



ClimateWorks
FOUNDATION

2050 Today

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Using Behavioral Insights to Inform Strategy

Pre-read packet

Background

Behavioral insights are increasingly used to improve our lives by guiding us to better choices. Having a deeper understanding of their applications can help us achieve deep decarbonization goals. This session will look at case studies on the application of behavioral insights to help us understand how philanthropic strategies may incorporate them in shaping relevant policies in transport (modal shift, automation), land use (food choices), and energy use (efficiency). We will solicit ideas on the application of behavioral insights in these areas. At the end of the day, awards will be offered for the best ideas that have the potential to be developed into a project. Submissions for the award will be requested using [this template](#), which can be partially filled out prior to the event.

Session objectives

To look at how behavioral insights can be incorporated in philanthropic strategies to shape/influence relevant policies in transport (modal shift, automation), land use (food choices), and energy use (efficiency).

Session materials

[Template](#) for submitting ideas on the application of behavioral insights in areas of transport (modal shift, automation), land use (food choices), and energy use (efficiency).

Panel session pre-reads

Sustainable Behavior

Sustainable Behavior FT Pre-read. (KR Foundation, 2018). [Link to document](#) and [link to presentation](#).

Three quarters of a household's consumption emissions are attributable to food, housing and mobility (inter alia EEA 2015). Research shows that the greatest potential for emissions reductions from behavior change come from having fewer children, living without flying or driving a car, and eating a plant-based diet (Wynes and Nicholas 2017). Although there is no

common agreement on the necessary overall decreases in resource use or how this could be achieved in each consumption category (transport, food, housing etc.), a small number of studies explore the potential magnitude of shifts in household consumption that could bring consumption within planetary boundaries. The pre-read document and the presentation linked above define sustainable behavior as well as offer a deeper review of what drives unsustainable lifestyles and research overview of potential for climate change mitigation through sustainable behavior.

Alternative Pathways

Alternative pathways to the 1.5 °C target reduce the need for negative emission technologies. (van Vuuren, D. et.al, 2018). [Link.](#)

Detlef van Vuuren and colleagues explore alternative pathways to climate mitigation that reduce reliance on negative emissions technologies and gauge mitigation opportunities from sustainable behavior. The *Life-style change scenario* assumes a global and radical value shift towards more environmentally-friendly behavior, including less meat-intensive diet (conforming to health recommendations), less CO₂-intensive transport modes, less use of heating and cooling (change of 1°C in heating / cooling reference levels) and the reduction of use of several domestic appliances. The scenario suggests that with the implementation of lifestyle changes, it is possible to reduce the use of BECCS to nearly zero and still reach 1.9 W/m², particularly through strong reduction of non-CO₂ emissions and increased reforestation, as well as additional reduction of CO₂ in sectors that are challenging through efficiency and technological improvements.

Consumption and production

Why achieving the Paris Agreement requires reduced overall consumption and production. (Alfredsson, E. et.al., 2018). [Link.](#)

Technological solutions to the challenge of dangerous climate change are urgent and necessary, but to be effective, they need to be accompanied by reductions in the total level of consumption and production of goods and services. This is for three reasons. First, private consumption and its associated production are among the key drivers of greenhouse-gas (GHG) emissions, especially among highly emitting industrialized economies. There is no evidence that decoupling of the economy from GHG emissions is possible at the scale and speed needed. Second, investments in more sustainable infrastructure, including renewable energy, needed in coming decades will require extensive amounts of energy, largely from fossil sources, which will use up a significant share of the two-degree carbon budget. Third, improving the standard of living of the world's poor will consume a major portion of the available carbon allowance. The scholarly community

has a responsibility to put the issue of consumption and the associated production on the research and policy agenda.

