IOWA DEPARTMENT OF NATURAL RESOURCES

IMPACT STORIES

FROM THE SOLID WASTE ENVIRONMENTAL MANAGEMENT SYSTEM









10 years of the Solid Waste Environmental Management System Program

In 2009, the Iowa Department of Natural Resources (DNR) developed the Solid Waste Environmental Management System (EMS) program as a voluntary alternative to Comprehensive Planning. In the program, DNR supports solid waste agencies in building their own EMS and actively pursuing environmental stewardship goals beyond waste reduction.

An EMS serves as a framework for managing operations to help participating organizations identify and reduce environmental risks within their own fenceline and throughout their service area. There are 10 basic elements of an EMS, including policies, procedures, and training that work together following the proven method Plan–Do–Check–Act. The goal of implementing the Solid Waste EMS program is to encourage responsible environmental management while promoting continuous improvement in 6 environmental component areas.



Organics Management



Greenhouse Gas Reduction



Household

Hazardous Materials

Collection

Recycling

Services



Water Quality Improvement

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Environmental Education

TAKING A COLLABORATIVE APPROACH,

DNR manages the voluntary program and offers a wealth of support, such as training, workshops, and project funding, equating to over 3 million dollars throughout the history of the program.

Benefits of Participation

- Recognition and support for improved environmental performance
- Decreased
 Comprehensive
 Planning requirements
- QuickStart and Annual EMS Grant opportunities

- Potential landfill tonnage fee savings
- Ongoing training, consultation with EMS experts and peers
- Improved communication and organizational continuity

As a testament to the program, great strides have been made to protect and restore lowa's natural resources over its first 10 years. This booklet celebrates the cumulative impact of the EMS participants throughout the history of the program and offers a sampling of some of the highlights. These positive outcomes demonstrate the level of commitment that EMS participants exert towards environmental stewardship. Beyond achieving environmental impacts, many of the projects yielded operational benefits, including cost savings and improved customer service. New partnerships were forged, expanding effectiveness throughout individual planning areas across lowa. Having grown from 6 to 14 participating agencies, now serving over half of lowa's population, EMS participants continue to enhance existing programs and establish new projects every year.







Looking to the Future

As the EMS program continues to evolve, DNR seeks to expand participation in this collaborative and supportive program. Solid waste agencies in Iowa are invited to apply for the EMS program. Applications are accepted on an annual basis. For more information about the program, visit the Iowa DNR EMS website: **iowadnr.gov/swems.**



EMS COMPONENT AREAS

Solid Waste Environmental Management System



Organics Management

Landfill material is comprised of 30% organics, which can be processed into beneficial products, such as compost.



Greenhouse Gas Reduction

Emissions from fossil fuel consumption or the decomposition of organic materials can contribute to global climate change.



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Household Hazardous Materials Collection

Cleaners, automotive products and pesticides generated in the home and yard can have a disproportionately harmful effect when not managed appropriately.



Recycling Services

Landfill material is comprised of 50% recyclables that can be processed into feedstock for new products in lieu of virgin materials.



Water Quality Improvement

Litter, illegal dumping, or erosion caused by stormwater can pollute valuable water resources.



Environmental Education

Outreach to the community informs students, residents and businesses about material and waste management practices.



Organics include materials such as food waste and yard trimmings, which originated from living organisms. When disposed of in a landfill, organics decompose in the oxygen-deficient environment and emit methane, a potent greenhouse gas that contributes to climate change. By separately processing organics for compost, mulch or other uses, emissions are significantly reduced, space within the landfill is saved and useful materials are generated. Managing yard waste as compost or mulch is a clean practice that reduces greenhouse gas emissions. Compost, in particular, is both nutrient-rich and builds soils, improving plant growth and reducing dependency on chemical fertilizers. 10-YEAR CUMULATIVE IMPACT

384,310 Tons ORGANICS DIVERTED FROM LANDFILL



Impact Stories

COMMUNITY OUTREACH

Community outreach has played an important role in engaging residents in backyard composting.

- DMASWA sponsored workshops in which participants learned the basics of composting, constructed compost bins, and weighed their food waste for 3 months.
- OWCSWC encouraged backyard composting by providing nearly 200 households with composting equipment along with educational materials.



