

Letter  
I82

September 25, 2017

Ms. Maggie Soffel  
County of San Diego  
5510 Overland Avenue, Suite 310  
San Diego, CA 92123  
Via Email [CAP@sdcounty.ca.gov](mailto:CAP@sdcounty.ca.gov)

**Subject: Comments on the Draft San Diego County Climate Action Plan**

Dear Ms. Soffel:

It was 1990, when some of the very first discussions began to occur in San Diego about an emerging threat to water quality—storm water pollution and urban runoff. This was a new concept that most governments did not know about or really believe was an issue. There was significant resistance to the idea of polluted runoff but, the more it was investigated, we ultimately learned that this was the largest source of pollution to local waterways and, as a region, we began to take action to address it.

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Likewise, the new County Climate Action Plan (CAP) is a place where another issue needs to be addressed—the climate impacts of consumption of animals for food. The CAP should investigate and address ways to reduce our carbon contribution through increased consumption of, preferably locally grown, plant-based, whole foods.

While the links between diet and GHG emissions is not a topic widely known yet, the science is clear—the climate impact of animal agriculture is a significant generator of carbon emissions and the more people eat a plant-based diet, the lower their carbon footprint. The current draft of the Climate Plan does not include any assessment of actions related to reducing emissions by promotion of a plant-based diet and it should.

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Although diet is an individual choice, promotion of changes to it is not out-of-bounds for a goal and strategy in the CAP. The CAP includes several areas where the county will urge individuals to make different, more climate-friendly choices. The CAP includes goals for residential tree planting and incentives to use rain barrels, so too should the CAP include information on 'climate-friendly diets'.

**The reductions achieved by a plant-based diet could be significant.**

A study cited below demonstrates that plant-based diets result in 0.8 ton/year annual emissions reduction compared to those who frequently eat a meat in their diet. Using this number, if just half of the county's 3.3 million residents reduced their meat and animal product consumption by 50%, it could result in **660,000 tons** annual reduction of GHG emissions. This could significantly boost the reductions needed to meet targets regionally.

**Response to Comment Letter I82**

- Laura Hunter, Escondido**
- Marge Wurgel, San Diego**
- Keith Mescher, San Diego**
- Ron Landsel, Oceanside**
- Herb Zapata, Escondido**
- Mousqa Katawazi, Valley Center**
- Thich Chan Phap Ho, Escondido**
- Ron Forster, Escondido**
- David Solomon, Escondido**
- Julia Katawazi, Valley Center**
- Douglas Anthony, San Diego**
- Joanne Rizza, San Marcos**
- Chris Brickett, San Diego**
- Kimberly Vander Bie, Chula Vista**
- Amy Spintman, Chula Vista**
- Michelle Betbadal, Oceanside**
- Mychael McNeeley, La Mesa**
- Michelle Schmalvogel, Escondido**
- September 25, 2017**

**I82-1** The comment introduces comments that follow. This comment does not address the adequacy of the Draft SEIR and no further response is required. However, the comment will be included in the Final EIR and made available to the decision makers prior to a final decision on the project.

**I82-2** The comment describes benefits of promoting consumption of a plant-based (climate friendly) diet and supporting and increasing local agriculture in reducing GHG emissions. The commenter provides suggestions about ways that the County could incorporate efforts to educate the public regarding plant-based diets into the Live Well Program. Please see the responses to comments I79-5, O19-3, and O19-16.

Although we understand that the CAP is only for the population in the unincorporated areas, that is still close to 500,000 people. **Even a modest goal of 250,000 people reduced their meat consumption by 50% could achieve a 100,000 ton reduction annually.** If just 50% of the unincorporated population participated in Meatless Monday for a year it would result in 28,571 tons of reductions.

Just like our travel habits, water use, waste generation, and activities are assessed and addressed, so should our food consumption and diet be added as a sector and analyzed

**Increases in local and urban produce farming would reduce emissions even more.**

In terms of reducing the carbon footprint of the travel/shipping related to food, the county could have a significant role to play in supporting, and increasing, local agriculture of fruits, plants, and vegetables. An article in the most recent Edible San Diego, Sept/Oct, 2017 issue titled, *The State of Local Farming*, speaks to the challenges of farming and selling produce locally and makes recommendations. We have included some of those recommendations in our recommendations below.

**Scientific Rationale for Reducing GHG Emissions Through Diet**

We have summarized some of the science on this issue but urge the County to do an assessment for our County so that we may set goals, conduct education, and address this important issue.

An increasing number of studies are finding, like the Food and Agriculture Organization of the United Nations did, that raising animals for food is “one of the top two or three most significant contributors to the most serious environmental problems, at every scale from local to global.”

