

#3 Plastics

Subcommittee Meeting #3 Summary - Plastics September 1, 2021 2PM-5PM

Subcommittee Meeting #3 of the Plastics Subcommittee (#3-Plastics) was convened virtually via Zoom on September 1, 2021 from 2-5 PM, CST. Attendance for #3-Plastics is provided in Table 1 below.

Table 1. #3-Plastics Subcommittee Membership and Attendance

Name	Company	Attended 9/1/21
Harlan Buxbaum	Dee Zee, Inc.	Present
Michele Boney	West Liberty Foods	Present
Troy Willard	Can Shed LLC/ Iowa Recycling Association	Present
Merry Rankin	Iowa State University	Present
Julie Ketchum	Waste Management	Present
Mick Barry	Mid America Recycling	Absent
Scott Vander Sluis	Van's Sanitation and Recycling	Absent
Bryce Stalcup	Waste Commission of Scott County	Present
Jennifer Horner	That's Not Trash, LLC	Absent
Joe Bolick	Iowa Waste Reduction Center	Present
Sue Waters	Plastics Recycling of Iowa Falls, Inc.	Absent
Nicole Crain	Iowa Association of Business and Industry	Absent
Laurie Rasmus	DNR Internal SMM Team	Present
Amie Davidson	DNR Internal SMM Team	Present
Tom Anderson	DNR Internal SMM Team	Present
Jennifer Wright	DNR Internal SMM Team	Present
Jennifer Reutzel Vaughn	DNR Internal SMM Team	Present
Michelle Leonard	Consultant – SCS Engineers	Present
Christine Collier	Consultant – SCS Engineers	Present
Jeff Phillips	Consultant – SCS Engineers	Present
Karen Luken	Sub-Consultant – EESI*	Present
Brad Hartkopf (on behalf of Nicole Crain)	Iowa Association of Business and Industry	Present

