

ALAMINOS, PHILIPPINES

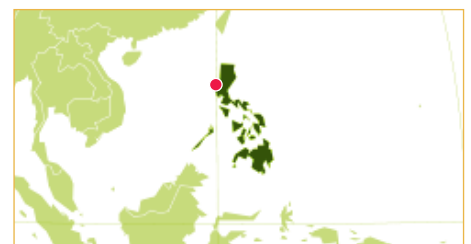
Zero Waste, from Dream to Reality

By Anne Larracas



Eco-shed, composting garden, and collection vehicle of Barangay Sta. Maria, Alaminos. (photo: Anne Larracas)

Alaminos is at the forefront of implementing the Philippines' decentralized waste management law. Through an NGO partnership, village leadership has established comprehensive zero waste strategies, including backyard and village-level composting, source separation programs, and small-scale sorting facilities. As a result, open burning and dumping have virtually ended, and informal sector recyclers are recovering more materials, under better conditions, and selling them for better prices than before. All this was made possible by a bottom-up planning process that brought together local officials and stakeholders to generate zero waste plans at the village level.



ALAMINOS

Pangasinan province

Population: 84,000

Area: 166.23 km²

Population: 84,000

Population density: 505/km²

Average annual rainfall: 2,751 mm

Altitude: 0-20 meters above sea level

Average temperature range: 22°C to 32°C

Waste generation: 0.3 kg/capita/day

Alaminos is home to the most popular tourist destination in the province and the first national park in the country, Hundred Islands National Park. Widely known for its beautiful beaches and abundant wildlife, the park attracts more than 160,000 visitors a year and generates hundreds of jobs and millions of Philippine pesos in revenue for the city.

As with other local government units (LGU) in the country, Alaminos City is divided into *barangays* or villages, of which there are 39. Each *barangay* is headed by a publicly-elected council led by a *Punong Barangay* or village chief. Among many things, *barangay* leaders participate in local planning and governance for the city and the *barangay*, and are in charge of passing and enforcing laws, especially those pertaining to waste management.

Traditionally, the majority of the waste produced in Alaminos has consisted of biodegradable or compostable materials but, as is typical for a fast-developing city, non-biodegradable packaging and products have become a part of everyday life. In recent years, the proliferation and disposal of non-recyclable products have increasingly become more problematic, especially in Alaminos' coastal areas where they threaten marine life and spoil the natural beauty of the city. Tourists to the Hundred Islands also contribute by bringing in and disposing of plastic packaging.



Burning of agriculture waste was a common sight in Alaminos during harvest season. (photo: Anne Larracas)

Waste management in the Philippines is covered by a 2000 law popularly known as Republic Act 9003. Before its passage, waste was managed almost wholly by municipal governments that typically would haul mixed waste to a central dumpsite. Under the new law, the public and all levels of government share responsibility for managing waste, with the biggest tasks—ensuring segregation, composting, proper collection and storage, and building infrastructure—resting with *barangay* officials.

Specifically, RA 9003 stipulates that all LGUs should have and implement a comprehensive solid waste management plan for the “safe and sanitary management of solid waste generated in areas under its geographic and political coverage.” **It also mandates the construction of a materials recovery facility in each *barangay*, segregation at source, *barangay* and municipal composting, and 100% *barangay*-led segregated collection. It outlaws mixed waste collection and open burning as well as uncontrolled and semi-controlled dumpsites.**

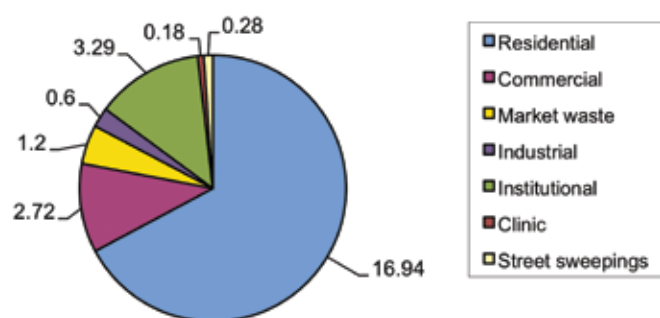
Situation on the Ground

However, by 2009 waste management programs at the *barangay* level in Alaminos, as in most of the country, were non-existent. Attempting to make the *barangays* conform to RA 9003, the city first encouraged and later mandated that the *barangays* take more responsibility for waste management. Neither approach was effective. Alaminos was still maintaining a central dumpsite; waste was collected daily by the city, but in only 14 of the 39 *barangays*. The remaining villages had to deal with their own waste, which led to widespread open burning and dumping. Households did not practice waste separation, and mixed waste collection was still commonly practiced. The city had built a materials recovery facility in 2004, but for years it was under-utilized due to lack of a

comprehensive waste management plan.

