

# ACHIEVING ZERO WASTE IN SAN FRANCISCO: SUCCESSSES AND CHALLENGES

---

## An Interview with Michael J. Sangiacomo

*Michael J. Sangiacomo, Recology President & Chief Executive Officer, leads innovative recycling, composting, and recovery programs in Washington, Oregon, and California. Recology investments and innovation technology have positioned Mr. Sangiacomo as a leading voice on national recycling, composting, and recovery programs. The Journal of International Affairs spoke with Mr. Sangiacomo about various successes and challenges he has encountered in his quest to make San Francisco one of the leading zero waste cities in the world.*

**Journal of International Affairs (JIA):** *Can you give some background on the waste industry in San Francisco (SF)?*

**Michael J. Sangiacomo (MJS):** Garbage companies in San Francisco were started by Italian immigrants, mostly from little hill towns in Northern Italy. They arrived during the gold rush, and began scavenging to make a living, taking what other people threw away and finding ways to reuse, repair, or resell it. As San Francisco grew, the scavengers started formalizing their work of hauling unwanted household and business goods. The process was still very ad hoc at this point. Eventually the individual collectors organized themselves into a group known as the Scavengers Protective Union. That entity developed a productive relationship with the city of San Francisco and established itself as the reliable solution to issues associated with waste. In 1920, the city of San Francisco encouraged the Scavengers Protective Union to form a company. From there, two companies were formed in 1920 and 1921. The city issued an ordinance in 1921 that granted licenses to operate to those companies. This ordinance was amended in 1932 with an agreement that serves as the guiding force by which refuse collection is still regulated in San Francisco today.

**JIA:** *How did Recology become involved with the city of San Francisco in its zero waste goal? How are you helping San Francisco reach zero waste?*

**MJS:** Through the founding ordinance, Recology remains the exclusive service provider for waste collection in SF. We started by salvaging materials like paper, cardboard, bottles, and rags. After World War II consumerism transformed cloth to plastic, material types started to mix, and eventually became more difficult to recover and recycle. In 1989, the state of California passed Assembly Bill 939, requiring all communities to recycle 25 percent of their waste by 1995 and 50 percent by 2000. This 25% goal was based on what SF companies were already achieving. The city of San Francisco started down the path of wanting to do more, and it approached us about zero waste. They told us what they wanted to accomplish, and we told them what we thought was doable and how we planned to get there.

We started by performing a waste characterization, studying the details of the kinds of materials residents and businesses were throwing away. From there, we identified two major components of the waste stream: construction debris and organic matter. We proposed to build a construction waste facility to recover clean wood, gypsum, metals, heavy plastics, and similar recoverable materials. From there, we initiated a composting program.

In 2002, at the city's request, we launched a three-cart collection system and asked every resident and business to separate recyclables, organics, and residuals (material bound for the landfill). In 2004, the city enacted a mandatory recycling ordinance. On the coattails of recycling success, the city passed a mandatory composting ordinance in 2009. In the decade since, we have continued to work together with the City of San Francisco to find innovative solutions on our path to zero waste.

**JIA:** *How do you coordinate with the city and residents to make your zero-waste program so successful?*

**MJS:** Our drivers are our principal connection with customers. They are the most visible representatives of Recology, picking up trash, compost, and recyclables every single day. They talk to customers and develop relationships, supporting our efforts to become a real part of the community. Because our drivers are employee-owners and care about how our company is doing, they are invested in the success of our company, and take pride as owners of this business.

Additionally, we developed an entire division of the company, known as our Waste Zero team, to provide comprehensive education and outreach services to

the public. Waste Zero teams visit schools, community organizations, restaurants, hotels, and businesses to set up and properly manage recycling and composting programs. Each visit is tailored to meet the specific needs of the customer and is performed at no additional cost. Currently, 60 Recology employee owners work as part of company-wide waste zero efforts.

To support San Francisco's diverse neighborhoods, Recology representatives regularly liaise with community members, San Francisco's Department of the Environment, city council members, the Mayor's office, and members of the Board of Supervisors to support the overall health and cleanliness of our streets, and collaborate on strategic initiatives to promote zero waste goals.

The case of Blossom Valley Organics is an appropriate way to discuss our community involvement related to compost facilities. Recology acquired a compost facility in Lamont, California from a prior owner who had developed the site on publicly owned land. Relationships between the operator and the community had become toxic, and eventually led the owner to offer the facility for sale. Upon purchase of the facility, Recology took the opportunity to meet with the community, understand the issues at hand, and work together to find solutions. Recology addressed concerns one by one, ranging from odor to air quality concerns and litter issues. Environmental practices were upgraded, as were worker health and safety matters.

Recology voluntarily entered into a Good Neighbor Agreement with the community, which provided direct financial support, including explicit efforts to hire from within the community and annual compost donations to local gardens. In less than five years, we have gained the respect of this community such that, at a recent county Planning Commission meeting, the neighbors appeared to support our requested permit application. Recology employees working at this facility are now participants in the Recology Employee Stock Ownership Plan. Overall, our company is an integral part of the fabric of San Francisco. We think people are happy with a homegrown, employee-owned recycling and waste company focused on taking care of the environment.

**JIA:** *China recently stopped accepting certain materials for recycling, increasing the cost of recycling for different towns and municipalities throughout the US. How do you see that affecting your operations and SF's work? What does this all mean for the future of recycling?*

**MJS:** China began implementing their policy, known as National Sword, in early 2018. Once in effect, the market for recyclables dropped precipitously.