* Economic Environmental Solutions International

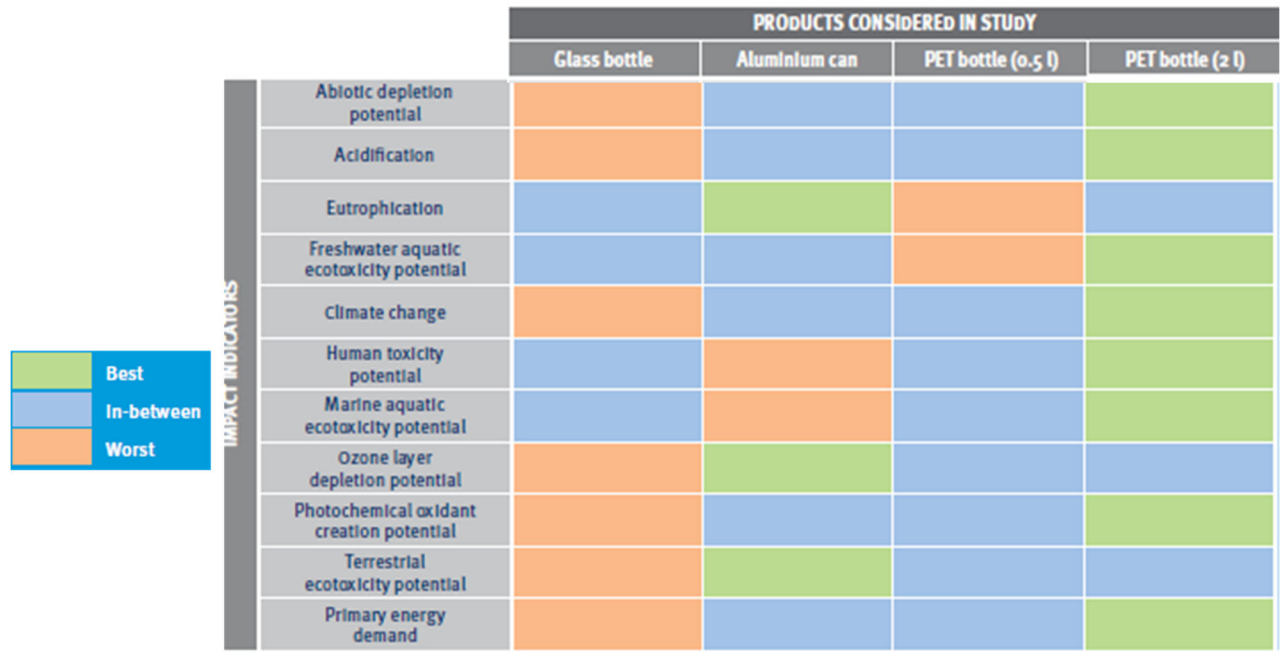
A. Subcommittee #3 - Plastics Summary

The meeting began with the project consulting team reviewing the agenda for this meeting (see Attachment A), the overall objectives of the Sustainable Materials Management (SMM) – Vision for Iowa project, the process and goals of the project process, and the goals for today's subcommittee meeting. The Stakeholder Meeting #2 schedule and Subcommittee responsibilities were also discussed. The slides presented for this Subcommittee meeting are included in Attachment B.

The project consulting team presented a series of slides from the United Nations Environmental Programs (UNEP) 2020 that illustrated the summary results of life cycle analyses (LCA) for a variety of beverage containers, bags, and clamshell containers. The purpose of these illustrations was to visually

summarize some of the LCA data results that were presented and discussed during the Subcommittee Meeting #2. The illustrations presented are shown in the figures below.

Figure 1 - Single-Use Plastic Bottles and Other Containers



Source: UNEP Plastic Bottles Report 2020

Key definitions:

- Abiotic Depletion = Depletion of resources such as fossil fuels, minerals, etc.
- Eutrophication = Impact on water quality due to runoff from land.

Figure 2 - Bottles Made of Virgin Fossil, Recycled Fossil, and/or Virgin Bio-Based PET

		PRODUCTS CONSIDERED IN STUDY						
		PET bottle						
		100 fossil-based PET	100% bio-based PET (TPA1)	100% bio-based PET (TPA2)	65% fossil- and 35% bio-based PET	65% bio-based (TPA1) and 35% recycled PET	65% bio-based (TPA2) and 35% recycled PET	65% fossil-based and 35% recycled PET
IMPACT INDICATORS	Climate change							
	Fossil fuel consumption							
	Water consumption							

Source: UNEP Plastic Bottles Report 2020

Figure 3 - Single-Use Plastic Bags and Alternatives

		Bags considered in study					
		Conventional single-use HDPE bag	Partly recycled single-use HDPE bag	Single-use Paper bag (partly virgin)	Single-use Paper bag (100% recycled)	Reusable LDPE bags	Reusable NWPP bags
Number of uses		1	1	1	1	1-44	1-44
Weight per functional unit (g)		61 – 2684	61 – 2684	457 – 20116	457 – 20116	296	622
Weight per bag (g)		6.2	6.2	54.4	54.4	35.6	Bag: 60.8; LDPE insert: 32
Climate change							
Water depletion							
Cumulative Energy Demand							
Terrestrial acidification							
Freshwater eutrophication							
Marine eutrophication							
Human toxicity							
Terrestrial ecotoxicity							
Freshwater and marine ecotoxicity							
Fossil Fuel Depletion							
Photochemical oxidant formation							

Performance Key	
	Best
	Better
	Worse

Source: UNEP Single Use Plastic Bottle and Alternative, 2020

Figure 4 - Single-Use and Reusable Takeaway Food Containers

		PRODUCTS CONSIDERED IN STUDY			
		Aluminum takeaway container	Extruded polystyrene takeaway container	Polypropylene takeaway container	Polypropylene food saver- reusable (tupperware)
INDICATORS	Abiotic depletion potential of elements	Orange	Green	Blue	208 times*
	Abiotic depletion potential of fossil resources	Blue	Green	Orange	18 times
	Acidification potential	Blue	Green	Orange	29 times
	Eutrophication potential	Blue	Green	Orange	18 times
	Freshwater aquatic ecotoxicity potential	Blue	Green	Orange	39 times
	Global warming potential	Blue	Green	Orange	18 times
	Human toxicity potential	Orange	Green	Blue	37 times
	Marine aquatic ecotoxicity potential	Orange	Green	Blue	24 times
	Ozone layer depletion potential	Orange	Green	Green	27 times
	Photochemical ozone creation potential	Blue	Green	Orange	16 times
	Terrestrial ecotoxicity potential	Orange	Green	Blue	Blue
	Primary energy demand	Blue	Green	Orange	19 times

