauld Commitment, provides a compelling tool to engage stakeholders in action.
Humans react to behavior change tactics differently depending on the timing and context. A new place or time of transition makes us more likely to adopt new habits. A reminder when we are about to decide can be all that is necessary. Policymakers should pay close attention to the timing of policy and program implementation to increase their initiative’s impact. For example, a campaign for people to adopt more energy-efficient cooling behaviors will be more impactful right before summer begins.

- **Use prompts:** remind citizens in the moment. Forgetting is a key barrier. Prompts can be visual or auditory and should be close to the targeted behavior to capture and keep attention until the behavior is fulfilled. For example, organic or local food alternatives can be marketed with a green price label to stand out on crowded market shelves.

- **Help develop plans:** aid individuals to identify their barriers to action at the time of the behavior and provide resources and planning tools to address barriers the next time they arise.
• **Use strategic moments:** remember that we are influenced by context, emotional state, and those around us. Target commitments or behavior change interventions at key moments.

  • **Immediate moments** focus on the here and now by front-weighting immediate costs or benefits through messaging. To improve immediate moments and make the behavior as compelling or easy as possible, local governments can target areas where the behavior will take place (e.g., restaurants) and craft compelling offers, (e.g., cheaper vegetarian options that appear first on menus) or subsidies.

  • **Moments of change,** such as a new job, home, or baby, are strategic turning points.

  • **Moments of action** influence people where the behavior takes place such as signage on a trashcan to encourage recycling.

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**Strategic moment:** COVID-19 is a shared moment, especially in cities – home to 90% of cases. This has resulted in extreme challenges, such as in food insecurity, but also strategic moments for change: interest in cycling and corresponding cycling infrastructure have exploded in global cities including Milan, London, Seattle and Santiago de Chile. As well as opportunities to remove spaces for cars and replace them with places for people, including socially distanced outdoor dining or new linear parks. It is important to build upon such opportunities, as car purchases are also growing, especially among former public transport users. Behavior change should foster more sustainable behavior alternatives.

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When designing behavior change initiatives, especially for energy, the Behavioral Insights Team (BIT) differentiates between 3 ways to frame your interventions.

**Downstream:** actions target individuals and need to be “fair, highlighting the co-benefits of Net Zero actions, and be [framed] positively.” BIT argues that individual choices alone rarely make a significant impact on energy savings. Instead downstream interventions should build public support for high impact policies, rather than small behavior changes.

**Midstream:** actions seek to make sustainable choices more favorable for individuals. Principles for midstream interventions include: changing the default; reducing barriers; modeling green identities; and making it rewarding through incentives and disincentives.

**Upstream:** actions “aim to shift the enabling choice environment indirectly, and at scale.” This includes incentivizing businesses to provide low-carbon options and making environmental performance competitive, as well as governments leading by example.
3. MEASURE AND SCALE INTERVENTION

Creating Behavior Change Interventions
How will we know if our intervention will work? The only way is to test and measure it. By piloting interventions and starting small, we can see how effective they are in context. By collecting data, we can determine if the intervention is worth scaling. This intervention stage allows us to take away key learnings by evaluating the process and the outcome. If either needs adjustment, then adapt. If the pilot has created the desired change, scale it up to reach the maximum number of people, focusing on citizen empowerment throughout the process.

Measuring and scaling starts before you launch your pilot. Go back to the behaviors you identified in the Develop Interventions section. What would success look like? What data can you collect now and what can you collect after to know if it was successful? Examples include surveys (online or public life surveys), social media metrics, feedback from events, commitment pledges, co-creation workshops, public life studies and participatory mapping.

WWF uses the PLEASE framework to emphasize each one of these steps.

Typically, we can measure 3 types of behavior: intended, reported and actual.

- **Intended**: Asking a respondent about what they plan to do in the future.
- **Reported**: Asks individuals to describe the behaviors they have engaged in.
- **Actual**: Measured through direct observation or by developing a method to quantitatively measure engagement.

For example, if you are trying to measure how effective a public transit incentive is, you can ask riders: (1) how often they plan to ride with the incentive (intended); (2) how often they rode public transit (reported); or (3) get ahold of actual rider numbers on a specific line before and after the intervention (actual).
What initial data can we collect to establish a baseline before and after? What tools do we have to accomplish the evaluation? Tactical Urbanism (short-term actions for long-term changes) or Planning-by-Doing are great strategies for creating pilots. Start on a small scale. One neighborhood, one school, one restaurant. Make sure you include your site in the planning process.

Did the project work? Why? Was it an intervention or an implementation failure – or success? Collect the data you initially determined. Have discussions with pilot participants, partners, and initiators together to identify your key learnings.

Did the intervention have the desired impact? Are there any unintended impacts?

Projects that intend to benefit citizens will only be successful if they are created with citizens. Throughout the developing, delivering and measuring phases, empower citizens to be involved in intervention design and implementation through consistent public engagement. Significant effort should be made to reach out to marginalized or excluded communities and prioritize their involvement.

How might the intervention be modified to deliver the desired impact?

Who are your partners? Are there other neighborhoods or cities interested in building off this success? Who are your advocates? When you are ready to scale, consider collaborating with other cities. Your initiative will be even more effective if it is implemented in other nearby jurisdictions.