**Effects of livestock industry on climate change and the environment**

An early assessment into the climate impacts of animal agriculture was the 2006 report *Livestock's Long Shadow* by the Food and Agriculture Organization of the United Nations. While it discussed the many environmental impacts associated with animal agriculture, the climate findings are relevant here. The livestock industry is responsible for 18 percent of carbon dioxide equivalents and exceeds the transportation sector.<sup>1</sup> It accounts for nine percent of anthropogenic CO2 emissions, 37 percent of anthropogenic methane emissions, and an astonishing 65 percent of worldwide nitrous-oxide emissions.<sup>2</sup> Nitrous oxide is about 300 times more potent as a greenhouse gas than carbon dioxide.

**How Animal Agriculture Contributes to Climate Change**

<sup>1</sup> Livestock's Long Shadow, p xxxi

<sup>2</sup> Ibid, p.xxxi

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Feeding massive amounts of grain and water to farmed animals and then killing them and processing, transporting, and storing the produce (refrigeration required) is extremely energy-intensive. And forests—which absorb greenhouse gases—are cut down in order to supply pastureland and grow crops for farmed animals. Finally, the animals themselves and all the manure that they produce release even more greenhouse gases into our atmosphere.

**Greenhouse-Gas Emissions:** Carbon dioxide, methane, and nitrous oxide are all powerful greenhouse gases, and together, they cause the vast majority of climate change. Animal agriculture causes significant generation and emission of these gases as discussed below.

**Carbon Dioxide:** Burning fossil fuels (such as oil and gasoline) releases carbon dioxide. Since it takes, on average, about 11 times as much fossil fuel to produce a calorie of animal protein as it does to produce a calorie of grain protein, considerably more carbon dioxide is released. Researchers acknowledge that “it is more ‘climate efficient’ to produce protein from vegetable sources than from animal sources.”

**Methane:** Chickens, turkeys, pigs, and cows who are kept in factory farms each year produce enormous amounts of methane, both while they digest their food and from the acres of waste pools. The U.S. Environmental Protection Agency has shown that animal agriculture is globally the single largest source of methane emissions and that, pound for pound, methane is more than 25 times as effective as carbon dioxide at trapping heat in our atmosphere.

Some analyses claim even higher impacts to climate from animal husbandry. The 2009 *Livestock and Climate Change* report published by the Worldwatch Institute found that the earlier totals understated the GHG emissions from animal agriculture. The authors concluded that a staggering 51 percent or more of global greenhouse-gas emissions are caused by animal agriculture.<sup>3</sup>

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| Uncounted, Overlooked, and Misallocated Livestock-related GHG Emissions |  |                               |
|---|--|-------------------------------|
|   | Annual GHG emissions (CO <sub>2</sub> e)<br>million tons | Percentage of worldwide total |
| FAO estimate  | 7,516  | 11.8                          |
| Uncounted in current GHG inventories:                                   |  |                               |
| 1. Overlooked respiration by livestock                                  | 8,769  | 13.7                          |
| 2. Overlooked land use  | ≥2,672   | ≥4.2                          |
| 3. Undercounted methane   | 5,047  | 7.9                           |
| 4. Other four categories (see text)                                     | ≥5,560   | ≥8.7                          |
| Subtotal  | ≥22,048  | ≥34.5                         |
| Misallocated in current GHG inventories:                                |  |                               |
| 5. Three categories (see text)  | ≥3,000   | ≥4.7                          |
| Total GHGs attributable to livestock products                           | ≥32,564  | ≥51.0                         |

Table<sup>4</sup>

<sup>3</sup> World Watch Livestock and Climate Change, 2009, Robert Goodland and Jeff Anhang, <http://www.worldwatch.org/files/pdf/livestock%20and%20Climate%20Change.pdf>

<sup>4</sup> World Watch Livestock and Climate Change, 2009, Robert Goodland and Jeff Anhang

**Science demonstrates plant-based diets have lower GHG emissions.**

The encouraging news is that plant-based diets can significantly reduce GHG emissions.

An Oxford University study by Peter Scarborough and published in the journal *Climatic Change*, shows that meat-eaters are responsible for almost twice as many dietary greenhouse-gas emissions per day as vegetarians and about two and a half times as many as vegans. The study indicated that the dietary greenhouse-gas emissions among meat-eaters were between 50 and 54 percent higher than those of vegetarians and between 99 and 102 percent higher than those of vegans. In conclusion, dietary GHG emissions in self-selected meat-eaters are approximately twice as high as those in vegans. It is likely that reductions in meat consumption would lead to reductions in dietary GHG emissions.<sup>5</sup> Overall, the study's authors concluded that the production of animal-based foods causes significantly greater greenhouse-gas emissions than the production of plant-based foods.

