SAN FRANCISCO, USA

Creating a Culture of Zero Waste

By Virali Gokaldas

Advertisement for composting on a San Francisco bus. (photo: Larry Strong, courtesy Recology)

San Francisco has established itself as a global leader in waste management. The city has achieved 77 percent waste diversion, the highest in the United States, with a three-pronged approach: enacting strong waste reduction legislation, partnering with a like-minded waste management company to innovate new programs, and working to create a culture of recycling and composting through incentives and outreach.

SAN FRANCISCO

State of California

Population: 805,235

Area: 121 km^2

Population density: 6,633/km^2

Average annual rainfall: 518.16 mm

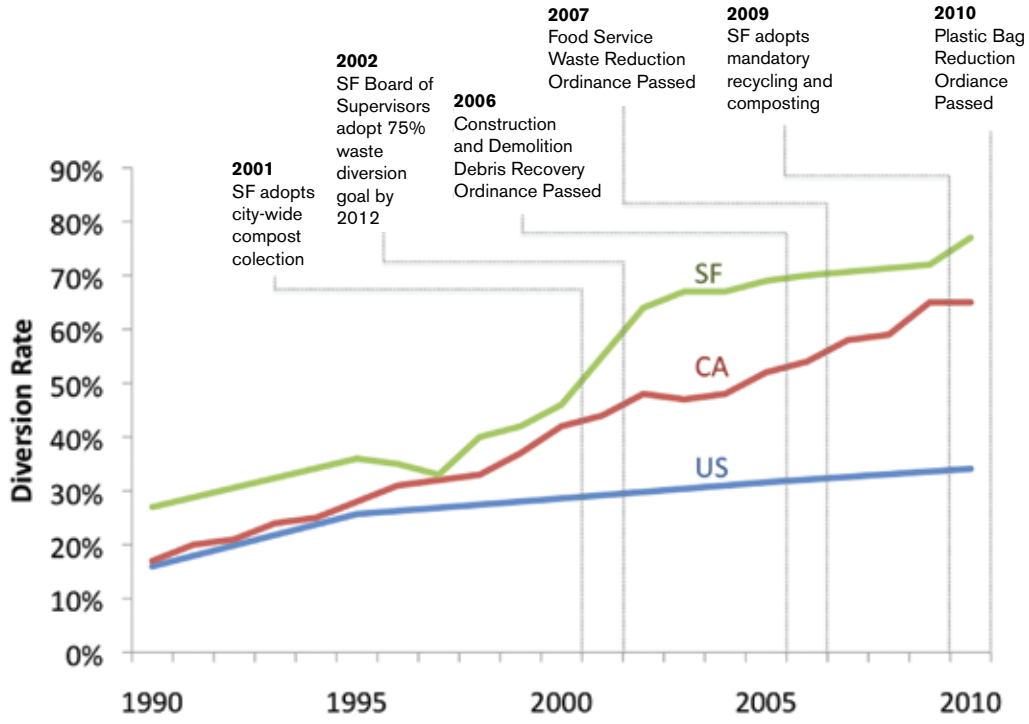
Average temperature range: 8°C to 21°C

Altitude: 16 meters above sea level

Waste diversion rate: 77%

Waste generation: 1.7 kg/capita/day

Figure 1. San Francisco Waste Legislation and Diversion Rates



Source: Adapted from San Francisco Planning and Urban Research Association, 2010.

The City and County of San Francisco is small for a major metropolitan area: only 127 km^2 houses 805,235 residents and hosts 1.3 million daytime workers. The population is highly diverse, and 1 in 2 residents do not speak English at home. About half of residents live in small multi-family dwellings, with a third owning their homes.

The city's waste is regulated primarily by the San Francisco Department of Public Works and Public Health. The Department of Environment (SFE) is responsible for reaching the city's zero waste goals. SFE works closely with Recology, the private waste management partner with a union workforce that collects, recycles, and disposes of all commercial and residential waste in the city. SFE's Zero Waste team focuses on outreach, implementation of city-mandated recycling programs in sectors, and advancing waste reduction policy at the local and state level.