Piloting energy efficiency: In Lima, Peru, the Palacio Municipal is a beautiful, bright yellow neoclassical building in the city center, hosting the mayor’s office. Through a partnership with WWF and local building managers, Palacio Municipal received an energy efficiency makeover, using audits and smart visualization tools (such as Smappee). Building managers received advice on how to lower energy, with energy savings visually demonstrated through public campaigns to show people how effective efficiency actions can be, including the money saved, thus extending impact beyond this building alone.
CHECKLIST FOR SUCCESS

Don’t forget these important tips when planning and implementing behavior interventions. Have you:

1. Carried out desk research to understand the context, learned from best practices, and identified the problem and goal?
2. Identified specific audiences where behavior change will have the most impact?
3. Defined specific behavioral goals for each audience and created SMART (specific, measurable, attainable, relevant, time-bound) behavioral objectives?
4. Mapped the decision-making journey to understand all the influences, context, messengers and moments of change around the specific behavior?
5. Created a vision of your preferred future and developed a theory of change to identify steps to get there, with a clear initial action?
6. Created a measurement framework to identify how you will measure behavioral shifts?
7. Carried out research among the target audience to identify benefits and barriers to behaviors, key motivators and biases at play, co-design interventions and provide a baseline for ongoing measurement?
8. Developed strategies to increase benefits and reduce barriers to the preferred behavior and provided substitutes for undesired behavior? Checked consequences of substitutes?
9. Imagined how an intervention could make desired behavior easy, attractive, social and timely?
10. Piloted behavior interventions to learn from and adapt before scaling up?
BEHAVIOR CHANGE TACTICS IN CRITICAL URBAN SECTORS

FOOD AND BEHAVIOR CHANGE

We interact with food throughout our day. It is a ritual, resource and right, embedded in our culture and community. What we eat, how we get it, and what we do with it plays a critical role in reaching 1.5 °C maximum global warming – a crucial goal according to climate scientists and enshrined in the Paris Agreement.

Two of the most impactful areas for cities to intervene and reduce greenhouse gas (GHG) emissions are through changing diets and reducing food waste throughout the supply chain. In 2017, C40 found urban food-related carbon emissions to be 582 MtCO2e/year, equal to 13% of all consumption based-emissions (CBE) in C40 cities examined. With no action, emissions from agriculture, processing, transportation, and food waste could increase 38% from 2019 levels by 2050.

When consumers decide what food to eat, they prioritize their habits, cultures, what others around them are eating, their health, what is available and what appeals most. The environment is often a lower concern. This calls for targeted behavioral interventions to shift behavior on diets and waste.

A FOOD REVOLUTION IN OUR CITIES

Shifting behavior to healthy Planet-Based Diets could help reduce 60% of cities’ food-based CBE. It is important to remember that diet choices are influenced by social, cultural, economic and natural factors as well as access and taste. Ensuring access to nutritious, healthy and sustainable food for all should be a key priority for local governments.

WWF calls for increasing accessibility of Planet-Based Diets: healthy food, made with sustainable ingredients, produced within our planetary boundaries, adapted to local contexts, that includes a larger proportion of plant-based food where appropriate.

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4 This compared to 11% from buildings and infrastructure, 4% from clothing and textiles, 8% from private transport, 2% from aviation and 3% from electronics and household appliances.

5 Consumption-based Emissions (CBE): Consumption-based GHG accounting (Scope 3) differs from production-based emissions (Scope 1 and 2) by including emissions created by residents consuming goods and services. These emissions are typically produced outside a city’s boundaries but part of a product’s lifecycle. Examples include food, clothing, plane flights, electronics, building materials etc.
WASTE NOT, WANT NOT

Though we center our lives around food, we throw far too much of it away. Food is a precious resource, yet food waste happens from the field-to-fork. WWF’s *Driven to Waste* report finds that 15.3% of all food produced globally is wasted at the farm stage – that’s the weight of over 10 million blue whales, using more land than the Indian subcontinent and worth over US$ 370 million. Data indicates that more than a third of all food is being wasted, while 1 in 9 people remain undernourished. While national governments and businesses hold the most power and responsibility to increase food security and food waste, urban practitioners and individuals play a role. When cities reduce food waste from households and supply chains, food-related emissions could reduce 10% and 5% respectively within them. With simultaneous investment in food recovery, affordability and distribution, hunger can also be combated.

Using behavior change tools to shift diets and limit food waste

Transforming to a more sustainable urban food system requires shifting to planet-based diets and reducing food waste. It requires tactics such as planning enabling infrastructure and facilitating ambitious policy that regulates. It also relies on behavior change – among individuals and communities at scale. Using the methods discussed, local governments can create and support mechanisms to shift citizens’ food choices and waste behaviors to more sustainable choices. These should be adjusted to the local context, based on what is available and practical to make behaviors easier and more likely to be adopted.

Though municipal powers to influence food-related behaviors are country-specific, a wide range of potential interventions remain for local engagement. They include regulations and taxes, as well as subsidies and bans that increase vegetarian proteins or reduce the marketing of high fat, salt and sugar (HFSS) foods. They can be informative, such as campaigns to raise citizen consciousness and boost residents to make more informed decisions. Interventions can also improve visibility of the desired alternatives, in this case, sustainable, planet-based food. Governments can further take action that is social, drawing on community networks to shift norms and provoke commitments to reduce food waste, or increase the visibility of desired changes through local...
businesses. Together with critical stakeholders, local
governments have a myriad of options to mobilize
citizens to create a more sustainable urban food
system.

Healthy diets are only viable if sustainable
food is accessible and resilient
Promoting healthy and sustainable food consumption
can enhance the resiliency of the greater urban
food system. COVID-19 has disrupted these systems
through increasing commodity prices, suspending
school-food operations and closing informal markets
– underscoring the critical relationship between cities
and food. During the pandemic, food insecurity was
exacerbated, with lockdowns burdening low-income
communities most. This disruption exemplifies the
need for local governments to create policies and
make available resources to ensure food accessibility
and sustainability, particularly when faced with
increasing vulnerability (climate impacts or future
pandemics). Investments to “build back better” from
the pandemic have sweeping support, providing
opportune timing to invest in urban food systems
that: encourage healthy and sustainable food
consumption; provide accessibility for all; reduce
waste, and have robustness to withstand future
disruptions.
## TABLE 1: APPLIED BEHAVIOR CHANGE IN THE URBAN FOOD SYSTEM