Many other scientists around the world have reached the same conclusion. A study published in the American Journal of Clinical Nutrition, using the nonvegetarian diet as a reference, the mean reductions in greenhouse gas equivalents for semivegetarian and vegetarian diets were 22% and 29%, respectively.<sup>6</sup>

**Reduced Emissions and Resource Use with Plant-Based Diets.**

Numerous studies document the beneficial role of plant-based diets in reducing greenhouse gas emissions, resource consumption, and environmental degradation. While this area of research is evolving, studies generally find that plant-based foods (with some exceptions) require less energy to produce and generate fewer greenhouse gas emissions than animal foods.

Please find appended to this letter a summary of findings of studies in the *Plant-Based Diets in Climate Change Mitigation and Resources Conservation* by the Academy of Nutrition and Dietetics subcommittee on vegetarian nutrition.

We have listed some of the findings below:

- A Swedish study of 22 foods and their respective energy use and greenhouse gas emissions found that the higher the protein content of the plant-based food, the lower the greenhouse gas emissions and the more energy-efficient the food was. The opposite was true for animal foods.
- A study of 84 common foods in Sweden, the protein delivery efficiency was highest among plant foods while greenhouse gas emissions were lowest. As an example, eating soybeans as the main protein source for a meal generated far fewer

<sup>5</sup> Dietary greenhouse gas emissions of meat-eaters, fish-eaters, vegetarians and vegans in the UK, <https://link.springer.com/content/pdf/10.1007%2Fs10584-014-1169-1.pdf>

<sup>6</sup> American Journal of Clinical Nutrition, Samuel Scret et. Al. <http://ajcn.nutrition.org/content/early/2014/06/04/ajcn.113.071589.short>

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greenhouse gas emissions as measured in carbon dioxide equivalents (0.23 kg) than serving pork (0.94 kg) or beef (3.0 kg), respectively.

- A recent study of several dietary patterns consumed by participants of the EPIC-Oxford study in the United Kingdom (UK) found that eating more than 100 grams (~1/2 cup) of meat daily generated 2.5 times the greenhouse gas emissions as the vegan diet when analyzing for a 2,000 calorie per day intake.
- Using environmental impact indicators such as greenhouse gas emissions, air acidification, and freshwater eutrophication (an excessive amount of anthropogenic-induced nutrients such as nitrogen and phosphate that contributes to conditions such as hypoxia and algal blooms), a recent analysis of the French diet found that the environmental impact was highest for animal products such as meat, fish, eggs, and dairy products.
- Eutrophication and greenhouse gas emissions were highest for ruminants while eutrophication alone was highest for pork, poultry, and eggs. Conversely, starchy foods (grains, beans, potatoes) and fruits and vegetables had the lowest environmental impact.
- An analysis of 61 food categories and their related embodied greenhouse gas emissions in the UK found that meat and dairy products generally had the highest carbon intensities, whereas fruits and vegetables that had not been air-freighted or grown with artificial heat had the lowest emissions.
- Agricultural inputs of water, pesticide, and energy use in the state of California for non-vegetarian diets used 2.9 times the water, 2.5 times more energy, 13 times more fertilizer, and 1.4 times more pesticides than vegetarian diets.
- Agricultural practices within the Mississippi River Basin contribute to the dead zone in the Gulf of Mexico. An important study found that shifting production in the area away from beef and pork to producing a lacto-ovo vegetarian diet or a vegetable protein-based diet could result in impressive reductions in land and chemical use—with the plant-based diet offering the greatest reductions. Such changes could mitigate hypoxia in the Gulf of Mexico dead zone. It should be noted that decreasing animal product consumption does correspond with decreasing greenhouse gas emissions and other benefits to the natural environment.
- Foods of plant origin generally have smaller water footprints than animal products. Milk, eggs, and chicken utilize 1.5 times the water per gram of protein than pulses (dried legumes) while beef uses six times the water.
- Substituting plant-foods such as pulses and nuts for meat would decrease the average U.S. food-related water footprint by 30%.