Source: UNEP Plastic Bottles Report 2020

Figure 5 - Clamshell Containers

		PRODUCTS CONSIDERED IN STUDY		
		PLA	PET	PS
INDICATORS	Climate change	Blue	Orange	Green
	Aquatic acidification	Orange	Blue	Green
	Ozone layer depletion	Blue	Orange	Green
	Aquatic eutrophication	Blue	Orange	Green
	Respiratory organics	Orange	Blue	Green
	Respiratory inorganics	Orange	Blue	Green
	Aquatic ecotoxicity, water	Green	Orange	Blue
	Energy	Green	Orange	Blue
	Land occupation	Blue	Orange	Green

Source: UNEP Plastic Bottles Report 2020

The LCA studies have shown that the volume of product the container is able to hold is important when comparing similar containers to each other (i.e., 2 L vs. 0.5 L PET bottles). For example, the larger container is able to handle more product and therefore requires fewer containers and consumes less resources during transportation than smaller containers.

The LCA studies also have shown that the number of times that material can be used is important. For instance, plastic bags are assumed to be used multiple times while paper bags are assumed to be single-use. Therefore, when comparing the use of these two containers, plastic bags are more favorable according to the LCA studies.

The project consulting team then led participants through a discussion about what gaps there may be in Iowa as methods of diverting plastics from disposal. Identified potential gaps include:

- Data – Iowa does not have comprehensive or readily available data about what plastics are being recycled, manufactured, or being used in Iowa. Therefore, it is hard to measure the environmental impact of plastics in Iowa.
- Education and Research – The available plastic waste data in Iowa focuses primarily on litter impacts.
- Regulations – While Iowa has robust collection initiatives supported by the Iowa Bottle Bill, this regulation does not include several other containers. Iowa also recently passed regulations that established pre-emptions concerning banning the use of materials (i.e., plastic bags).

The project consulting team then presented identified strategies that work to address plastic waste through up-stream practices (i.e., production and manufacturing), consumer-based practices (i.e., change consumer behaviors), and end-of life practices (i.e., disposal alternatives). The identified strategies for each practice along with a brief description, and Subcommittee discussions are listed below.

Upstream Strategies:

- Design products for recycling or composting.
 - Manufacturers consider how the product can more easily be recycled and/or composted.
- Eliminate problematic and unnecessary packaging.
 - Standard packaging and containers with a focus on selecting packaging that is reusable, refillable, repurposable.
- Require post-consumer recycled content for packaging.
 - Creates markets for recycled plastics and is part of closed loop economy.
- EPR policy framework for packaging.
 - Establish frameworks for packaging collection and management. Producer is responsible for taking back the material for recycling or to fund these activities.
- Producer registry and reporting for packaging.

- Establishes accountability for producers. Whether it is regulated or voluntary actions, the registry captures pertinent data.
- Polystyrene containers bans.
 - Bans the manufacturing and sale of the material (i.e., coolers, internal packaging, etc.).
- Plastic bags bans.
 - Bans manufacturing and sale of the material (i.e., single use retail bags, etc.)

Subcommittee Member Discussion:

- A lot of these items require a municipal or statewide regulatory/legislative change. The others have to be adopted by producers. How do we get the producers to want to adopt these changes?
 - Offer producers incentives. Perhaps initially it can be voluntary programs. Perhaps these businesses could be offered grants, low interest loans, tax credits, permitting/sitting/zoning technical assistance.
- The State does have recycling property tax exemption program. There is not a lot of interest because it is just related to property tax.
 - Under Iowa Code section 427.19, “personal property or improvements to real property or any portion of the property” are eligible for property tax exemption, if the property is “used primarily in the manufacturing process and resulting directly in the conversion of waste glass, waste plastic, wastepaper products, waste paperboard, or waste wood products into new raw materials or products composed primarily of recycled material”.
 - Also there are some tax benefit/incentives related to sales tax in 423.2 and 423.3
- A state has programs that use funds derived from cap and trade programs to help support initiatives. This same state also uses unredeemed deposits from their Bottle Bill to help fund municipal recycling programs and sponsors competitive grants for industry to facilitate development of recycling infrastructure and other recycling projects.
- A state has passed legislation that specifies that that numeric code cannot be included inside the “chasing arrows” symbol unless the product is recyclable, under specified criteria.