Building upon Legislative Successes

San Francisco's zero waste journey began with enactment of a state law in 1989, the Integrated Waste Management Act. The law required cities and counties to divert 25 percent of municipal solid waste by 1995 and 50 percent by 2000. Over the last two decades, San Francisco built upon this requirement by passing several successive ordinances that targeted additional areas of the waste stream.

In 2002, the city set an ambitious goal to achieve zero waste to disposal by 2020. Since then, legislation has pushed the city, residents, and businesses to increase their recycling rates. These waste reduction laws include the Construction and Demolition Debris Recovery Ordinance of 2006 and the Food Service Waste Reduction Ordinance of 2007, which requires restaurants to use compostable or recyclable take-out containers. **In 2009, after residents and businesses became accustomed**

San Francisco waste pickers in the early 1900s.
(photo: courtesy Recology)

to voluntary composting, San Francisco passed a landmark law that *mandated* recycling and composting for all residents and businesses. Most recently, the city passed an ordinance requiring all retail stores to provide compostable, recycled, or recyclable bags starting October 2012. All of these laws have been timed so that the necessary infrastructure is available, and participants are given support, tools, and education. The legislation also empowers SFE to roll out programs to every home and business and enforce rules as needed.

One reason for the continued engagement on zero waste is a citizen base that demands a political commitment to environmental sustainability. San Francisco has activated and empowered civic leaders, including advocates from the environmental field. For example, the Commission on the Environment, a seven-member group that advises the Board of Supervisors, includes an environmental attorney and eco-educator. This group highlights cutting-edge research on environmental issues, and spearheads resolutions and ordinances that then go on to the mayor and Board of Supervisors for a vote. The Board of Supervisors, in turn, reflects the environmental ethics of its residents and regularly approves environmental legislation.

Another driver for passing these waste reduction laws is the cost associated with landfilling at the Altamont Landfill in Livermore, 82 km away, where San Francisco hauls its waste daily. The city, which does not own its own landfill, contracted with Waste Management for capacity at Altamont in 1987. The contract allows for 65 years of capacity or 15 million tons of capacity, whichever arrives first. At a rate of 1,800 tons daily, the city expects to hit its capacity limit by 2015 or, based on newer diversion figures, by 2016. In anticipation, San Francisco just awarded its next waste disposal contract to Recology, at a new landfill in Yuba County, under similar terms: 10 years or five million tons of capacity, whichever comes first. Hence, increased diversion and hitting zero waste goals will continue to create real savings in landfill costs.

Partnering with a Local Company Yields Inventive Programs

Along with laws obliging residents and businesses to reduce their waste and source separate, San Francisco has developed a robust collection and pricing scheme with its waste-hauling partner, Recology, to complement these efforts. The relationship with Recology dates back to the early 1900's when waste collection was an informal sector activity. Following the earthquake in 1906, the waste pickers created loose federations to compete better. Two companies emerged in the 1920's: Scavengers Protective Association and Sunset Scavenger Company. At the same time, the city began regulating the industry and awarded these two companies exclusive refuse collection licenses in 1932. Each company developed unique and complementary expertise—one in densely packed downtown San Francisco, and the other in outlying residential districts. These companies eventually merged to form Recology, now the sole waste collector in San Francisco.

Over time, the city and Recology have developed a symbiotic relationship. San Francisco conducts oversight, policy development, outreach, and research on technology and best practices, while Recology creates, tests, and runs infrastructure to collect and process trash, recyclables, and compostables. Even though the company has an exclusive right to collect under the 1932 Ordinance, and there is no contract, San Francisco maintains influence over Recology's activities primarily through a rate-setting process that occurs every five years. The city also meets with Recology weekly to discuss any outstanding issues and next steps for programs.

One outcome of this collaboration is San Francisco's current recycling system, the Fantastic 3. **Started in 1999, the Fantastic 3 program uses black, blue, and green carts for trash, recycling, and composting, respectively.** Fully rolled out in 2003, businesses and residences segregate waste at the source, and double-chambered back-loading trucks pick up the trash and recycling bins. Smaller side-loading trucks pick up compostables. The Fantastic 3 program was one of the first in the United States to scale up collection and composting of biodegradable waste.

