White Paper: Creating a Circular Food System in Durango, CO
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A Sustainable Food Business Incubator
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FORWARD

The signs of climate change and environmental damage are alarming and increasingly visible. Extreme weather events and fires are occurring more often and with higher intensity, and temperatures are continuously rising. In addition, as plastics, and packaging of all kinds grow in volume, there is a corresponding growth in the amount of plastic, styrofoam, and general garbage showing up globally in our oceans and landfills. This has been happening also locally in our neighborhoods, in the Animas River, at parks, and on our trails.

The transition to renewable energies is an important part of the solution to curb the greenhouse gas (GHG) emissions that drive climate change. But we cannot rely exclusively on the increased use of renewable energies as the sole solution. Luckily, a complementary strategy exists that can dramatically reduce and even eliminate both GHG emissions and waste: *Circularity*. A circular food system eliminates the concept of waste and instead food and packaging waste is either composted, turning back into soil or is or upcycled, turning into a new product. Bottom line it never goes to the landfill to off-gas.

The journey toward circularity is one that many industries must take, but the opportunity to create such a system in our local food industry - particularly with

food scrap waste, food and drink packaging, and restaurant "to-go" packaging - merits a closer look. **If food waste and food packaging is composted, this reduces waste,** and helps remove carbon from the atmosphere. It also reduces our reliance on fossil fuel (GHG contributor) based plastics for food and "to- go" packaging. The presence of the food industry in our lives is universal (both locals and tourists contribute), the measures that local stakeholders (business, government, restaurants, and individuals) can take are clear and manageable, and the potential positive LOCAL impact is huge.

A local circular food system not only holds the promise of reducing both carbon and waste; it also drives innovation and even economic growth in our community. This is done through startup, spin-off sustainable food businesses that use food waste as an ingredient in their new products, or new sustainable food packaging and branding businesses.

The possibilities for making our local food system circular are within reach today through private and public partnerships. Composting food packaging is possibly something we can do locally. Composting reduces waste, helps remove carbon from the atmosphere, and reduces our reliance on fossil fuel (GHG contributor) based plastics for food and "to- go" packaging. A unique opportunity now exists for Durango to work with Visit Durango and the Sustainable Tourism Task Force, the City of Durango, local restaurants, farmers, ranchers, individual households, a new startup called Recovery Basin (a reusable container business), and our very own compost facility, *Table to Farm*. Each play a key role in making our local food system circular.

Take a look:

- **Step 1 around the circle:** *Grow our local food sustainably, via organic and regenerative farming* (i.e farming that builds up the soil's capacity to sequester carbon; many of our local farms/ranches are doing this already);
- **Step 2 around the circle:** *Locally compost food scraps at home and at local restaurants* (Table to Farm provides this service now and has the capacity/plan to grow)
- **Step 3 around the circle:** End of Life: *Locally compost food packaging* (i.e. packaging used for farm produce, retail packaging, as well as restaurant "to-go" packaging)
- **Step 4 around the circle (back to step 1):** *Distribute soil and compost* to our local farms and ranches (made from our own home and restaurant

food scraps, as well as compostable food packaging) to help build up our local soils, so they become even larger sources of carbon sequestration

Impacts of a local Circular Food System:

1) A cleaner, more beautiful Durango, created by removing food packaging waste from our community, river, and trails

2) A healthier atmosphere, created by reducing the carbon and methane generated by food waste

3) More water in the ground, improved local soils, more nutrient-dense foods, and a healthier population, created through increased carbon sequestration using local compost

End of life (step 3 around the circle) is where this white paper focuses by asking these questions:

Can compostable food and compostable food packaging actually BE COMPOSTED LOCALLY?

Or can we create a reusable container system to eliminate restaurant "to-go" packaging all together?

Or is some combination of the two more realistic?

PROBLEM STATEMENT

Food and drink packaging waste (i.e. plastic bottles, lids, bags and wrappers, "to go" food containers made from non-biodegradable materials, and miscellaneous trash) are becoming more pervasive in Durango, Colorado, as more and more plastics are produced each year, and our population and tourist populations grow. We are seeing more trash on our streets, in the Animas River, on our trails, in our parks, and in open spaces.