A survey done by the city classified the waste into three streams: biodegradable, non-biodegradable, and residual. Biodegradable waste, roughly two-thirds of the total, consisted of kitchen and garden waste, animal waste, and human waste. A small non-biodegradable stream was comprised of metal, glass, rubber, dry papers/cartons, cloth, dry leather/feathers, and recyclable plastic. The remaining third was residual waste including sanitary napkins, plastic bags, ceramics, composite packaging such as Tetra Paks, and candy wrappers. The total volume of waste generated in the city (25 tons per day) mostly came from residences, as shown in Figure 1, and was projected to increase 1% each year. In order to implement RA 9003, clearly the citizens of Alaminos City would need to be active participants.

Figure 1. Sources of Waste Generated in Alaminos (tons per day)



Note: Actual 2004 figures.

Source: Alaminos 10-year Solid Waste Management Plan Draft

To address the growing volume of waste, the city planned to take out a bank loan to invest in a waste conversion facility that would transform solid waste into hollow building blocks and compost. The facility was projected to cost ₱26 million (US \$605,000). The technology was untested however, and many believed that it was unwise for the city to invest a substantial amount in an unproven technology, particularly one that promoted centralized collection.

The Birth of a Zero Waste City

In August 2009, the Global Alliance for Incinerator Alternatives (GAIA) proposed a partnership with the city government. The Zero Waste Alaminos project was born the following month. GAIA provided one staff member for the project team, as well as training in zero waste in the form of skillshares, meetings, technical information, assistance in strategic planning, and support to *barangay* leaders as they drafted their own waste management plans. GAIA also provided financial support (for printing educational materials, buying shredders for organics and plastics, awarding mini-grants for barangays to build eco-sheds or purchase vehicles, etc.). The city provided two full-time employees for the project team, transportation for the team and trainers, logistical support for all activities and trainings, technical assistance, and support in strategic planning for the *barangays*. A fourth team member was recruited from Mother Earth Foundation (a GAIA member) to serve as a consultant for all the *barangay* technical consultations.

After two years, ten *barangays* had achieved and five were close to achieving full compliance with RA 9003, and many of the other *barangays* were well on their way.

Intervention and Strategies

To begin, a comprehensive survey was administered to assess and record the existing waste management practices throughout Alaminos. Team members travelled to all 39 *barangays* where they interviewed *Punong Barangay* (village chiefs) and documented what they saw.

Workshops were held to begin conversations among leaders at the *barangay* level about waste segregation and collection, composting, the RA 9003 law, the components of the Zero Waste Alaminos project, planning, etc. Each *barangay* sent three

representatives; city officials, including all department heads, were also in attendance, as was the project team.

After the workshops, the *barangays* held technical consultations and assemblies back in their villages. These meetings, held over a 14-month period, were the key to the Alaminos project's success. Technical consultations required the attendance of the entire *barangay* council. At the end of the consultation, a complete waste management plan—including a calendar of activities, investment plans for infrastructure or equipment, a budget with funding sources, and task assignments—was generated and signed by the entire council and all residents in attendance. This plan was then used as the blueprint for the *barangay's* waste management program and was presented in assemblies to residents for approval and comments before it was implemented. While the project team was typically very active in leading the technical consultations, once the *barangays* had formulated their own waste management programs, the participating leaders took ownership of the project in their *barangays* and led the assemblies themselves.