Garbage and recycling collection rates are structured to incentivize recycling and composting for both Recology and its customers. All customers pay a minimum collection service fee to Recology, plus additional fees based on the volume of garbage they create. For residents, Recology provides recycling and composting services at no additional cost. For businesses, these services are discounted up to 75 percent of trash services to encourage businesses to cut down on the more expensive garbage fee. With this strategy, Recology profits in two ways: first it retains the revenue it receives from recycling and composting services, as well as final sale of recyclables and compost; second, it receives up to a US $2 million bonus based on exceeding company-wide diversion goals and reducing city-wide disposal. To help meet goals and increase the value of diverted materials, the company has invested heavily in recycling infrastructure, including mixed-recyclables materials recovery facilities (MRF) and several regional composting sites. Notably, it has also developed a market for compost that goes to local farms and gardeners, thereby improving its own return and closing the loop.

Also noteworthy is that San Francisco has a thriving informal recycling sector, thanks to the statewide bottle bill that places a 5 or 10 cent value on glass and plastic bottles and over 20 recycling centers in the city where residents or collectors can redeem them. The city has a small population of people who make a living collecting cardboard, metal, and e-waste which have higher value markets because of environmentally preferable purchasing rules for state agencies, state laws requiring post-consumer recycled content, and access to robust domestic and international markets.

Composting poster for an apartment building.

Another benefit of the longstanding relationship with Recology is that the city and company both value local hiring and well-paying, union jobs. The agreement between Recology and the Port of San Francisco for leasing land at Pier 96 includes a first-source hiring provision. This requires Recology to fill entry-level jobs first with San Francisco's Workforce Development System, so that these jobs go to economically disadvantaged people from the city. The jobs are well paying, with a starting rate of US $20/hour compared to the city minimum wage of US $10.24/hour. The city also requires that Recology provide health benefits for workers. For its part, Recology prides itself on employee well-being and ownership; employees bought out the company in 1986 and started an employee stock options plan. Out of 2,500 employees, approximately 80% own shares in the company. Recology drivers and recycling sorters are represented by the Teamsters union.

Shifting to a Culture of Zero Waste

The city of San Francisco has been extremely successful in altering the minds, habits, and culture of its citizens to accept the goal of zero waste. In the US, this is no easy feat, especially given negative perceptions related to food scraps and wet waste in general. In March 2012, the city marked its millionth ton of organic waste turned into compost. Milestones and metrics like these have been essential to creating the story of zero waste.

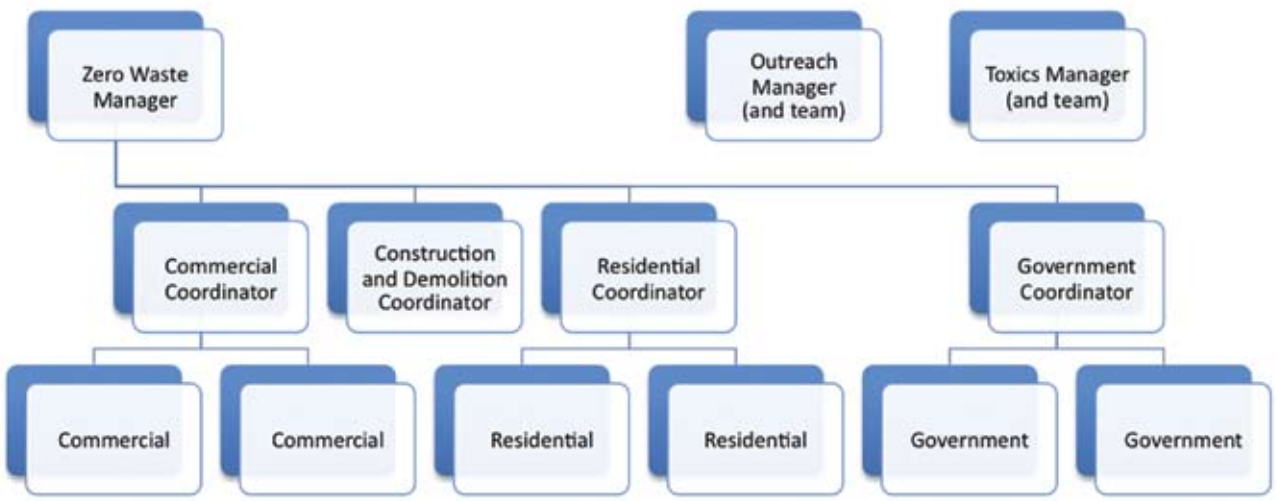
The city's Zero Waste division is comprised of 11 employees, assigned to different waste segments. The program has one manager, four experts in commercial waste, three in residential waste, and three focused on the city government (see chart below). In addition, there are several people focused on toxics reduction in a different program, as well as a separate Outreach division. These 11 positions are responsible for all strategies, programs, policies, and incentives to reach zero waste.