Efforts made by a few environmentally conscious, local restaurants to provide *compostable* "to go" packaging are proving helpful to reduce plastic and

styrofoam waste. However, there is no system in place to actually *compost* the packaging locally, or elsewhere; instead, this "compostable packaging" is either ending up in the landfill, incorrectly sorted into recycling facilities, or contributing to our local, growing trash problem. Furthermore, many products that are labeled as "compostable" are not actually compostable and are instead rated to break down at temperatures that exceed best practices for most compost operations (e.g. 200 degrees F). Understanding what products are actually compostable and communicating this to the public and tourists, is a challenge. When these non-compostable plastic items end up in compost piles, they essentially turn into trash.

PROBLEM BACKGROUND

Local/Landfill Waste

Durango, Colorado has seen so much trash that local Park Rangers have spent up to 60 percent of their time on duty cleaning up trails and open spaces ("Trashed open space", 2019). Zooming out to the state level, six pounds of trash per person, per day were landfilled by some Colorado communities; 6.1 million tons of material was dumped into landfills in Colorado in 2019, 509 million more pounds than in 2018 (Bailey, Katz, & Setzke, 2020).

Plastic Waste

In 2016, the United States produced 42,000,000 tons of plastic waste (286 pounds per person), about 45% more than any other nation in the world (Law et al., 2020). Globally, the world produces 407 million tons of plastic every year. 98% of plastics are made from crude oil, natural gas, or other fossil fuel sources. Decomposition is impossible for most plastics. We drink a coke in 30 seconds, but the bottle lasts for hundreds, if not thousands of years.

The link between plastic waste and climate change is becoming ever more clear. Plastics are now the new coal: consider a report issued last fall by a group called Beyond Plastics (2021), warning that:

"The U.S. plastics industry's contribution to climate change is on track to exceed that of coal-fired power in this country by 2030." It cites dozens of plants

that have recently opened, are under construction, or are in the permitting process. The report also states:

"If they become fully operational, these new plastics plants could release an additional 55 million tons of greenhouse gasses — the equivalent of another 27 average-sized coal plants."

Food Waste

Another issue that has plagued La Plata County is food waste in the trash. According to a 2015 study by the Southwest Colorado Council of Governments, approximately 60% of waste in Durango, Colorado was actually food or other organic matter (37.5% of which is organic waste, and 24.4% of that is recoverable organic waste (food and yard waste) and could have been diverted). When food waste is buried in landfills the organic waste becomes a potent greenhouse gas, methane. Around 25 to 30% of all greenhouse gas emissions come from food production, and 6.7% of global emissions come from food wastage (Crippa et al, 2021; Murdoch, 2017). According to the Food and Agriculture Organization (2017), around 5.4 million square miles were used to produce food that all went to waste; this area is equal to the size of the lower 48 states, some of Canada, and all of Mexico and Central America.

Compostable Packaging

Many kinds of "certified compostable" dinnerware (like Eco Products), offered at some local Durango restaurants are either not home-compostable, or currently not compostable at the local composting facility. Every single piece of this "compostable" packaging is not composted; everything from silverware to soup containers, to dinner clam shells either ends up on the streets of Durango, in landfills, or goes into recycling systems and causes issues with the sorting process. This is emphasized by the fact that all of the Oregon composting facilities signed a letter stating they will NOT accept packages/service ware labeled as "compostable", and neither does our local Table to Farm Compost. Table to Farm Compost has found that many products that are labeled as "compostable" are not actually compostable and are instead rated to break down at temperatures that exceed best practices for most compost operations (e.g. 200 degrees F). When these non-compostable plastic items end up in their

compost piles, they essentially turn into trash. ("A Message from Composters Serving Oregon: Why We Don't Want Compostable Packaging and Serviceware", n.d.).

CARBON SEQUESTRATION OPPORTUNITIES

COMPOST

Composting is not a new concept. In fact, it originates from indigenous farming techniques which emulate how a forest regenerates, year after year. In nature, waste equals food; death and decay allow nutrients to flow from one generation to the next, ensuring that seeds grow and flourish. Additionally, composting food waste stops it from becoming a methane (a greenhouse gas) producer, and instead helps to sequester more atmospheric carbon deep into the ground where it belongs (effectively removing it from the atmosphere).