<table>
<thead>
<tr>
<th>HOW</th>
<th>EXAMPLE</th>
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</thead>
<tbody>
<tr>
<td>MOBILIZE PEOPLE</td>
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</tr>
<tr>
<td><strong>INFORM</strong></td>
<td>Organize workshops with health professionals on planet-based eating. Introduce activities to engage residents, such as journaling daily food choices, recording what portion of the meal(s) is meat, vegetable, grain or other.</td>
</tr>
<tr>
<td><strong>EMOTIONAL APPEAL</strong></td>
<td>Publish articles, blogs or share information from organizations that focus on healthy eating habits, tasty food, animal welfare consequences, and compelling environmental considerations.</td>
</tr>
<tr>
<td><strong>CHANGE CHOICE ARCHITECTURE</strong></td>
<td>Create a resource (delivered online or in-person) that helps citizens plan future healthy eating scenarios. Help them define and record their goals. Explain the benefits of plant-based alternatives and how and where to find them to opt for these choices, instead of less healthy, meat-heavy food.</td>
</tr>
<tr>
<td>SUPPORT ORGANIZATIONS AND COMMUNITY</td>
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<tr>
<td><strong>INFORM</strong></td>
<td>Include a healthy-eating or planet-based campaign lecture at a university seminar or a storytelling session for younger students at a local school or library.</td>
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<tr>
<td></td>
<td>Encourage schools and students to plant schoolyard or kitchen gardens to learn more about growing food and eating fresh produce. Integrate garden into curriculum. Cater recipes around these gardens.</td>
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<td></td>
<td>Provide supermarkets and restaurants with quick messaging to communicate the linkages between food, climate change and health, to encourage and empower consumers to opt for healthier alternatives. Encourage this information to be placed at the choice point – menus or on supermarket shelves.</td>
</tr>
<tr>
<td><strong>CREATE SOCIAL INFLUENCE</strong></td>
<td>Introduce a friendly competition among neighbors or schools, highlighting successful diet changes or sharing recipes.</td>
</tr>
<tr>
<td></td>
<td>Host engaging events that introduce meat-free alternatives, planet-based recipes, cooking demonstrations, or information on best local restaurants active on food loss and wastes and sustainable diets. Make sure taste is a priority.</td>
</tr>
<tr>
<td><strong>APPEAL TO EMOTIONS</strong></td>
<td>Highlight local businesses or restaurants acting on sustainable food systems. Use pictures, names and local evidence to make it personal and show benefits to the local community.</td>
</tr>
<tr>
<td>HOW</td>
<td>EXAMPLE</td>
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</tr>
<tr>
<td>INCENTIVIZE</td>
<td>Consider creating a city-award or certification process for restaurants that offer sustainable food or practice excellent food waste management practices (participating in a food recovery initiative, reusable container program, compost etc.) Publish details of the award/certification process on all communication channels. Provide subsidies or grants for urban agriculture initiatives and allocate land to be used for local food production. Prioritize marginalized groups or low-income communities.</td>
</tr>
<tr>
<td>CHANGE CHOICE ARCHITECTURE</td>
<td>Work with schools to provide tasty, nutritious meat-free meals at least a few times a week while increasing regular availability of vegetarian meals. Encourage changing menu options for workplaces and restaurants to offer tasty and nutritious vegetarian meals as default with the option to add-in meat. Encourage restaurants to increase availability of tasty planet-based and vegetarian meals and provide reminders about available food waste reduction options (can take the rest of the meal to go, or compost if available). Work with grocery stores to increase the relative availability of plant-based foods, specifically plant protein. Place meat substitutes next to similar meat products in the butchery or cheese substitutes next to regular cheese.</td>
</tr>
<tr>
<td>TARGET SOCIETY</td>
<td>Build a local map that profiles local urban agricultural projects, as well as community or school gardens.</td>
</tr>
<tr>
<td>INFORM</td>
<td></td>
</tr>
<tr>
<td>CREATE SOCIAL INFLUENCE</td>
<td>Promote healthy lifestyles and the consumption of planet-based foods through social media campaigns linking food, health and climate change. Work with organizations that sell or promote planet-based food, such as farmers markets, local restaurants or health organizations to promote healthy eating habits.</td>
</tr>
<tr>
<td>REGULATE</td>
<td>Mandate the development of a sustainable food procurement policy to be implemented in all public institutions (schools, hospitals, prisons). Set targets for the increase of organic and certified food and the decrease of meat. Restrict advertising in supermarkets, mobile food vendors around schools, and fast-food companies that promote foods high in fat, sugar, and salt.</td>
</tr>
</tbody>
</table>
GROWING GARDENS: After an economic crisis and extreme flooding hit Rosario, Argentina, in 2001 and 2007, the municipality needed to reduce food insecurity, alleviate poverty, and adapt to changing environmental conditions. Inventorying vacant land, Rosario expanded its urban and peri-urban agriculture program and passed an ordinance in 2011 designating 800 hectares of peri-urban land for agroecological production. The commissioned Urban Agriculture Program provided gardening supplies and equipment to low-income people in marginalized communities. The focus on typically excluded groups (including women, seniors, youth and immigrants) and the provision of workshops and training, was successful in bolstering the economy, reducing food insecurity, providing water retention zones, and reducing GHG emissions from food imports.

Create social influence: Rosario publicly committed that it would take action, which increased the likelihood of follow-through.

Make it timely: Moments of crisis can be strategic for positive intervention. Rosario used challenging circumstances as an opportunity to find support for taking actions that would mitigate future impacts.
COMMITTING TO COMPOST: Petaling Jaya, Malaysia – a city in WWF’s One Planet City Challenge or OPCC – created a Home Composting Programme, instigated by the municipality, private sector, NGOs and local community. Interested households joined a signing ceremony hosted by community organizations, provoking media attention. Other families were recruited through personal contacts. To solidify commitment from recruited families, and empower each to take responsibility, the steering committee conducted interviews with individual households, briefing them on expectations for success. When the participants were accepted, they received free composting materials, equipment, and technical guidance.

**Make it timely:** By going over expectations for success, individuals could identify their own potential barriers and develop plans that address them.

**Make it social:** Asking participants to sign an agreement in front of others provoked commitment and more individuals participated because they were recruited by personal contacts.

