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Written Statement Submitted for the Record to the  
**Senate Education Health and Environmental Affairs Committee**  
For the Hearing on  
**Senate Bill 478: Food Procurement – Greenhouse Gas Emissions**  
February 19, 2020

SUPPORT

*Disclaimer: The opinions expressed herein are our own and do not necessarily reflect the views of The Johns Hopkins University.*

Honorable Chair Pinsky, Vice Chair Kagan, and members of the committee, thank you for the opportunity to submit this statement for the record in support of S.B. 478. We are researchers at the Johns Hopkins Center for a Livable Future, an interdisciplinary academic center focused on food systems and public health. The Center is in the Bloomberg School of Public Health's Department of Environmental Health and Engineering. We have been researching the connections between food and climate change for well over a decade. Our research, policy and practice activities address themes including the climate implications of various diets, wasted food, institutional food procurement, and resilience strategies. Our work laid the foundation for the food emissions tracking in the SIMAP climate accounting platform that is used by over 500 colleges and universities. Recognizing the urgency of climate change and the need for policies that help mitigate the growing portion of greenhouse gases from the food we eat, we support S.B. 478.

Climate change threatens the health of Marylanders and the viability of our food supply. To date, there has been much less attention given to greenhouse gas emissions from food systems activities than from other sectors such as energy. Yet producing, transporting, and disposing of food generates up to thirty percent of global greenhouse gas emissions.<sup>1,2</sup> If we do not address emissions from the food and agricultural sector, we will not be able to achieve emissions reduction targets outlined in the Paris Climate Accord. The United Nations Intergovernmental Panel on Climate Change recognized in two recent scientific reports that, in addition to adopting more sustainable food production practices, shifting the diets of higher-income consumers towards more plant-based foods is a key strategy needed to make sure global warming does not exceed the 1.5 degree (Celsius) warming target of the Paris Agreement.<sup>3,4</sup> Urgent action is

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<sup>1</sup> Vermeulen, S. J., Campbell, B. M., & Ingram, J. S. (2012). Climate change and food systems. *Annual Review of Environment and Resources*, 37.

<sup>2</sup> Garnett, T. (2011). Where are the best opportunities for reducing greenhouse gas emissions in the food system (including the food chain)? *Food Policy*, 36, S23-S32.

<sup>3</sup> Rogelj, J., D. Shindell, K. Jiang, S. Fifita, P. Forster, V. Ginzburg, C. Handa, H. Khesghi, S. Kobayashi, E. Kriegler, L. Mundaca, R. Séférian, and M.V. Vilariño, 2018: Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above

needed to address emissions from our food and agriculture sector, from production to consumption.

Addressing food systems emissions is also an untapped opportunity for significant climate mitigation, providing greater potential emissions reductions than any other sector, according to Project Drawdown's evidence based ranking of 100 solutions to global climate change.<sup>5</sup> This legislation recognizes that the state's food procurement is a point of leverage to reduce emissions associated with food consumption in the state. It is time to add food to the state's efforts to address climate change, including our environmentally preferable purchasing.

The proposed bill would allow government-funded institutions to first track emissions associated with food procurement and to then reduce emissions through both food procurement shifts and reductions in wasted food. Many studies, including our own research,<sup>6</sup> show that a small number of emissions-intensive foods account for the majority of the emissions associated with our diets. Encouraging a shift away from emissions-intensive foods and towards diets that are higher in plant-based proteins, fruits, and vegetables is critical for planetary and human health. In addition, targeting emissions reductions through reducing wasted food in the state would have further impact. The United Nations Sustainable Development Goal 12.3, United States Environmental Protection Agency and U.S. Department of Agriculture all call for cutting wasted food in half by 2030.<sup>7,8</sup> According to estimates by climate scientists, meeting this goal alone can reduce projected food production-related carbon dioxide equivalents (CO<sub>2</sub>e) by 22% (4.5 Gt) in 2050.<sup>9</sup> Thus, emissions reductions through changes in food procurement practices and reductions in wasted food are needed.

In addition to reducing greenhouse gas emissions, incentivizing purchases of plant-based proteins, fruits, and vegetables can benefit our state's public health and economy. For example, dietary patterns with lower greenhouse gas emissions are generally healthier than those with

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pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press.

<sup>4</sup> IPCC, 2019: Summary for Policymakers. In: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.- O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. In press.

<sup>5</sup> Project Drawdown (2017). Summary of Solutions by Overall Rank. Retrieved February 18, 2020 from:

<https://www.drawdown.org/solutions-summary-by-rank>

<sup>6</sup> Kim, B. F., Santo, R. E., Scatterday, A. P., Fry, J. P., Synk, C. M., Cebren, S. R., ... & Nachman, K.E.. (2019). Country-specific dietary shifts to mitigate climate and water crises. *Global Environmental Change*, 101926.