Consumer Strategies:

- Standard for customer opt-in for food service packaging and accessories.
 - Requires restaurants to ask consumers if they want utensils placed in their takeout products rather than just including them. A similar requirement was recently passed by a municipality in another state.
- Encourage reusables for dine-in.
 - Allows customers to bring personal containers for leftovers and eliminates single use items for dine-in experience (plates, cups, cutlery).
- Encourage reuse/refill for take-out and delivery.

- Encourage consumers to bring their own containers (i.e., beverage containers, food containers, etc.). Could include retailers providing a financial discount to encourage/reward this behavior.
- Develop reuse and refill pilots and funding sources.
 - Test some of these initiatives. A program in California visits businesses and provides funding to encourage them to participate in these programs. Funding includes infrastructure to be able to wash dishes and cups to help eliminate single-use food service ware.
- Provide education and awareness campaigns for refill, reuse, and repurpose.
 - Concentrate and identify what are the best ways to educate the public and use social marketing to change consumer behavior. Identify what barriers prevent consumers from participating in available programs.
- Implement to-go container and cup charges.
 - Punitive fees for activities that use/create this waste.
- Implement a plastic bag fee.
 - Punitive fees for activities that use/create this waste.

Subcommittee Member Discussion:

- Students could purchase a reusable container. The University would offer to wash the containers or the students could wash them. Health and safety concerns would need to be addressed.

End of Life Strategies:

- Provide education and awareness campaigns on contamination in recycling.
 - Education and awareness campaigns have proven to be successful in decreasing contamination and therefore increasing the opportunity to collect more recyclables.
- Provide education and awareness on littering.
 - Direct connection to littering and impacting the environment.
- Collect data on final destinations of materials/recycling facilities.
 - We have some information on recycling facilities, but need a better method to capture information on operations, processed volumes, and end markets in order to design better programs.
- Support development and adoption of reusable packaging systems.
 - Support the use of food and beverage containers that can be reused and refilled, and encourage consumers to buy in bulk and reuse packaging.
- Add single-use plastic bottles to the Bottle Bill.

- The Iowa Bottle Bill currently does not include these containers.
- Add all non-carbonated containers to the Bottle Bill.
 - The Iowa Bottle Bill currently does not include these containers.

Subcommittee Member Discussion:

- New optical sorting equipment can fairly easily sort recyclable containers from the materials received at the material recovery facilities (MRFs). While this equipment can be expensive, the return on investment of this equipment in sales of sorted plastics has proven to be approximately one year. Removing single-use plastic bottles from the recyclable waste stream (by adding them to the Bottle Bill) would reduce revenue currently realized by MRFs.
- This project is trying to determine how to capture more material, not determine who receives the revenue.
- If the Bottle Bill doesn't include these bottles, what do we do to increase their capture rate?

The project consulting team then presented some influencer categories that are important considerations when making decisions. As we look to make decisions about potential future SMM strategies, we need to assess what we think we can control in the future, what we can control today, and what are things that we can do right away. Change can be difficult and we want to understand the change and the positive impacts that those changes will have. Some important decision making considerations include:

- Functional differences
- Production differences
- Technology maturity
- End of life practices
- Future technologies
- Geography
- Trade-offs and risks

The project consulting team then lead participants through a process in which strategies were prioritized for potential implementation within the **immediate (0-3 years), medium (4-10 years), or long-term (11+ years)**. The results of the completed prioritization items are shown below in Figure 6 and located in Attachment C.

Figure 6 – Prioritization Results for Plastics



*Single-use plastic bottles addition to the Bottle Bill depends on data.

Subcommittee Member Prioritization Discussion:

- Connecticut, as well as other states, have increased their deposit fees and have added plastic water bottles to their regulations.
- By adding water bottles to the Bottle Bill, are we just moving the materials from the recycling programs into the redemption centers or are we decreasing plastic bottles as part of litter as well?
- University students come from all geographies and backgrounds with different understandings of recycling programs and labels. Could we standardize the labels and information across Iowa?
 - There have been efforts across the US for many years trying to accomplish this. Perhaps this should be a goal of this SMM project.
- ISU is also looking for plastic waste (shredded and chipped) to test in their transportation side of engineering. Can plastics be used as a binder in concrete?
 - Halil Ceylan is the contact at ISU for this research.
- Could we establish some type of eco labeling as an incentive for companies be able to communicate to consumers their environmentally sound practices?