According to Paul Hawken (2021), a leading environmentalist and sustainability expert, "*if a half-inch layer of compost were applied to only 5 percent of California's nearly 60 million acres of rangeland, it could offset greenhouse gas emissions produced by the state's agriculture and forestry sector for one year*" (p. 105).

To put this into perspective locally, Table to Farm Compost has diverted over 2 million pounds of food scraps into reusable material, which *reduced our area's CO2 emissions by more than 3 million pounds* (2022). Table to Farm Compost was recently upgraded to a Class 3 facility, making them one of only 16 other sites in Colorado with this certification. This means they greatly increased their capacity to receive compost from local restaurants, and the 5,000+ homes in our area. Due to this increase in their capacity to process food waste, they recently signed a contract with the City of Durango to create a city-wide mandate, requiring all residents to compost using their curbside services!

COMPOST'S GLOBAL IMPACT

In 2015, according to Paul Hawken's book *Project Drawdown*, "an estimated 38 percent of food waste was composted in the United States; 57 percent was composted in the European Union. If all lower-income countries reached the

U.S. rate and all higher-income countries achieved the E.U. rate, composting could avoid methane emissions from landfills equivalent to 2.3 gigatons of carbon dioxide by 2050. *That total excludes additional gains from applying compost to soil"* (pg. 63).

RECENT POLICY OPPORTUNITIES

Plastic Bag Ban

In June of 2021, a bill passed which effectively reduced the amount of single-use plastic that will be offered in stores around the entire state of Colorado (C.O. General Assemb.). Between January 1st, 2023 and January 1st, 2024, a 10 cent fee will be charged for paper and plastic bags in many types of businesses. After January 1st, 2024, major convenience, grocery, and liquor stores, plus major retailers, and restaurants will not be allowed to offer plastic bags and required to charge a 10 cent fee for a recycled paper bag (however, a business can give out bags that they previously purchased, before January 1st, 2024). 60 percent of these fees will go to local recycling/composting programs and administrative costs, and the other 40 percent will return to the businesses. The following businesses are exempt: smaller stores with three or fewer locations in Colorado, farmer's and roadside markets, laundry/dry cleaning businesses, pharmacies, and bulk stores.

Styrofoam Ban

Food establishments will also be banned from providing any styrofoam food containers that are purchased after January 1st, 2024 (C.O. General Assemb., 2021). Similarly, to the above sanctions, any stock previously purchased is allowed to be given out to customers. The new bill also repeals a previous bill, which prohibited local governments from banning the use of certain materials; now local municipalities can legally stop some businesses from giving out containers or bags made from certain materials!

LOCAL OPPORTUNITIES

1. LOCAL FOOD WASTE COMPOSTING CAPACITY:

If the entire United States composted their food waste for a year, this would reduce the same amount of emissions as removing 7.8 million cars from the road (US Composting Council, 2008). Table to Farm Compost has just been permitted a Class III Compost Facility, the 16th in the state of Colorado, enabling them to grow significantly. Their 3-5 year goal is to provide service to all Durango residents and restaurants in our community. Currently, about 10 percent of the households in Durango (500+ households), and more than several restaurants are lowering greenhouse gas emissions, contributing to soil health, and supporting our local environment by utilizing Table to Farm's services.

2. REUSABLE AND COMPOSTABLE "TO GO" CONTAINER STARTUP

Portland's GOBox currently provides reusable to-go containers to over 100 food businesses, and over 3,500 individuals, saving 202,000 containers, or 16 tons of trash, from entering the waste system ([GoBox's Impact], 2022). These types of businesses are reducing waste throughout the United States, in colleges, restaurants, homes, grocery stores, and food carts alike! However, some to-go container businesses are set up in a way that can be just as costly for restaurants as their normal containers and use more fuel and water than is necessary; resources are unnecessarily used by employees who travel around collecting and washing the containers.

3. LOCALLY TESTING THE COMPOSTABILITY OF CONTAINERS

As stated, we need to find compostable solutions which can easily be dealt with by our LOCAL waste management systems. We are selecting the ones which fair best in terms of compostability, environmental impact, and cost. Currently Table to Farm is testing packaging from BeGreen Packaging, Futurama, World Centric, Eco Products, and Vegware. The materials used for production of these containers includes sustainably harvested, annually renewable plant substrates, wood pulp, agricultural waste fibers, trees, corn, sugarcane, beets, and cassava.