COLLABORATION

Collaboration with area organizations has helped to facilitate better management of food waste.

- In 2017, WCISWMA utilized grant funds to purchase a refrigerator to help a local food pantry accept cold food donations from HyVee in support of a goal to increase food waste diversion by 20%.
- CRLCSWA collaborated with local businesses such as Wal-Mart and Sam's Club stores to process unsold produce and other food items as compostable material in lieu of sending this material to the landfill. Improvements in the process resulted in an increase of 52% from 2018 to 2019 (9,958 tons to 15,154 tons).

IMPROVEMENTS

Improvements to composting facilities have resulted in an increase in the amount and quality of the organics collected.

- In 2016, LNI expanded the size of their compost pad, resulting in an increase of available compost to residents by 28%.
- In 2014, NPRPA added new signage to their city compost site resulting in improvements to the quality of the material received.





CURBSIDE COLLECTION

Curbside collection has helped to increase the participation in organics collection.

• In 2017, ICLF began curbside collection of food waste in addition to yard waste, by distributing containers and educational materials. These efforts resulted in a 91% increase of curbside collection from 2017 to 2019.

Household Hazardous Materials Collection

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Certain household products, if not managed safely, have adverse effects on human health and the environment. These household hazardous materials (HHMs), such as paint thinners, cleaners, pesticides, rechargeable batteries, automotive products and other household chemicals, have a disproportionately higher impact on the environment than regular trash. For example, rechargeable batteries may spark fires when disposed in a landfill and just one quart of motor oil poured down a storm drain can contaminate a million gallons of water. Efforts to increase proper collection and educate households on safer alternatives reduces environmental risks involved with HHMs. 10-YEAR CUMULATIVE IMPACT

6,758 Tons

HHM SAFELY

MANAGED



Impact Stories

TARGETED CAMPAIGNS

Targeted campaigns resulted in more HHM collection participation.

- SCISWA added text message notification and advertisements to raise awareness of mobile collection events.
- GRRWA developed a "Services Guide" and organized special events including a "Green Day" collection event and "Fall Preserve" days where residents could drop off HHM and recycle two appliances or two TVs/ monitors at no cost.
- LNI partnered with a local Lego League to increase battery

collection through education and placement of customized battery drop-off receptacles.

- WCISWMA staff pulled HHM from recycling sorting lines and focused on educating residents on proper HHM management, resulting in 20% reduction of HHM present in the recycling stream in the first year.
- REIC distributed posters and advertised HHM collection services, resulting in a 34% increase in collection in 2019.





FACILITY IMPROVEMENTS

Facility improvements and accessibility resulted in greater ease of HHM collection.

- MWA opened a new HHM collection facility at a transfer station resulting in a 9% increase in HHM collected in the first year.
- CRLCSWA created open drop-off hours to increase participation in HHM collection, eliminating the barrier of scheduling appointments.
- OWCSWC increased seasonal access by installing a heating system in its collection center to allow for winter collection appointments. The weight of collected HHMs has increased 43% since 2017.
- ICLF offered a convenient curbside HHM collection. Participation in HHM collection has increased 30% since becoming an EMS participant.

- RASWC utilized and promoted a Swap Shop to make useable materials available to others.
- WCSC established a new oil recycling program with updated facilities to eliminate "self pours," resulting in less spills and need for cleanup.

The number of households participating in HHM collection has increased



since becoming an EMS participant



Water Quality

Streams, rivers, lakes and wetlands are vital natural resources for our communities and the environment. Illegal dumping pollutes surface waters with wastes. Litter thrown in ditches or gutters washes into our streams with stormwater. Disturbed soils erode, carrying sediment that damages aquatic habitats. To prevent these environmental risks, EMS participants take action to protect water quality. Within their facilities, operators control erosion and stabilize soils, which prevents sediment and pollutant discharges. Beyond their facilities, agencies engage in programs and partnerships that prevent illegal dumping, collect litter, clean up streams, and promote education. Raising awareness of water quality issues and encouraging responsible environmental behaviors help to preserve and improve water quality. 10-YEAR CUMULATIVE IMPACT 478,293 lbs LITTER COLLECTED 387 ACTES LAND IMPROVEMENTS



Impact Stories

CLEANUP EVENTS

Cleanup events brought communities together to raise awareness and improve water quality.