<sup>7</sup> Lipinski, B., O'Connor, C., and Hanson, C. (2016). SDG Target 12.3 on Food Loss and Waste: 2016 Progress Report. Champions 12.3. Retrieved from

[https://champions123.org/wp-content/uploads/2016/09/sdg-target-12-3-progress-report\\_2016.pdf](https://champions123.org/wp-content/uploads/2016/09/sdg-target-12-3-progress-report_2016.pdf)

<sup>8</sup> United States Department of Agriculture (2015). Press release: USDA and EPA join private sector charitable organizations to set nation's first food waste reduction goals. Retrieved from:

<https://www.usda.gov/media/press-releases/2015/09/16/usda-and-epa-join-private-sector-charitable-organizations-set>

<sup>9</sup> Bajželj, B., Richards, K. S., Allwood, J. M., Smith, P., Dennis, J. S., Curmi, E., & Gilligan, C. A. (2014). Importance of food-demand management for climate mitigation. *Nature Climate Change*, 4(10), 924-929.

higher emissions.<sup>10</sup> As public health professionals, we note that high consumption of (emissions-intensive) red and processed meat and low consumption of fruits and vegetables are important risk factors contributing to heart disease, type 2 diabetes, stroke, colorectal cancer, and all-cause mortality.<sup>11,12,13,14</sup> In addition, favoring less emissions-intensive foods can save money. For example, in California, the Oakland Unified School District reduced its purchases of GHG-intensive foods by 30 percent and replaced them with plant-based proteins, fruits, and vegetables. The district saved \$42,000 annually, while reducing its carbon footprint and improving students' diets.

We would also like to highlight that, while some might argue that buying local is the solution to reducing greenhouse gases in our food and agriculture sectors, research has found that changing the types of foods people eat and how those foods are produced is better for the climate than reducing the distances foods travel. Eating local or regional foods may be a worthwhile practice for its social and economic benefits, but should not be relied upon as a major climate mitigation strategy. While choosing local sources for some types of foods can reduce GHG footprints (e.g., fresh berries or fish that would otherwise be shipped on planes), in other cases, local foods that require significant energy inputs to grow during the winter (e.g., tomatoes or lettuce grown in heated greenhouses) can have significant GHG footprints. Moreover, according to one study from the US, the share of foods' greenhouse gas emissions related to transportation are relatively small (11%) compared to those related to production (83%).<sup>15</sup> The study also found that avoiding red meat and dairy one day a week reduces GHG emissions more than eating locally every day.<sup>16</sup>

The work proposed by S.B. 478 is not only important, but feasible. Many other public and private institutions across the U.S have already implemented climate-friendly food procurement policies and tracking. For example, the Good Food Purchasing Program, which incentivizes institutions to track emissions from procurement and purchase more low-emissions foods, has been adopted in Los Angeles, San Francisco, Oakland, Chicago, Washington DC, Cincinnati, Austin and most recently in Boston Public Schools. Other initiatives such as the World Resources Institute's Cool Food Pledge are providing businesses and institutions with the tools and information needed to track and implement emissions reductions through food procurement, and building understanding of key factors in consumer demand. Large public institutions

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<sup>10</sup> Nelson, M.E., Hamm, M.W., Hu, F.B., Abrams, S.A., Griffin, T.S. (2016). Alignment of healthy dietary patterns and environmental sustainability: A systematic review. *Advances in Nutrition*, 7(6), 1005-1025.

<sup>11</sup> Zheng Y, Li Y, Satija A, et al. (2019). Association of changes in red meat consumption with total and cause specific mortality among US women and men: Two prospective cohort studies. *BMJ*, 365, l2110.

<sup>12</sup> Schwingshackl, L., Hoffmann, G., Lampousi, A. M., Knüppel, S., Iqbal, K., Schwedhelm, C., ... & Boeing, H. (2017). Food groups and risk of type 2 diabetes mellitus: a systematic review and meta-analysis of prospective studies. *European Journal of Epidemiology*, 32, 363–375.

<sup>13</sup> Micha, R., Peñalvo, J. L., Cudhea, F., Imamura, F., Rehm, C. D., & Mozaffarian, D. (2017). Association between dietary factors and mortality from heart disease, stroke, and type 2 diabetes in the United States. *Jama*, 317(9), 912-924.

<sup>14</sup> Bouvard, V., Loomis, D., Guyton, K. Z., Grosse, Y., Ghisssassi, F. E., Benbrahim-Tallaa, L., ... & Corpet, D. (2015). Carcinogenicity of consumption of red and processed meat. *The Lancet Oncology*, 16(16), 1599-1600.

<sup>15</sup> Weber, C. L., & Matthews, H. S. (2008). Food-miles and the relative climate impacts of food choices in the United States. *Environmental Science & Technology*, 42(10), 3508-3513.

<sup>16</sup> Weber, C. L., & Matthews, H. S. (2008). Food-miles and the relative climate impacts of food choices in the United States. *Environmental Science & Technology*, 42(10), 3508-3513.

including school systems, universities, hospitals, correctional facilities and senior care residences hold tremendous purchasing power and supply about \$83 billion worth of food each year throughout the country.<sup>17</sup> Identifying low-carbon foods and developing best practices to reduce the state's carbon footprint through procurement is a powerful step that Maryland can take to advance greenhouse gas reduction.

Climate change may be the greatest public health challenge of our time. Addressing what we eat will play a major role in our ability to meet the challenge. S.B. 478 is an important step towards taking action on this critical issue, while also providing opportunities for health and cost-saving benefits to Maryland's public institutions. We applaud the committee for considering this bill.

Sincerely,

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<sup>17</sup> Santo, R. E., & Fitch, C. M. (2019). From Foodservice Management Contracts to US Federal Legislation: Progress and Barriers in Values-Based Food Procurement Policies. In *Institutions as Conscious Food Consumers* (pp. 77-102). Academic Press.