For the commercial sector, one position is focused on construction and demolition waste, working with builders and contractors to deconstruct and recycle building materials at Recology's MRF in San Francisco. Two positions work to help companies fully adopt the Fantastic 3 program and ensure they are in compliance with San Francisco's mandatory recycling and composting law. **Out of 18,000 to 20,000 commercial accounts, approximately 80 percent of companies were separating their organics by 2012**; SFE's focus is now the remaining 20 percent. The last commercial role is focused on policy initiatives such as Extended Producer Responsibility, statewide legislation, or ballot measures.

In the residential sector, all buildings with fewer than six units separate their organics for collection, as do most of the large-scale multi-family dwellings (7,200

The blending pad at Jepson Prairie Organics, a modern compost facility used by San Francisco. (photo: Larry Strong, courtesy of Recology)

Figure 2. San Francisco's Department of Environment Zero Waste Division



Source: San Francisco Department of the Environment.

of 9,000). The city is now focusing on the remaining 1,800 buildings of six or more units that may not be composting, estimated to be 20 percent of buildings in San Francisco. This includes public housing, single-room occupancy residences, and rent-subsidized buildings.

One goal is for city government, which produces 15 percent of the city's waste stream, to lead by example. For this reason, three people are primarily focused on government waste reduction and management. To help reduce waste, an online virtual warehouse facilitates exchange of surplus supplies among city agencies. It also aids the city in green purchasing.

In addition to the small Zero Waste team, there are separate outreach programs within SFE, employing 20 environmental advocates. Most of these positions come from Environment Now, an annual green job training program run by SFE. Participants in the Environment Now program come from all over San Francisco, particularly underserved communities of color. These city employees conduct outreach activities on behalf of all the programs at SFE, including Energy Efficiency, Renewables, Toxics Reduction, Clean Air, and Urban Forestry and Gardening. Because they hail from these areas themselves, the advocates are able to reach traditionally hard-to-reach audiences and improve community participation in environmental initiatives. For the Zero Waste Program, outreach occurs after program rollout, to help create recycling and composting habits once the infrastructure is in place.

Part of the success of SFE can be credited to consistent funding—not from the city, but directly from the rates paid for garbage collection. The overall budget for the Zero Waste Program is approximately US $7 million annually. These funds come out of an account Recology pays into regularly from its collection revenues.

Future Goals and Zero Waste

San Francisco landfilled 15 percent less in 2010 than it did in 2009. More astounding, its disposal in 2010 was approximately half what it was in 2000. In 2010, San Franciscans each generated 1.7 kg of waste, 77 percent of which was recycled. The city estimates that of the remaining 23 percent another 75 percent is recyclable, which would bring the recycling rate up to 90 percent. The city is close to ensuring full

Recology truck with advertising. (photo: Recology)

adoption of the Fantastic 3 program; it has taken two decades for a behavioral and cultural shift to occur across the city. While SFE goes after adoption by the last 20 percent of larger multi-family dwellings and businesses, it is also setting its sights on a new plant to sort the garbage itself. A low temperature, mechanical/biological separation plant, possibly with anaerobic digestion, would allow sorters to pull apart bags of garbage and recover smaller parts of the waste stream. Ideally, this would be in place before the zero waste deadline of 2020.