- WCSC hosted litter and river cleanup events with increased participation by raising awareness, added trash collection containers and signage along river front trails to prevent litter, and bolstered on-site litter control management efforts. On average, over 37,000 pounds of litter has been collected per year.
- MWA launched an Adopt-A-Stream program in 2013 and sponsored the Stream Team, a group of college interns focused on cleaning up rural streams.
- GRRWA partnered with Project AWARE to clean the Des Moines River, a state designated "water trail," removing over 40 tons of trash in 2016.





Erosion control led to decreased water pollution.

- SCISWA worked consistently to improve storm water management on site. In 2017, after seeding 8 acres and constructing a letdown structure, total suspended solids in water discharging to nearby Willow Creek was reduced by 80%.
- WCISWMA established terraces on the landfill to prevent erosion and constructed a storm water retention pond to improve water quality.
- CRLCSWA established vegetation to minimize the amount of disturbed land at its Site 2 by over 30% in a two-year period.



REDUCTION GOAL

WATER CONSERVATION

Water conservation projects increased efficiency and reduced water consumption.

- MWA installed lower volume dual flush toilets, reducing water consumption by 10,000 gallons in 2011.
- DMASWA focused on reducing water use in its dust control practices at the landfill with a 40,000-gallon reduction goal.



Greenhouse Gas Reduction

GHG

When certain gases are emitted into the atmosphere, they contribute to the greenhouse effect, which changes the global climate and leads to an increase in the number and severity of extreme weather events, among other effects. Activities like the combustion of fossil fuels, burning of biomass and oxygendeficient decomposition of organics, such as in a landfill, generate these greenhouse gases (GHGs). Efforts to improve energy efficiency or switch to renewable energy sources reduce the reliance on fossil fuels. Within the landfill, recovering methane gas and limiting organic waste decreases the greenhouse gases emitted directly to the atmosphere or indirectly by reducing energy needed to produce new products.

10-YEAR CUMULATIVE IMPACT

12,471 Tons

GHG REDUCED



Impact Stories

ENERGY EFFICIENCY PROJECTS

Energy efficiency projects resulted in savings and avoided GHG emissions.

- OWCSWC installed LED lighting in the Recycling Center in 2015.
- SCISWA worked to weatherize buildings, upgrade lighting, replace HVAC equipment, and educate employees, resulting in savings of 16,000 kWh.
- DMASWA's lighting retrofit reduced energy consumption by 4,000 kWh/year.
- ICLF upgraded targeted facilities with programmable thermostats, energy efficient appliances, LED lights, and new windows.



POLICY CHANGES

Policy changes were implemented to reduce resource use and associated emissions.

- Multiple agencies, including GRRWA, NPRPA, OWCSWC, and WCSC, implemented anti-idling policies to reduce fuel consumption from excessive vehicle idling.
- WCSC established policies to reduce printing, follow green purchasing practices, and bulk shipments to reduce transportation, decreasing GHG emissions by 3.26 tons.

RENEWABLE ENERGY INFRASTRUCTURE

Renewable energy infrastructure was installed to provide cleaner energy.

- RASWC installed solar panels at the transfer station to power the entirety of the station.
- WCISWMA installed a solar array at their maintenance building in 2018.





LEACHATE TRANSFER CHANGES

Leachate transfer changes resulted in reduced GHG emissions.

- LNI installed a force main for leachate transfer to reduce GHG emissions caused by trucking the leachate off site. 100% reduction in GHG emissions was achieved, saving 17 tons of GHG emissions annually.
- WCISWMA partnered with the City of Carroll to build a new sanitary sewer/leachate line with the goal to reduce electricity at the lift station by 25%. Electricity was reduced by 30% annually.

Recycling

Many materials that are destined for the landfill still hold marketable value. When these materials are processed for further use, resource depletion from extraction and processing of virgin materials is avoided. By collecting and processing these materials separately, energy is saved, greenhouse gas emissions are avoided, and space within the landfill is preserved. 10-YEAR CUMULATIVE IMPACT

343,886 Tons

RECYCLING DIVERTED



Impact Stories

SINGLE STREAM RECYCLING

Single stream recycling increased participation in collection.