Additional stakeholders from various city departments, city workers in waste management and collection, and representatives from junk shops, the tourism industry, the boat owners' and operators' association, hospital and medical health facilities, academia, business, and various religious sectors were consulted in separate sessions to expand participation in implementing RA 9003. **As a result, resorts and inns established composting facilities and improved waste segregation, tourists were educated and reminded about the strict no-littering and waste separation policies, hospitals and clinics started to implement waste segregation, and schools and universities improved their waste segregation and composting practices.**



A team member interviews a *Punong Barangay* about the current waste management system in his village. (photo: Rei Panaligan)

At the end of the Zero Waste Alaminos project, a second comprehensive survey was administered to evaluate the implementation of the management programs developed through the course of the project. Each of the 39 *barangays* were visited by project team members who interviewed residents and recorded all changes related to waste management that had occurred since the initial survey was conducted.

The survey targeted 10 percent of the population in Alaminos and revealed both positive and negative results. A high percentage of residents were practicing waste separation (88% of those surveyed) and composting (53%), and many said they knew about their village's waste management program (56%) and the national law (63%). On the other hand, some residents (58%) said that the information they received from barangay officials about waste management was not enough, and there were those who were not participating in the program because they felt it was too cumbersome. Still, the majority expressed appreciation for the new waste management program in most of the *barangays* and were willing to support and participate in the city's program.

Lessons Learned

The Alaminos project encountered multiple challenges and roadblocks. Initially, political tensions threatened to prevent the project from getting off the ground. An existing rivalry between city and many *barangay* officials made some of the *barangay* leaders apprehensive and even hostile to the idea of cooperating with the city. **A grassroots approach allowed many milestones to be achieved in a few months, in contrast to the top-down strategy employed by the city government previously.** While the city's government-organized workshops on waste management were attended by only a handful of *barangay* leaders, the project's first zero waste workshop had more than 100 *barangay* official participants, and 21 out of 39 *barangay* leaders attended a second workshop months later.

The project team worked with all the *barangay* leaders regardless of their political affiliations. Consequently, the project's momentum and the stakeholders' enthusiasm were easily sustained, and activities after the elections were immediately resumed with few problems. GAIA's most important role in Alaminos over the two years may well have been as liaison between city and *barangay* officials who had not seen eye to

eye about waste management for years. The presence of a neutral force facilitated objective discussion and resolution of important issues.

A brochure supplied by GAIA during and after the *barangay* meetings was very helpful in reinforcing key messages from the technical consultations and assemblies. *Barangay* leaders were able to give brochures (poster size) out to people when they visited. The residents were asked to sign a log book saying that they had received the brochure. Later, when officials saw open burning and other signs of prohibited activities, the residents were no longer able to use the old excuse that they did not know the law. Open dumping and burning decreased significantly. In 2009, almost every field had a pile burning; by 2011 there were almost none. It also helped tremendously that there are no hazardous industries in the city, and that Alaminos already had some great initiatives in place, such as the vermicompost program and a program to promote organic agriculture.

Most importantly, the city government fully committed to the zero waste vision, providing employees to serve full-time as members of the project, who were highly respected by *barangay* leaders.

Results

The project grew by leaps and bounds in the span of two years. While in 2009 almost no *barangays* had begun implementation of RA 9003, in 2011, 25 had local ordinances on waste management that specifically banned open burning and dumping and mandated household segregation and composting.

Backyard composting has long been common in rural areas throughout the Philippines; many locals have practiced open burning for decades and believed that burning waste—especially agricultural waste—is beneficial to the soil, helps plants bloom, and drives away pests. Before the project, it was not unusual to



Barangay officials and residents in all 39 barangays of Alaminos were included in discussions about proper waste management. (photo: Anne Larracas)



An eco-shed is checked to make sure it is being used properly by the barangay. (photo: Anne Larracas)

find non-biodegradable waste mixed in with compost. Fifteen *barangays* are now consistently implementing pure composting. Vermicomposting has also increased, and the city has provided *barangays*, as well as selected schools that started their own vermicompost programs, with worms and organic fertilizer.

Seventeen *barangays* have started comprehensive collection systems—including collection schedules, collection vehicle(s), collectors, a working MRF (materials recovery facility), and in some cases, fees collected from residents—that were agreed upon by their village councils and residents. Fifteen of these are also segregating at source.

Thirty-two *barangays* have built eco-sheds which provide temporary storage for residual, hazardous, and small amounts of recyclable waste. These materials are then collected by the city and brought to the city materials recovery facility for processing (residual waste) or long-term storage (hazardous waste).