**Make it easy:** Participants did not have to purchase equipment, or seek guidance; everything was provided, reducing potential barriers. The composting education also boosted personal engagement, empowering participants to persist in the program.
RESOURCEFUL WASTE: In Amsterdam, the Netherlands, you can dine in restaurants entirely dedicated to rescuing food that would otherwise be trashed, or visit a bar finding new ways to use old products, like coffee grounds or egg shells, in fancy cocktails. Circular dining is also popular, where food waste is cycled on site in roof terrace gardens for soil enrichment. Local apps increase convenience, sharing where food is about to go off, at discount prices for the home consumer. This is not by accident. The local government has a progressive local food policy that addresses nutrition, sustainability as well as interactions with nearby farmers, while prioritizing access to sustainable food products (e.g. farmers' markets, allocated urban agriculture plots). Teachers and students also host large-scale events about food waste, including food film festivals, helping to shift towards more food-conscious norms.

Create social influence: The practice of reducing food waste is observable and a perceived norm in Amsterdam, thanks to enabling policies. When people see others participating in the behavior at a restaurant or event, they are more likely to adopt it themselves.

Make it social: Highlighting that people are participating in a behavior will reinforce it, creating social proof. Events or publications that share how many people in Amsterdam engage in waste-reducing behaviors or support circular initiatives encourage others to follow.
CHEF’S MESSAGE: To deliver on global climate and biodiversity goals WWF-México partnered with IKI (Germany’s International Climate Initiative) to launch a digital campaign #DaleChamba in Mexico City – global winner of WWF’s OPCC in 2020 – and other communities. It sought to create public awareness about the vital relationship between Mexican cuisine and biodiversity and included a call to cook traditional dishes using regional ingredients to protect the country’s natural resources. The campaign focused on highlighting the threats faced by some varieties of chili peppers, beans, squashes and tomatoes that are part of traditional plates (mole, chile en nogada) highly valued in Mexico. The campaign reached over 68,099,276 people, gaining national attention from local and national news sources. Events and cooking competitions were held in universities and educational centers in Mexico City. Behavioral techniques aided the success and created a positive impact. The campaign brought together prominent figures and institutions from the Mexican culinary world who were involved and interested in rescuing threatened local ingredients; this added credibility to the campaign’s message. The campaign’s tone and message were positive and personal, focusing on biodiversity conservation, while appealing to local pride, and memory of lost flavors. Dale Chamba diverged from traditional conservation messaging with fun and attractive visual content.

MEXICO CITY, MEXICO

Appeal to emotions: By appealing to local pride, history, and memories of food and cooking, the campaign appealed to warm and positive emotions making it more relatable and engaging.

Make it attractive: The campaign became more attractive because it was personal, showing benefits to communities and highlighting Mexican heritage. It prioritized engaging visuals to capture attention and the messaging was framed to describe the positive biodiversity benefits from using local ingredients.

Make it social: Partnering with prominent chefs including Ricardo Muñoz Zurita (one of the countries most well-known chefs with several restaurants in Mexico City) to traditional cooks from Oaxaca, and five of Mexico’s most prominent culinary schools, created visibility, trust, and enhanced the credibility of the ingredients.
SECRET INGREDIENT: Through a Swedish government funded project called Smart Mat (Smart Food), OPCC city Helsingborg introduced sustainable lunch menus for 20,000 school children – with more plant-based protein and a dramatic reduction of food waste. School chefs produced original recipes and tested kids’ acceptance – if students gave “a thumbs up”, recipes were shared. To nudge consumers in the right direction, plant-based options were prominently placed on buffets to reduce meat consumption, and first on the menu. The project reduced the climate footprint of food at local schools by a quarter! Helsingborg had an inclusive and systems-change approach, creating an open dialogue with chefs and students about the Smart Food project, making them feel empowered and engaged. The message around food was framed positively to not shame personal choices. Proving successful, the municipality has since applied the same principles in elderly homes, focusing on reducing plastic consumption and avoiding single-use packaging.

Change choice architecture: Placing the plant-based food in prominent locations changed the context of the decision and made the desired food easier to choose.

Make it easy: Collaborating between chefs and students boosted personal engagement. Engaged students felt empowered to help make the decisions and had more confidence in the recipes.
TRANSPORTATION AND BEHAVIOR CHANGE

Trains, planes, trucks, buses, bikes, cars – our cities run on elaborate transport networks to maintain urban interaction. Transportation is responsible for approximately 25% of GHG emissions, with individual car traffic making up a bulk of these emissions. Besides producing emissions and toxic fumes, commuting in a car creates higher stress levels than, for example, trains. Those who commute regularly by car report lower life satisfaction and increased time-related pressures. This excess stress increases risk of high blood sugar, cholesterol and cardiovascular diseases. Our car-centric commutes also impact congestion, accidents and air pollution.

Air pollution is a major health risk – outranking malnutrition, lack of exercise, even smoking and over 90% of urban residents are exposed to polluted air, with traffic emissions the largest source. Children are especially vulnerable, because of their rapid breath cycles. Societies pay for air pollution through hospitalization and health care costs, lost wages to sick workers, decreased business competitiveness, as well as crop losses and degradation of ecosystems and cultural heritage sites. Understanding these intangible costs is difficult. However, their impact on the climate and our societies is pervasive.

Almost three quarters of road transport emissions come from short journeys in and around our cities. Electrifying these public and private vehicles is essential to cut emissions, pollution and noise. However, technological fixes are only part of the solution. To improve human and planetary health, we must switch from fossil-fuel based and sedentary lifestyles, to active and renewable lifestyles. Cities planned at the human scale prioritize cyclists and pedestrians and make these lifestyles feasible. When citizens are able to cycle, quality of life increases, mental health benefits, and even individual sleep cycles improve. Cycling is also economically fruitful: in the European Union, cycling creates benefits estimated at €150 billion per year and prevents 18,100 premature deaths annually.
A TRANSPORTATION REVOLUTION IN OUR CITIES

Shifting city dwellers to more sustainable transport modes is a key task for local governments, as 73% of our transport emissions come from journeys in and around cities. While most cities have goals on making their ‘modal split’ cleaner and healthier, each city has a different starting point. In some cities, healthy mobility is almost non-existent, with individual cars taking up the limited public spaces available in cities in the form of roads, parking and highways. The good news is, many cities are building or expanding their infrastructure for mass transit, shared mobility, bikes and walking as part of integrated mobility management systems – committing to making cities greener, healthier and more prosperous. These critical mobility solutions can significantly reduce GHG emissions, while making substantial improvements to healthy, urban quality of life.