Thematic breakouts pre-reads

Transportation Breakout

The rise of transportation network companies (TNCs) such as Uber, Lyft, Didi and others, is reshaping travel behaviors across population segments, especially among millennials. Research shows that millennials, in particular, are fundamentally shifting the way they think about mobility – less likely to want or own a vehicle and more likely to adopt a variety of new shared mobility services, including motor-scooters, standing scooters and electric bicycles. A study by UC Davis (the first pre-read, summarized below) looks into reasons behind the adoption of these services, as their impacts on the use of other transportation modes and on total travel demand are largely unclear. Similarly, per a second study from UC Davis (the second pre-read, summarized below), the deployment of autonomous-drive vehicles is also expected to have a dramatic impact on travel behavior. Since the technology hasn't matured yet, it is difficult to model and predict the fundamental unknowns related to autonomous-drive impact on travel behavior. UC Davis attempts to anticipate impacts from autonomous-drive vehicles by conducting a study that emulates self-drive environment – uncovering alarming results that show increase in vehicle miles traveled with access to self-driving car.

[The Adoption of Shared Mobility in California and Its Relationship with Other Components of Travel Behavior](#). (UC Davis, 2018). [Link](#).

Key demographics/drivers for adoption and use of ridehailing (i.e., Uber and Lyft) include: (1) Higher-educated older millennials (between 25 and 34, in 2015), (2) Greater land-use mix and more central urban locations, (3) Individuals who live in a zero-vehicle household, (4) Frequent long-distance travelers (by plane, in particular), (5) short waiting time and the easiness to call a car, and lastly (6) difficulty of finding a parking space and the cost of parking.

Aspects that limit people's use of ridesharing are (1) the preference to use one's own vehicle, (2) the concerns about comfort/safety and the cost of the service. Additionally, the use of ridehailing substitutes for some trips that would have otherwise been made by transit or active modes. This substitution effect is stronger among frequent ridehailing users, individuals that live in zero-/low-vehicle households and multimodal travelers. Somewhat concerning from the perspective of environmental sustainability and the promotion of active lifestyles, a larger

proportion of millennials reduced their amount of walking and biking as the result of the use of ridehailing.

Projecting Travelers into a World of Self-Driving Vehicles: Estimating Travel Behavior Implications via a Naturalistic Experiment. (UC Davis, 2018). [Link](#).

The study found: (1) VMT (vehicle miles traveled) increased for 85 percent of the subjects (by amounts ranging from 4 percent to 341 percent), and increased 83 percent overall in the sample. (2) All subjects sent the car off without them either for errands and/or to escort family/friends, which made up 38 percent of the total increase in VMT; 21 percent of the VMT total increase was “zero-occupancy” miles. (3) Activity patterns changed, with people taking more trips (on average 58 percent more), traveling more in the evenings (on average 88 percent more trips after 6 pm), and taking longer trips (on average 91 percent more trips longer than 20 miles). (4) The impact on walking was not clearly directional, with 30 percent of subjects decreasing their walking (on average by 31 percent of miles walked) and 70 percent of subjects increasing their walking (on average by 38 percent of miles walked).

There were also significant differences across the cohorts: (1) The retirees drove the least miles, although they made a higher number of trips (and therefore shorter trips on average), (2) The millennials traveled the most miles, including the most long trips (by a longshot), (3) The families fell in the middle on all measures except for walking, where they were the lowest.

Food Breakout

Shifting Diets for a Sustainable Food Future. (Ranganathan, J. et al., 2016). [Link](#). Full illustrated summary pre-read is [available here](#)