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**Health and Climate Co-benefits of Plant-Based Diets**

In a study titled, *Analysis and valuation of the health and climate change co-benefits of dietary change*, published in the Proceedings of the National Academy of Sciences, researchers found that the food system is responsible for more than a quarter of all

greenhouse gas emissions while unhealthy diets and high body weight are among the greatest contributors to premature mortality.<sup>7</sup>

They went on to say,

*We project that health and climate change benefits will both be greater the lower the fraction of animal-sourced foods in our diets. Three quarters of all benefits occur in developing countries although the per capita impacts of dietary change would be greatest in developed countries. The monetized value of health improvements could be comparable with, and possibly larger than, the environmental benefits of the avoided damages from climate change.<sup>8</sup>*

In addition, authors stated,

*Transitioning toward more plant-based diets that are in line with standard dietary guidelines could reduce global mortality by 6–10% and food-related greenhouse gas emissions by 29–70% compared with a reference scenario in 2050. We find that the monetized value of the improvements in health would be comparable with, or exceed, the value of the environmental benefits although the exact valuation method used considerably affects the estimated amounts. Overall, we estimate the economic benefits of improving diets to be 1–31 trillion US dollars, which is equivalent to 0.4–1.3% of global gross domestic product (GDP) in 2050.<sup>9</sup>*

Further, they found significant economic benefits to higher rates of plant-based diets in a population.<sup>10</sup>

**More reasons to encourage plant based diets, avoids many co-negatives**

Co-negatives of the livestock industry are rampant land degradation, water waste and pollution, air pollution, and loss of biodiversity. For human health risks of disease and death are lower in plant-based diets as well as are health care costs.

**Recommendations for the Climate Action Plan**

A shift toward, or some say back to, a plant-based food is vital if we are to combat the worst effects of climate change. The good news is that it is very easy to do, cost-effective, better for health, and can be implemented immediately by anyone at any level.

**Policy recommendations**

We recommend that the County investigate this issue, assess the levels of GHG emissions from the diets of population and establish goals to reduce them.

<sup>7</sup> <http://www.pnas.org/content/113/15/4146.abstract>

<sup>8</sup> Ibid, 4146

<sup>9</sup> Ibid, p. 4146

<sup>10</sup> Ibid, p.4149, Figure 2.

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The Climate Action Plan should be amended to include the following measures and actions.

1. The CAP should include a sector analysis and measures to promote plant-based diets. Just like establishing goals for bike and transit commuting, it should quantify goals for the population to eat a plant-based diet. Even a reduction of 50% meat consumption by a portion of the population would yield significant results.
2. The County should jointly initiate a climate and public health campaign to encourage more plant-based, whole foods eating in the region. This type of public health campaign has already been demonstrated to work through anti-smoking campaigns, and may result in savings based solely on the public health burden reduction.
3. The CAP should include commitment to educational materials, workshops on plant-based eating, and promotional events to encourage more plant-based eating.
4. The County's Live Well San Diego initiative should be significantly expanded to include promotion of plant-based diets including a widespread commitment to Meatless Monday.
5. Climate-friendly menus (plant-based) should be served at all County and county sponsored events with educational materials to accompany them.
6. The County should partner with groups like Physicians for Responsible Medicine and evaluate and share materials such as Every Meal Power Plate.<sup>11</sup>
7. The CAP should include measures to create an *Eat a Climate-Friendly Diet* working group and partner with local vegan and plant-based groups and business and spiritual traditions that already eat a plant-based diet.
8. The CAP should include measures to offer tax-incentives to restaurants where 50% or more of the menu offerings are plant based.
9. The CAP should include measures to fully preserve and increase suitable agriculture reserve lands suitable for produce farming and create urban agricultural zones to put vacant parcels into food production in urban areas.
10. The County should partner with organization that support produce farmers and help them sell locally. Groups like San Diego Food System Alliance, California Food Link, and the San Diego New Farmers Guild would be good partners.
11. The County should provide pathways for institutional procurement of local produce that would facilitate investment in local farms and offer farm microloans, tax-incentives, and grants. These should be restricted to produce farming since animal agriculture does not support emissions reductions.
12. The CAP should include requirements or incentives for institutional adoption of a minimum number of fully plant-based meals at government meetings, hospitals, schools, universities etc.
13. The County should encourage and fully support the local Farmer's Markets in the region to promote more consumption of locally grown foods which have the lowest carbon footprint.
14. The CAP should include programs to incentivize food technology industry to develop plant-based and cellular agriculture alternatives to animal products. The

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<sup>11</sup><http://www.pcrm.org/sites/default/files/images/health/pplate/EveryMealPowerPlate.pdf>

county could provide the industry with subsidies and research & development credits.

Through these policy recommendations, San Diego would reduce climate damaging emissions, help stabilize our environment, and support sustainable businesses and our economy.

We urge you to consider this issue seriously and include actions to reduce animal foods and increase plant-based agriculture and diets among San Diego residents in the Climate Action Plan for San Diego County.

It will be better for our environment, our health, and our region. Please contact us at [earthlover@sbcglobal.net](mailto:earthlover@sbcglobal.net) with any questions.

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Sincerely,

Laura Hunter, Escondido  
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