USING BEHAVIOR CHANGE TOOLS TO INCREASE SUSTAINABLE TRANSPORTATION

Sometimes we need to use a private car. However, most single-occupancy trips are unnecessary and often out of habit. Environmental studies show consumers actually feel the worst about their waste and transportation choices, even though they continue to make them. Infrastructural and supply-side solutions are changing how we move; new transit lines, more frequent transit stops, safer, separated and more direct bicycle infrastructure – and we can’t make progress without these. However, these solutions are often slow to develop and not enough. Focusing on the “demand” of Transportation Demand Management encourages citizens to make use of the transportation systems already in place.

Making sustainable public transport or active transport solutions (e.g. cycling, walking) as easy, attractive, social and timely as possible will encourage citizens to get out of their cars – especially when car commuting becomes more expensive with limited parking, or certain roads are closed off to traffic. Interventions can be targeted directly to citizens, with compelling campaigns and incentives. Cities can also work with community partners and businesses to make sustainable mobility the default or most compelling option. At a city-wide level, create social proof and make biking, walking or bussing the norm with events and large-scale pilot projects to foster motivation and enthusiasm for more permanent efforts.
ACCESS AND SAFETY FOR ALL

Cities and public transportation infrastructure are historically designed for and primarily by men. Though women make up the majority of public transport users, women's travel needs and usage patterns are not prioritized enough. Often public transport, cycling or walking take place in unsafe environments for women, who globally are subjected to aggression, crime and abuse, intensified by atypical commuting hours and crowding. Gender and racial inequities must be taken into account in all behavior change interventions, prioritizing those that better accommodate women and vulnerable groups subject to profiling and harassment.
### TABLE 2: APPLIED BEHAVIOR CHANGE IN TRANSPORTATION SYSTEMS

<table>
<thead>
<tr>
<th>HOW</th>
<th>EXAMPLE</th>
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<tbody>
<tr>
<td>MOBILIZE PEOPLE</td>
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</tr>
<tr>
<td>INFORM</td>
<td>Inform citizens on transit routes or bike lanes, including usage trends and road safety tips. Put new users at ease: those with less experience may be nervous about city cycling, especially if a city is not known for bike safety. Work with NGOs, schools, and workplaces to provide free bike maintenance and road safety lessons. More information can build confidence, critical mass and security.</td>
</tr>
<tr>
<td>APPEAL TO EMOTIONS</td>
<td>Frame campaigns to ride public transit or cycle to work around personal identities and values. Highlight important community benefits, emphasizing fun from collective commuting, and/or environmental or health benefits.</td>
</tr>
<tr>
<td>CREATE INCENTIVES</td>
<td>Offer incentives (e.g. free, reimbursed, or discounted transit passes) such as a 50% off offer, a 75% subsidy for a first month pass or a free voucher to refer a friend.</td>
</tr>
<tr>
<td>CHANGE CHOICE</td>
<td>Provide the option to automatically enroll people in online reloading when a transit card runs low. Alternatively prompt people to reload their card when it reaches a low level. Simplify the reloading process.</td>
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<tr>
<td>ARCHITECTURE</td>
<td></td>
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<tr>
<td>SUPPORT ORGANIZATIONS AND COMMUNITY</td>
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<tr>
<td>INFORM</td>
<td>Simplify fare schedules and remove excess information.</td>
</tr>
<tr>
<td>CREATE SOCIAL INFLUENCE</td>
<td>Work with local businesses to organize a bike and walk-to-work day or month. Build partnerships to provide accompanying events, or even temporary bike lanes, as well as snack stations and bike maintenance and services to get people on their bikes.</td>
</tr>
<tr>
<td>APPEAL TO EMOTIONS</td>
<td>Feature local individuals (neighborhood heroes or school children) who choose to bike or take public transit. Share their stories to inspire others.</td>
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<tr>
<td>HOW</td>
<td>EXAMPLE</td>
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<tr>
<td><img src="image" alt="Create Incentives" /></td>
<td>Encourage employers to create a sustainable transit incentive strategy or bike-to-work program to ease the upfront costs of purchasing a bike or related equipment. The employer can support upfront cost, paid back through an employee's monthly salary – or cover the cost entirely. This could substitute an employer's support to a monthly gym or other program to incentivize healthy and active employees.</td>
</tr>
<tr>
<td><img src="image" alt="Change Choice Architecture" /></td>
<td>Work with businesses to remove parking spaces and install bike facilities or charging zones for electric vehicles.</td>
</tr>
<tr>
<td><img src="image" alt="Target Society" /></td>
<td>Close down selected streets (on Sundays, public holidays, or once a month) to create a car-free or open-street. Turn over roads – or part of them – to pedestrians, cyclists, skateboarders, group exercise events and more.</td>
</tr>
</tbody>
</table>

### Create Social Influence

- Work with businesses to remove parking spots in dense or pedestrian-heavy areas, or re-zone these spaces as “parklets” to create mini parks for leisure or dining.
- Align land use and urban planning policies to prioritize transit-oriented development, using **15-minute city planning** to ensure people have access to frequent mass transit within 500m. Introduce regulations for denser, affordable, mixed-use, and walking and cycling-friendly development, especially close to transit. Limit zoning for single-family housing.