Summary findings: (1) The world needs to close a 70 percent “food gap” between the crop calories available in 2006 and the expected calorie demand in 2050. This gap stems primarily from population growth (expected to reach nearly 10 billion by 2050) and changing diets. As nations urbanize and incomes rise, people diversify their diets and consume more calories and more animal-based foods such as beef, dairy, pork, chicken, eggs and fish. (2) Demand for animal-based foods is expected to rise by 80 percent between 2006 and 2050, with beef specifically increasing by 95 percent. Some of this growth in demand will support health and welfare gains, but much of it will be driven by overconsumption of food. In wealthy countries, protein consumption already greatly exceeds dietary requirements. (3) The large projected growth in demand for animal-based foods poses a challenge to a sustainable food future—in which deforestation is halted and global temperature rise is held well below 2°C—because meat and dairy are resource-intensive. For example, beef production (and production of other

ruminant meats, like lamb and goat) requires 20 times more land and emits 20 times more greenhouse gas emissions per unit of edible protein than common plant-based protein sources such as beans, peas and lentils. Chicken and pork are more resource-efficient than beef, but still require three times more land and emit three times more greenhouse gas emissions than beans. (4) Just shifting diets away from beef reduced per person land use and greenhouse gas emissions by 15 to 35 percent.

The takeaway: while going fully vegetarian/vegan can be a big lifestyle change, smaller diet shifts targeted at the highest-impact foods are more realistic over larger swaths of the population and could likely result in larger overall environmental benefits than trying to convince lots of people to give up meat and/or dairy entirely. (5) We need to move beyond relying solely on information and education to shift diets, and apply the marketing and behavior change strategies the food industry already uses to influence consumer purchasing. Efforts to shift diets in the past have largely depended on information and education, including calling for people to become vegetarian or vegan. These efforts haven't reached scale because they don't work in step with how people purchase and consume food. Instead, we need to engage leaders in the food sector to experiment with new approaches that increase the share of plant-based foods in consumer choices. Experience from more than a dozen successful consumption shifts is captured in the "Shift Wheel." The Shift Wheel comprises four complementary strategies: minimize disruption to consumers, sell a compelling benefit, maximize awareness, and evolve social norms.

Consumption Breakout

Understanding drivers of (Un) Sustainable Lifestyles. (IGES and others, 2018). [Link](#).

This is an illustrated breakdown of sustainable lifestyle drivers including: physical & natural boundaries, socio-technical conditions, personal context, and basic needs and desires. The illustration also presents the attitude-facilitator-infrastructure framework for engendering sustainable consumption and lifestyles.

Eight Tons of Material Footprint—Suggestion for a Resource Cap for Household Consumption in Finland. (Lettenmeier, M. et al., 2014). [Link](#).

The paper suggests a sustainable material footprint of eight tons, per person, in a year as a resource cap target for household consumption in Finland. The paper suggests how to allocate the sustainable material footprint to different consumption components on the basis of earlier household studies, as well as other studies, on the material intensity of products, services, and infrastructures. The targets and approaches are discussed for the consumption components of nutrition, housing, household goods, mobility, leisure activities, and other purposes. The paper

states that a sustainable level of natural resource use by households is achievable and it can be roughly allocated to different consumption components in order to illustrate the need for a change in lifestyles. While the absolute material footprint of all the consumption components will have to decrease, the relative share of nutrition, the most basic human need, in the total material footprint is expected to rise, whereas much smaller shares than at present are proposed for housing and especially mobility.

Bioregional: Capital consumption: the transition to sustainable consumption and production in London. (London Sustainable Development Commission, 2009). [Link](#).

This report models the shifts in consumption and efficiency needed in London by 2050 in order to stay within planetary boundaries and a reduction in London's emissions of 70 percent by 2030 and 90 percent by 2050. This is based on a contraction and convergence model in which by 2050, everyone in the world would be entitled to an equal share of emissions with the aim of atmospheric CO₂ concentrations not exceeding 450ppm: roughly equivalent to two tonnes of CO₂ per person each year. Some examples in the scenario include assumptions that domestic flights are reduced to zero and international flights are reduced by 50 percent by 2050, car ownership reduced by 50 percent reduction in addition to the introduction of electric cars, consumption of electronic goods reduced by 50 percent, luxury foods such as alcohol and sweet consumption reduced by 50 percent, as well as 50 percent reduction of meat consumption and a two-thirds cut in dairy consumption by 2050.