For context, when a lot of US communities started comprehensive recycling programs in the early 2000s, China was an interested buyer and was willing to pay more than most domestic users. As a result, the little infrastructure that existed in

the US disappeared. Now, after National Sword, we are seeing the pendulum slowly swing back to domestic processing options. For example, there are some paper mills beginning to reopen in the Pacific Northwest. To adapt to these new market conditions, however, we have had to find other places in the world that will take our products and find a way to cope with significantly decreased prices.

China's National Sword policy specifically targeted the purity of global waste-paper. Historically we had shipped bales of paper to China with five to eight percent contamination. Contamination is characterized as any material outside of the baled commodity. For baled paper, plastic film—plastic bags and similar thin plastics—makes up the majority of that contamination. China's National Sword policy changed those standards, accepting nothing over a 0.5 percent contamination rate. Over the last three years, we have invested almost \$20 million in upgrading our recycling facility in San Francisco. We have added optical sorting devices and robotic arms powered with artificial intelligence to recognize certain materials. While many US recyclers continue to struggle to meet these new standards, our investments in state-of-the-art sorting technology have allowed us to meet necessary contamination thresholds, and sell our product to Taiwan, India, Korea, Mexico, Indonesia, and Malaysia.

In addition to the operational changes needed to adjust to new market standards, we also believe that policy has a role to play in the future of recycling. Over the past year, we have been vocal on issues we believe are important for environmental protection, challenging the plastics industry to be better stewards of the products they create. Our efforts center around finding ways to make consumer packaging products more recyclable, and to create a market for these materials that currently have no value after their single use.

*JIA: Oftentimes, these new countries that are accepting waste—such as Indonesia and Malaysia—do not have the infrastructure to adequately deal with waste.*

**MJS:** China's National Sword policy restricting the import of recyclable materials resulted in a reallocation of these materials to other countries and created a saturated market for processing commodities responsibly. As a result, many recyclers have turned to landfilling potentially recyclable materials, a process that fails to recover valuable resources and one that produces harmful greenhouse gases and contributes to climate change.

Recology continually seeks market opportunities to partner with recyclers across the globe to avoid landfilling. In fact, we recently visited a number of facilities in Asia where some of our plastics materials have been sold to verify the in-country recycling practices.

The bottom line is that more investment in domestic recycling and recovery infrastructure is needed. Our policy efforts in the state of California seek to create a more robust market for recyclable materials by mandating recycled content in many consumer-packaged goods, and eliminating those plastic products that provide no feasible options for closing the loop.

A quick story about other drivers to improve recycling infrastructure. Years ago, we bought an old dump facility in Denver. I watched while someone was digging a trench and spotted a half-eaten hot dog. I wondered how old it was and picked up an old newspaper that was next to the hot dog, that probably went into the ground the same day. That newspaper was 35 years old. You put that stuff in an engineered landfill, you can go back a thousand years and it will still be there. Does that make sense? Is that the best we can do?

With all we have done to create more opportunities for recycling, plastics remain a problem. We work with local legislators to try and get bills enacted. For example, we introduced the same bill in both the State Senate and the State Assembly that would require ten of the most common food service packages to be made from 75 percent recycled content by 2030. The bill failed to get out of assembly. There are a number of other bills in the works, like banning hotels from having tiny shampoo bottles. Bans on plastic straws and bags are nice, but they are a one-off.

An industry that creates a product that never goes away but causes environmental harm needs to be responsible. When plastic gets into the environment and breaks down, there are many effects. It goes into the ocean and fish eat it. Plastic breaks down into nanoparticles that we drink in our water and eat in our food. They are so small that our sewage treatment plants can't capture the particles and they go out into our oceans and bays. That material gets taken up by the rain clouds, which pour it back down to Earth. There are nanoparticles of plastics in remote parts of Alaska where there are no people. We are breathing it because the particles are so fine. There are scary health issues that are not publicly addressed yet, and the industry needs to be responsible.

I believe in the free market system, that people should run businesses and not have much government interference, but when businesses aren't responsible for what they have done, that is when the government needs to step in and stop that behavior. That is the only reason we supported plastic ban bills in California. The government needs to protect the rights and the health of people from actions of others who are not responsible.

**JIA:** *What do you see as next steps in terms of recycling and diversion?*

**MJS:** There are so many opportunities to increase recycling and diversion. We need

to encourage more individuals and communities to recycle and compost. Part of that encouragement comes from a robust education effort on both the environmental and economic benefits these activities offer. Access to local processing infrastructure is a critical part of scaling the success we have had in San Francisco to other communities, especially when we start to consider more suburban and rural areas. If we agree it is important to compost to sequester carbon, keep methane-emitting organic material out of landfills, and provide nutrient rich fertilizers to local gardens and farms, we need to build compost operations that create local opportunities and do so in a manner that is respectful to the needs and issues of the community.

Supporting efforts to create domestic markets for recycled commodities will also help us close the loop and foster the economic advantages of processing our materials locally. If we need paper products in the United State, and we have the appropriate feedstock (recycled paper) to fuel the production of new paper, why can't we work with the paper industry to incentivize local production? We need to leverage innovative technologies like artificial intelligence to build facilities that are affordable and minimize labor for routine tasks, putting people to work doing tasks that are more fulfilling.

Hopefully we have learned our lesson that places like China might take material we do not want for a while, but that will not last forever. There is no magical "away" where this stuff goes. If we produce it, we need to be responsible for the impact it ultimately has on us. The ability of the plastics industry to reap profits from the sale of products but make the cost of cleaning up after them everyone else's problem is unconscionable. The issues with plastic are similar to the environmental pollution that were the subjects of the Clean Air and Clean Water Acts, as well as the targets of many EPA investigations. Public reaction to the polluting impacts of plastic, I believe, will someday mirror what happened to the tobacco industry. The sooner the better. ♣

Copyright of Journal of International Affairs is the property of Journal of International Affairs and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.