### Regulate

- Install road pricing (often called congestion or pollution pricing) on highways.
- Enact a low – or zero – emission zone to target vehicle emissions and designate pedestrian- and cyclist-only areas, especially in the city center.
- Build a walking and cycling network that connects with other public transport networks. Design walking and cycling infrastructure to be safe, convenient, and accessible for people of all ages, backgrounds and abilities.
SMALLEST FOOTPRINT WINS: To increase public transport usage, the City of Tshwane, South Africa, partnered with WWF, ICLEI and Tshwane University of Technology, hosting a student competition to navigate the city with the lowest carbon transport, using a journey planner app called #Findmyway. Participants used various transport modes, including Tshwane Bus Services, minibus taxis and the Metro Rail. Part of WWF’s 2015 Capital Challenge, the competition celebrated public mobility and green transport options, while creating feedback on urban mobility options.

Make it fun: The collaboration, competition and challenge contributed to gamifying public transportation in the city in an engaging way.

Boost personal engagement: The challenge equipped students with tools and resources to test low-carbon transport options, increasing their confidence as they navigated. Becoming part of the planning process, through providing feedback, boosted participants’ confidence as well as their use and engagement.
**VANPOOLING SALMON:** In 2021, the City of Seattle, US, temporarily closed its West Seattle Bridge, leaving only one other road in to this city district. To mitigate the ensuing congestion, Seattle’s Department of Transportation launched **Flip Your Trip**, encouraging people to replace car trips with transit, vanpooling, biking, scootering, or staying local. Any person living or working in the impacted area can take the #FlipYourTrip pledge, receiving a month of free vanpooling and a sign-up bonus of $25 to use on sustainable rides of their choice. This included buses, water taxis, transit, streetcars and all local e-scooter and bike companies (such as Lime or Link). Participants also receive trip planning assistance and information about special events. The campaign partnered with the *Metro Transit’s GO Ticket* mobile app which rewards users for taking sustainable transit with free tickets. Participants can put their $25 towards GO Ticket rewards, obtaining additional free rides. The city also aims to increase water taxi and bus frequency, rolling out infrastructural changes to complement the incentives. The campaign is pushed out with inclusive, local, and humor-forward communication, sponsored by the mascot, *Sal the Salmon*.

Frame the message: Flip Your Trip messaging engaged everyone to pitch in and reduce congestion. Spotlighting West Seattle, the campaign framed messages so that everyone felt a personal responsibility to contribute by reducing single occupancy trips.

Provoke commitment: Before residents could get access to free rewards, they had to sign a pledge “to flip a trip by switching from driving alone to another option.” By pledging, even online, residents are more likely to commit and actually use their participation rewards.

Help develop plans: This intervention didn’t just ask individuals to get out of their cars, but provided trip planning resources and personalized assistance to enable them to more easily complete the action when the time came.
NO RIDICULOUSLY SHORT CAR JOURNEYS: For several years starting in 2006 in the Swedish city of Malmö, the month of May meant bright orange billboards reading messages like: "More than half of car trips in Malmö are ridiculously short" across the city. One central billboard even hosted an actual cyclist pedaling in place with a live band underneath to gather attention. Citizens witnessed civil servants and volunteers – dressed in bright orange jumpsuits, with shiny silver helmets – sporting bike bags that read, "I used to be a car driver" as they rode on baby blue bicycles. They flooded city squares handing out bike water bottles and bicycle seat covers, as live music played. Children and choirs sang songs on bikes and buses about the benefits of public transit, and companies with the most employees that biked to work were promoted. Citizens could enter themselves or a friend into a raffle for "the most ridiculous car journey" (less than 5 km) and the winner won a free bike. This campaign was updated every May to reflect changes to transport patterns, going from "over half of all car rides in Malmö are ridiculously short," to "38%" as the numbers fell from the campaign's visibility, while highlighting citizen engagement in the improving numbers.
NO CAR? NO PROBLEM: In December 2018, seven Ethiopian cities joined the car-free day movement. Addis Ababa’s first events included shutting down 4 km of streets on select Sundays, supported by youth groups, sport teams, cycle associations and pedestrians who led the way to take over the streets. The streets were loud, colorful and joyful. To increase accessibility, the mayor decentralized the event to six city districts, coordinated by a taskforce with youth groups, NGOs, the Ministry of Health and sport associations. They rebranded the initiative Menged Le Sewe – Streets for People. Each year this event has grown in size and popularity, districts now closing 9km of streets for hundreds of citizens to enjoy the streets – critical public spaces if we perceive them as such – of the country’s capital all day.

Change the default: Though shutting down city streets is not a permanent solution, on select days, citizens feel safer on these car-free streets and participation has grown.

Create social proof: Shutting down streets makes traveling car-free visible, while encouraging new visions of city planning and growing participation. This event offers a new reality, possibilities for an emerging social norm, and proof that going without a car is possible.
GETTING PAID TO BIKE: In 2019, Bari was the first Italian city to pay its citizens to bike to work. The city of 330,000 citizens fitted up to 1000 personal bikes with GPS devices and gave riders up to 20 Euro cents per kilometer for their commute. Even biking outside of work hours was rewarded by the city, cyclists receiving 4 Euro cents per kilometer for other trips. Bari caps its citizens at 25 Euros a month, but other Italian cities, including Massarosa, keep a monthly cap of 50 Euros. Bari simultaneously focused on expanding bike infrastructure to make the commute easier and safer, and procured national funds to reimburse citizens for purchasing a bike. Citizens received 100 Euros for a secondhand bike, 150 Euros for a new bike, and 250 Euros for e-bikes.

Make it rewarding: Paying citizens to commute by bike has grown in popularity throughout Europe, as it is the most straightforward strategy making biking rewarding, while saving public resources on more expensive transportation infrastructure. Offering a material incentive can be compelling enough to shift citizens towards the desired behavior.
ENERGY AND BEHAVIOR CHANGE

Powering our homes, transportation, and the global economy, energy accounts for 70% of GHG emissions. To achieve net zero emissions, we must dramatically decrease the amount of energy we use and its reliance on fossil fuels. Cities themselves account for 75% of global energy use – crucial arenas for the shift to renewable energy production and energy efficiency. Indeed, the speed of energy efficiency needs to double, from roughly 1.3% to 3% per year.