In many *barangays*, there is ample space for backyard composting, so the waste collected and brought to the materials recovery facilities is mostly residual. Since the waste is typically collected twice a month, residents are reminded to clean and store dry residual waste so that it will not smell or attract pests.

Recently, the city announced a “No-segregation, no-collection” policy. Residents will receive a warning if their waste is not separated. After a couple of warnings, it will not be collected. The city has already seen a noticeable reduction in the volume of overall waste, as well as a reduction in organics and recyclable matter in the waste collected, although the changes have not yet been measured.

The city has considered—but not yet passed—a ban on plastic bags. However, it has put in place a residual waste management program to address plastics collected from the *barangays*. **Plastics are shredded, mixed with concrete in a 40/60 ratio, and turned into pavers that are used to improve**

sidewalks in the city center. The entire sidewalk in front of City Hall and the Alaminos Cathedral has been renovated using these bricks. Several public schools in the city have also received the pavers to improve their walkways. The bricks cost about half as much as traditional pavers, and the city plans to commercialize their production.

In 2010, the city council passed into law the first zero waste city ordinance in the country, a local version of RA 9003 that includes a stronger provision against incineration and specifies how Alaminos will implement collection and conduct public education, among other things. This historic legislation upholds segregation at source, sets a target for waste diversion, and reinforces the national ban on incineration by declaring it a prohibited act.

The Informal Sector

Before the Zero Waste Alaminos project, approximately 35 waste pickers were working in Alaminos City. While the intention was to integrate these individuals into the project from the beginning, they unfortunately left the city during preliminary project negotiations. However, in early 2012, the central Alaminos City dumpsite was supporting as many as 50 or 60 waste pickers.

The number is larger because of improved conditions and access to new sources of materials. For instance, before the project, all residual plastic waste was brought to the dump, and waste pickers were forced to rummage through organics in order to collect any salvageable materials. **As a result of the city's "No-segregation, no-collection" policy, there are fewer organics mixed in and waste pickers can more safely recover recyclables and plastics.** Furthermore, waste pickers are able to collect clean, separated plastics from public service buildings (e.g., churches, schools) and sell them back to the city for a set price of ₱2.50/kilo (US \$.06). In pre-project days, the price of materials was sometimes



Pavers made from concrete and recovered plastic are used to improve walkways in the city. (photo: Anne Larracas)

up to the whim of the buyers. Today not only collection is easier, selling is as well.

In fact, the city allots an average of ₱25,000 (around US \$600) per month to buy the bulk of the plastic wastes for its sidewalk paver program from the waste pickers. Even when there are fewer recyclables to collect, the waste pickers still earn reliable income (₱700 - ₱1500 or US \$16.50 - \$35.50 per week) this way.

Recyclable waste continues to be directly sold by residents to itinerant junk buyers who come to the villages on a daily basis. The project has actually benefitted the itinerant buyers as well as the waste pickers. Since waste separation is now mandatory in many *barangays*, recovery of useful materials has increased, so the buyers can buy from more households.

Last but not least, ***barangays* have gained a greater appreciation for the service provided by the itinerant buyers**—especially after learning that the *barangay* leaders were responsible for collecting all discards from the households. Because the work of the itinerant buyers reduced the volume to be collected, the *barangays* did not need to hire many new employees or any larger vehicles to accommodate

all of the discards from the households. In addition, many *barangays* were able to implement a bi-monthly rather than a more frequent collection schedule, thereby saving labor costs. In some *barangays*, the itinerant buyers became the official waste collectors for the village. In others, the fees normally charged itinerant buyers were eliminated in exchange for their collecting recyclables from all the houses.

The Road Ahead

Although implementation of waste management programs has increased in the *barangays*, much more needs to be done. Two years is surely not long enough to reverse decades of old habits. Ten *barangays* passed every facet of the final evaluation with flying colors, while nine of those that did not pass were at least halfway to achieving their waste management goals. The remaining villages have much to do, but with the proper foundation now in place, many are expected to progress with their program implementation in the coming months.

Sources:

Alaminos 10-year Solid Waste Management Plan.

Facts And Figures Cy 2010, City of Alaminos, Pangasinan, Philippines.

Field visits and interviews by the author.

Republic Act 9003, Chapter II, Section 12.



www.no-burn.org
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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.