LOCAL SOLUTIONS: WHAT'S POSSIBLE FOR DURANGO

Based on our extensive research, the best evidence-based solutions to both our local and global plastics, food waste, and garbage problem include:

- replacing single-use, plastic to go packaging at restaurants with compostable and/or reusable and refillable containers and bags

- addressing public health concerns regarding reusable "to go" containers by creating a system where the restaurant owns the reusable containers and provides them to the customer full of food. The customer then brings back the reusable container to a "return station" at a participating restaurant, who then washes the containers in their commercial dishwasher to ensure proper sanitation

- encouraging a "bring your own" water bottle and bag culture locally, and with tourists

- making free water dispensaries available everywhere, to make it easy to fill up your own water bottle: in town, at trail heads, on the river trail, at shopping centers, businesses, etc.

- inspiring an entrepreneurial local food system that includes "upcycling" surplus food, food waste, or bruised foods into new products, such as soups made from rescued produce; turning fruits into powdered-sugar substitutes; using unused bread to replace malted barley in the beer-brewing process; and turning rejected pears, tomatoes, and other produce into ketchups, relishes, and chutneys

- re-carbonizing our local soil through regenerative farming practices, including adding a top layer of locally produced compost onto our agricultural lands, which both builds up soil thickness, and increases soil health, increasing its capacity to sequester carbon, lowering atmospheric carbon levels

- supporting our local restaurants in making the transition to compostable and/or reusable containers by:

    - Buying reusable and/or compostable containers in bulk; a community of restaurants using collective buying power will save food establishments a substantial amount of money, refuting the claim that sustainable solutions are more expensive.

- Inspire a local entrepreneur to create and run an effective reusable container program, to support local restaurants in offering and maintaining the use of these containers for their customers. The reusable container startup would manage the purchasing of the containers, collection systems at participating restaurants, marketing, and a sign-up system (using an app) to streamline the use/payment process, making the transaction between the restaurant and the customer a seamless experience.

- creating a communications plan targeted towards both locals and tourists, inviting them to participate in Durango's sustainability efforts, to remove waste of all kinds from our town, trails, and rivers

Taking all of the above into consideration, Live Creative Studio, Table to Farm Compost, and Inner Joy Energy Bars have identified the following project as a worthy endeavor for our community to embark upon.

PROJECT GOAL

To create a circular food system in Durango, Colorado that serves to divert food waste from the landfill, sequester carbon, and eliminates our packaging waste problem downtown, at trailheads, and in the Animas River. We are committed to creating a simple solution that is scalable, benefits our natural environment and local neighborhoods, as well as supporting local businesses and restaurants.

IDEAL PROJECT PARTNERS

TABLE TO FARM COMPOST

Live Creative Studio, Inner Joy Energy Bars, Visit Durango, City of Durango, Local First.

PILOT RESTAURANTS
Zia Taqueria, Sage, Cream Bean Berry, and The Lively Daikon.

POSSIBLE PROJECT FUNDERS
State and local grants, in-kind contributions, loans, Visit Durango, City of Durango. Local First's Impact Fund.

CONCLUSION

Transforming the human relationship with the Earth is simple: follow her laws, mimic her processes, and become an asset to her regeneration. There is no waste in nature; waste = food in nature.

Durango has the opportunity to emulate nature by creating a zero waste, circular food economy that reduces carbon and methane emissions, builds up our soils, and creates economic resiliency in our community.

NEXT STEPS

- Share white paper with pilot phase restaurants, the City of Durango, the Sustainable Tourism Taskforce, and the local chapter of the Colorado Restaurant Association
- Develop project scope, budget, and timeline
- Secure funding for Phase 1
- Research and test compostable food packaging, and to-go restaurant packaging at Table to Farm Compost's Class III Facility
- Develop a Healthy Soils program and associated funding mechanism (e.g. an optional one percent (1%) surcharge on food and drink establishment bills) to purchase and apply compost to public lands as well as participating farms and ranches
- Determine if compostable packaging can be composted locally
- Determine if a reusable to-go container program could work in Durango
- Share research findings with the community and collect recommendations
- Build project delivery model, budget, and timetable

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