AN ENERGY REVOLUTION IN OUR CITIES

We have the technology to drive the clean energy revolution. With rapid falls in the price of solar and wind, our energy grids are getting greener. Cities globally are finding new and innovative methods to move away from fossil fuels, with co-benefits for human and planetary health, not to mention localized energy security. But it is not just about increasing the amount of renewables in cities, simultaneously we must reduce energy consumption. This is where increasing energy efficiency and behavior change strategies come into play.

USING BEHAVIOR CHANGE TOOLS TO DECREASE FOSSIL FUELS

Efforts to support behavioral change are key drivers of energy efficiency and renewable technologies. In its net-zero scenario, the International Energy Agency (IEA) estimates that behavior change alone can increase emissions reductions by 4%. For example, dropping indoor temperatures slightly, and setting building thermostats at 19-20 °C, can cut GHG emissions from fossil-fueled boilers by 10% until 2030, or by 160 TWh globally. However, to effectively
reduce emissions from our energy supply, behavior change initiatives must be combined with low carbon technology. The UK government estimates that half of the behavioral changes required by citizens also require technology shifts.

One advantage of behavior change measures is their speed. Whereas high-impact solutions (such as investing in wind or solar) may take years, behavior change tactics targeting energy efficiency measures can start tomorrow, making a quick and positive climate impact. Regulatory measures can be helpful, however softer solutions can also be effective. Facilitating peer-to-peer education and creating visible changes (often through messaging campaigns) can support the transfer of effective energy efficiency solutions. Studies from the US, Japan and the UK, show “spatial neighbor effects” are present in the uptake of rooftop solar. This means, installing solar can be contagious, when a neighbor puts them up, nearby households are likely to follow. More information on energy efficiency can be found in WWF’s Report OPCC: Energy Efficiency Series.
ENERGY JUSTICE IS KEY TO THE CLEAN ENERGY REVOLUTION

Unfortunately, when municipalities roll out energy efficiency programs, they are not always accessible. Low-income, minority or other vulnerable groups often find themselves up against barriers, such as upfront costs including “credit requirements, language barriers, structural deterioration of homes,” or the fact that they may live in less weatherized homes. While vulnerable communities may have less access to energy efficiency measures and clean energy technologies, an even more pervasive problem exists.

Discriminatory energy and housing policy often forces these groups to live near fossil-fuel intensive energy facilities, creating a double burden to cost and health. Clean energy policies and interventions must not only prioritize vulnerable groups and shape inventions that serve them, but involve them as key stakeholders in all energy processes.
### TABLE 3: APPLIED BEHAVIOR CHANGE IN ENERGY

<table>
<thead>
<tr>
<th>HOW</th>
<th>EXAMPLE</th>
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<tbody>
<tr>
<td>MOBILIZE PEOPLE</td>
<td><strong>INFORM</strong>&lt;br&gt;Energy efficiency labels, campaigns and product efficiency lists are proven ways to increase customer knowledge. However, they cannot be too technical (e.g. express energy savings in monetary terms) and clear in their call to action. The UK simplified their building energy performance certificates to describe savings in monetary terms (£) rather than kWh. Provide feedback on consumers’ energy habits. These can be for any time increment, including real time, displayed on home devices, apps, or websites that track smart metering systems. WWF installs the Smappee device in its offices to provide this feedback.</td>
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<td></td>
<td><strong>CREATE SOCIAL INFLUENCE</strong>&lt;br&gt;Compare the energy usage of similar homes or peers to prompt friendly competition. In France, the UK and the US, customers receive information on how their electricity use compares to their neighbors in their bill. Studies have proven this makes a beneficial influence in reducing electricity consumption.</td>
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<tr>
<td></td>
<td><strong>APPEAL TO EMOTIONS</strong>&lt;br&gt;Appeal to the harmful effects of energy consumption to humans and the environment to support energy conservation. Highlighting pollution, or fossil fuel’s impact on asthma and cancer rates, increases intervention potency, especially for families, it can even be more appealing than financial savings.</td>
</tr>
<tr>
<td>SUPPORT ORGANIZATIONS AND COMMUNITY</td>
<td><strong>CHANGE CHOICE ARCHITECTURE</strong>&lt;br&gt;Encourage businesses to create a policy for higher minimum temperatures in hot seasons (e.g. air conditioning at 26 °C) or lower maximum temperatures during cold seasons (heating thermostat limited to 20 °C) and promote their effort. Create opt-out programs for green electricity or comparison reports. Choosing to opt-in requires specific action whereas automatic program enrollment retains most citizens.</td>
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</tbody>
</table>
### HOW EXAMPLE

#### TARGET SOCIETY

**CREATE INCENTIVES**

Provide rebates, financing and tax incentives for energy efficient appliances, and electric heating and cooling systems.

**EXAMPLE**

- Establish and commit to an energy policy that formalizes commitment to improving energy efficiency, reduction, and the city’s renewable percentage.

- Create a procurement policy that requires the purchase of energy-efficient products, performance monitoring, benchmarking and retro-commissioning. WWF’s partner Topten recently published procurement guidelines for professionals on different appliances.

**REGULATE**

Create policies that require building energy ratings, disclosure and energy upgrade requirements. Though often set at the national or state level, cities can be proactive in ensuring such codes are enforced, while encouraging municipal buildings to meet high(er) standards.

**EXAMPLE**

- Create or adopt a green building standard for all new developments. San Francisco, Seattle and many other cities require their own municipal buildings to achieve LEED Gold certification or something comparable.
EASY TO BE EFFICIENT: Consumers’ awareness of energy efficient appliances affect their willingness to buy them. Information tools, such as energy efficiency labels, play a role in changing that. Topten informs customers of Best Available Technologies (BAT) for many appliances in Europe and Latin America. The Swiss city of Zurich partnered with Topten to provide a subsidy of 70 CHF ($75 USD) for residents to purchase energy-efficient household appliances that carry Topten’s energy label. This partnership made it possible for the subsidy to be directly deducted at the time of sale, making it easy for residents. Zurich, along with Swiss cities St. Gallen and Rorschach, changed the default electricity tariff to a greener option. Results from their intervention show that after defaulting 200,000 households into renewable energy plans, 80% decided to stick with green energy 4 years later.