Through a unique synthesis of regulation, a long-term partnership, and engaged outreach, San Francisco is creating a model zero waste program.

Sources:

Press release. City and County of San Francisco. August 30, 2010. http://www5.sfgov.org/sf_news/2010/08/san-francisco-achieves-77-landfill-diversion-rate-the-highest-of-any-us-city.html.

Solid Waste Management in the World's Cities Water and Sanitation in the World's Cities. United Nations Human Settlements Programme. 2010. http://books.google.com/books?id=5BuKI8Zeh-wC&source=gbs_navlinks_s.

Recology Websites.

a. www.sfcollectionrates.com/overview.php.
b. www.sfcollectionrates.com/residential_rates.php.
c. www.recology.com/profile/history.htm.
d. www.recologymedia.com/press_room/index.php.

San Francisco Commission on the Environment Annual Report. 2011. http://sfpl.org/pdf/libraries/main/gic/annual-reports/environment_2011.pdf.

EPA 2012. http://zwbraintrustdatabeta.wordpress.com/lessons/san-francisco/.

Interview with Robert Haley, Zero Waste Manager at San Francisco Department of the Environment. May 3, 2012.

M. Lomele. Letter to Department of Labor, February 8, 2011. http://www.dol.gov/ebsa/pdf/1210-AB32-198.pdf.

Ojea, Pauli. "The Zero Waste Economy in SF: Building a Greener More Equitable Future." SF Department of the Environment. 2012.

Phelan, Sarah. “Trash Talk” San Francisco Bay Guardian. March 30, 2010. http://www.sfbg.com/2010/03/30/trash-talk?page=0,0.

No on A Website. http://keepSFgreen.com/?gclid=CInD9Pvm8K8CFaUZQgodnyV2Vw.

Phelan, Sarah. “Tale of Two Landfills.” June 15, 2010. http://www.sfbg.com/2010/06/15/tale-two-landfills.

Eberlein, Sven. “Where No City Has Gone Before: San Francisco Will Be World’s First Zero-Waste Town by 2020.” Alternet. April 18, 2012. http://www.alternet.org/visions/155039/where_no_city_has_gone_before%3A_san_francisco_will_be_world’s_first_zero-waste_town_by_2020.

Environment Now website: http://www.sfenvironment.org/article/building-a-green-workforce-environment-now/about-environment-now-0.

Tam, Laura. “Toward Zero Waste.” San Francisco Planning and Urban Research Association. February 2010. http://www.spur.org/publications/library/article/toward_zero_waste.

Kielty, Alexa. “San Francisco’s Food Composting Program.” SF Department of the Environment. 2006.

BART Ad for Compost. http://www.flickr.com/photos/anthonylibrarian/2664296141/in/photostream/.

Ferry, David. “The Urban Quest for Zero Waste.” Wall Street Journal. September 12, 2011. http://www.recologymedia.com/press_room/articles/pdf/2011/Urban_Quest_for_Zero_Waste.pdf.

Julie Bryant, Kevin Drew, Robert Haley, and Jack Macy. “The Story of Zero Waste.” Resource Recycling. August 2011. http://www.recologymedia.com/press_room/articles/pdf/2011/Story_of_Zero_Waste.pdf.

Californians Against Waste. http://www.cawrecycles.org/.

Global Alliance for Incinerator Alternatives
Global Anti-Incinerator Alliance

www.no-burn.org
June 2012

This case study was originally published as part of On the Road to Zero Waste: Successes and Lessons from around the World (GAIA, 2012). On the Road profiles nine diverse communities, each providing a real-world example of authentic progress toward the goal of zero waste. None has yet achieved this goal, and a few still employ practices that are incompatible with zero waste, such as incineration. Nonetheless, each community has achieved considerable success with one or more elements of zero waste and has something to teach us. For more case studies, visit: www.no-burn.org/ZWcasestudies.