- WCSC experienced a 326% increase in single stream recyclables and 225% increase in households served since participating in the EMS.
- ICLF instituted a landfill cardboard ban in 2018 and began single stream recycling, resulting in an increase of nearly 50%.



INCREASED ACCESS

Increased access to collection areas resulted in more materials collected.

- GRRWA realized a 100% increase in materials recycled since starting with EMS. Trailers were provided to 4 towns in the planning area.
- SCISWA partnered with planning area communities to purchase and place mobile recycling trailers in 5 different municipalities.

- NPRPA offered free recycling containers to construction projects in order to increase recyclable materials collected.
- OWCSWC supported improvements to curbside recycling in 2014 by increasing the size of the totes from 18-gallons to 35-gallons.
- REIC constructed concrete pads to move all recycling programs to the new recycling area to make programs more visible and convenient. Overall, the expansion of the recycling area resulted in major efficiencies for staff and convenience for customers.
- MWA placed 12 eight-yard containers in member communities in order to increase cardboard collection, resulting in diversion of 372,831 pounds of cardboard in 2019.
- RASWC developed a comprehensive shingle recycling program, diverting 355 tons of shingles in 2 years. In 2018, 19 individuals and 12 contractors participated.
- LNI partnered with Habitat for Humanity's Restore to collect and divert materials by adding a drop off at the Restore.





Environmental Education

Providing the public with environmental education programs changes behaviors and fosters a community that focuses on environmental stewardship. Education not only supports the goals in each of the EMS component areas but improves beneficial outcomes. Program topics such as reducing waste generation, increasing recycling and reuse, discouraging illegal dumping, decreasing greenhouse gas emissions and improving water quality, lead to individual and collaborative actions that conserve resources and ensure a legacy for future generations.

GRRWA –

Rocky the

Recycler

Impact Stories

EDUCATIONAL PROGRAMS

Educational programs have helped to increase awareness and promote environmental stewardship.

- GRRWA introduced a "Rocky the Recycler" mascot to assist with promotional events. Rocky made appearances at a back-to-school fair, river festival, city clean-up event, rodeo parade and Head Start events, earning Rocky the ISOSWO Outstanding Facility/ Program Award for the Solid Waste Management Education Program in October 2018.
- RASWC promoted a "Do One Thing" campaign successfully engaging 1,800 participants annually.
- ICLF conducted in-person facility tours, presentations, and other events, reaching 4,000 participants on average per year.



NEW FACILITIES

New facilities have been developed to encourage participation.

- CRLCSWA built Mt. Trashmore, a park with trails and an overlook with a goal of attaining 5,000 visitors in 2019.
- DMASWA constructed an Education Pavilion, with a wind turbine and solar panel, and improved facility signage.
- WCISWMA installed an electronic sign at the landfill entrance to convey information.



COMMUNITY GRANTS

Community grants have helped to encourage environmental stewardship projects among partner organizations.



ONLINE PRESENCE IMPROVEMENTS

Online presence improvements through website updates and increased social media posts have helped to increase environmental awareness.

ACKNOWLEDGEMENTS

Thank you to the following lowa solid waste agencies for participating in the EMS program and sharing their stories:

Cedar Rapids Linn County Solid Waste Agency (CRLCSWA) Dubuque Metropolitan Area Solid Waste Agency (DMASWA) Great River Regional Waste Authority (GRRWA) lowa City Landfill and Recycling Center (ICLF) lowa County Regional Environmental Improvement Commission (REIC) Landfill of North Iowa (LNI) Metro Waste Authority (MWA) Northern Plains Regional Planning Area (NPRPA) Ottumwa/Wapello County Solid Waste Commission (OWCSWC) Rathbun Area Solid Waste Commission (RASWC) Solid Waste Management Commission of Marshall County (SWMCMC) South Central Iowa Solid Waste Agency (SCISWA) Waste Commission of Scott County (WCSC) West Central Iowa Solid Waste Management Association (WCISWMA)

Gresham Smith provides support to DNR and EMS Participants through training, consulting, and materials development.

DNR manages the EMS program, a voluntary alternative to Comprehensive Planning. For more information about this innovative program, visit **iowadnr.gov/swems**

prepared in 2020 by





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