Reduce effort: Providing subsidies at time-of-purchase decreased barriers to using the subsidy. There was no extra effort, it was automatic.

Change the default: Most customers decided to maintain the defaulted Green Tariff, opting for greener energy alternatives.
STREET SHOWCASE: In Brighton, UK, residents took part in a voluntary two-month energy-saving initiative. The place? Tidy Street. The idea was pitched at the residents' annual street party, and project leaders immediately identified first-movers and champions to get other neighbors on board. Each participating household was given tools to measure their daily energy consumption and tasked with putting it on the project's website. By measuring their daily consumption, residents became acutely aware where they could make cuts. The rest of the neighborhood quickly learned of the project, as the project team hired street artist Snub to paint the results on the road, with individual icons chosen by residents representing each household. The art not only showed the street's average consumption, but compared it to the rest of Brighton's. Residents took pride in this initiative, fielding questions from engaged passersby and watched their collective consumption drop 15-30%.

Make it personal: This initiative couldn't be more personal or close to home. Using one street for the intervention was small-scale but very specific and garnered almost guaranteed awareness if not engagement from all the residents.

Create social proof: Each neighborhood's energy was clearly displayed on the street, immediate proof that others were engaging in energy reduction measures.
SIMPLE SOLAR: In 2012, South Korea’s state government stopped supporting solar PV through feed-in tariffs in the City of Seoul – the 2015 global winner of WWF’s City Challenge. Consequently, the city government decided, not only to continue the programme, but to expand on it. Partnering with Solar City, in 2017 they launched a program that provided over $2.4 million to 228 solar generators, offering low-interest loans that made up 80% of the cost of solar for citizens. As part of its incentive program, Seoul provided citizens the option to lease solar panels, enabling them to test the panels for a low installation cost. But the city didn’t leave citizens on their own, instead they supported five Solar PV Support Centers across the city, offering residents information and technical assistance. Seoul continues to deploy a range of methods to generate solar power, including renting municipal land to private and community-owned solar plants to increase renewable energy in their grid.

Make it rewarding: Providing a substantial subsidy and supportive financing options made investing in solar panels easier and more rewarding.

Model: Seoul opened several support centers to offer guidance and visibility.
BEIJING, CHINA

GOLD METAL PERFORMANCE: Before the 2008 Olympics, Beijing, China, assumed to be 1.2 million KWh short of energy, with 40% of their energy use (4 million KWh) going air conditioning alone. Between 2003 and 2004, energy consumption increased 14%! To reduce the impact of air conditioning on energy use, the Beijing Government and the Green Olympic Committee started the 26 °C campaign, asking large energy consumers to increase room temperatures by 1 °C. Fifty large hotels jumped onboard. This campaign continued, aided by six Chinese environmental NGOs, including WWF, to spur other businesses and consumers to join. These groups hosted public debates, journalist workshops and an awards event. All who joined received a certificate of appreciation. The campaign's success saw that the government later created a statute for the 2008 Beijing Games where air conditioning in public buildings should be set at or above 26 °C.

Make it fun: The series of events, a certificate and award ceremony created a sense of competition and made participating more fun.

Use strategic moments: This campaign and regulation was created at a strategic time, right before the Olympics. The preparation and anticipation for a big event creates compelling conditions for a change.
IT’S MORE THAN RETROFITS: Cape Town, South Africa, created an Energy and Climate Change Unit in 2006, committing to increase sustainable energy initiatives starting with its own buildings. The city hired an energy service company to conduct energy audits and retrofits in four public-facing city administration buildings. While the buildings underwent technical retrofits, the city focused on behavior change. In each building, staff attended 3-hour workshops on how to save energy in these administrative buildings as well as their own homes. The city provided employees, and the public, additional information on energy saving techniques. In each facility, large, bright posters tracked monthly energy savings and citizens’ progress. They read “We’re committed to saving energy through the following retrofits” and included pictures of the new building devices. Then, above the chart it read “It’s up to you to save even more.”

Capture attention: The posters hung in every building, using sharp, compelling wording and bright colors to capture attention. Each also contained a graph so residents could see their energy use displayed, making it more tangible.

Boost personal engagement: By equipping employees with the tools they need to reduce energy at work and at home through workshops, each individual was empowered to take action.
KEY RESOURCES

BIT: Net Zero: principles for successful behavior change initiatives
BIT: EAST: Four Simple Ways to Apply Behavioural Insights
CBSM: Community-based Social Marketing
Metabolic: Consumer Behavior as a Leverage Point in the Food System
Rare: Levers of Behavior Change
Tactical Urbanism
WWF: One Planet City Challenge
WWF's Report OPCC: Energy Efficiency Series
WWF: Policy, Planets, Plates: Actions to Catalyze Food System Transformation
WWF: Planet-Based Diets
WWF: Save Nature Please

KEY ACRONYMS

BAT: Best Available Technologies
BIT: Behavioural Insights Team
EAST: Easy, Attractive, Social, Timely
GHG: Greenhouse Gas
IEA: International Energy Agency
SMART: Specific, Measurable, Achievable, Relevant, Time-Bound
SNP: Save Nature Please
OPCC: One Planet City Challenge

WWF CITIES

Anchored within WWF’s Climate & Energy Practice, WWF Cities coordinates local government and urban stakeholder engagement. Over 700 cities have joined WWF, namely via the One Planet City Challenge, which supports cities to align to the Paris Agreement and the 1.5 °C target, while fostering co-benefits, including on nature conservation, equity and healthier cities. WWF is also expanding its work on urban nature and urban food systems, the latter being developed in partnership with WWF’s Food Practice.

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OUR MISSION IS TO CONSERVE NATURE AND REDUCE THE MOST PRESSING THREATS TO THE DIVERSITY OF LIFE ON EARTH