- This is something the Iowa Waste Reduction Center (IWRC) looked into for the Green Brewery certification program. Unfortunately, there are many different types of labels and varying areas of focus and importance within industries, as well as the consumers of various products. It is difficult to establish one label type that means something positive to all.
- Have any contiguous states around Iowa implemented EPR?
 - Not for packaging. However, Minnesota has several EPR based programs.
 - Iowa does have a toxics in packaging EPR that is part of Iowa regulations.
- Minnesota has requirements for state agencies to purchase materials that have recycled content. Requirements are in place for a variety of products including, but not limited to electronics, paints, mattresses, traditional recyclables, etc. This helps create market/demand.
- Minnesota has a solid waste tax that generates about \$80 million per year. Sixty percent of the revenue generated from this tax goes towards Minnesota solid waste programs and operations.
- Iowa state agencies had a purchasing standard that required recycled content. This purchasing standard may have sunset.
- We need to de-politicize these issues so that it isn't an administration driven thing – but more of an industry driven thing.
- There are existing standards for green product certifications that could be used or built upon.

B. Research Request List

Through the discussions and in follow up discussions, various topics have been identified for further research. These are provided below.

- Recycling Property Tax exemption program
- Iowa Green Government Initiative
- Existing standards for Green Product Certification
- EPR Bills in Maine and Oregon

C. Other Notes

Other items of note from the #3 - Plastics meeting are as follows:

- Second Stakeholder Meeting will be held on September 30, 2021. Subcommittee members in addition to other interested parties are invited and encouraged to attend.

Attachments:

Attachment A: Agenda

Attachment B: PowerPoint Presentation

Attachment C: Additional Information

Attachment A
Agenda

Subcommittee Meeting #3 – Plastics

September 1, 2021

2:00PM – 5:00PM (CST)

Virtual Meeting

1. Recap SMM Goal, Process, and Schedule
2. Additional Data
3. Fundamental Questions
4. Potential SMM Strategies
5. Break
6. Prioritize Strategies
7. Next Steps
 - a. Stakeholder Meeting#2 (September 30, 2021)
 - b. Future meetings dates and logistics

Attachment B
PowerPoint Presentation



Agenda

- Recap SMM Goal, Process, and Schedule
- Additional Data
- Fundamental Questions
- Potential SMM Strategies
- Break
- Prioritize Strategies
- Next Steps
 - Stakeholder Meeting#2 (September 30, 2021)
 - Future meetings dates and logistics

Goal

Establish a clear direction for implementing an SMM system with immediate, medium and long-term strategies

Phases of SMM Process

Phase I: What is it and should we do it?

Phase II: Prioritization and timing of what we should do and how we should accomplish it

Phase III: Ongoing Implementation

Phase II Process

Select specific material types within each category

Define and prioritize specific strategies

- Legislation
- Policies
- Programs
- Infrastructure

Identify implementation timeline, responsible party, funding measures, and performance metrics

Material Types Selected

Organics & Fibers <ul style="list-style-type: none"> Edible Food Pre-Consumer Spoiled Food Compostable/AD Paper, Food and Yard Waste 	Plastics <ul style="list-style-type: none"> Single-Use PET Water Bottles Plastic Film/Bags Polystyrene (Styrofoam) 	Renewable Energy Equipment <ul style="list-style-type: none"> Wind Turbines Solar Panels Storage Batteries 	Construction & Demolition <ul style="list-style-type: none"> Interior Building Components Roofing Materials Drywall, Plaster and Gypsum Board Treated and Untreated Wood
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Subcommittee Role

- Finalized Material-Specific Groups
- Continue as Active Working Groups
- Size and Composition May Change
 - Combination of Invitation and Application
 - Composition is Fluid
- Representation of Various Interests Reflecting Material Life Cycle
- Make Recommendations to the Stakeholders
- Vital to Project Progress and Success

IOWA PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Stakeholder Group Role

- Provide various perspectives on how SMM will be adopted and implemented in Iowa
- Provide on-going guidance to subcommittees
- Will consider and endorse subcommittee recommendations

IOWA PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Subcommittee Recommendation Process

- Develop Recommendations
- Present Recommendations to Stakeholders
- Consider Stakeholder Input and Modify Recommendations
- Present Further Developed Recommendations to Stakeholders

IOWA PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Today's Focus

- Discuss Strategies
- Identify Additional Data Needs
- Prioritize Strategies

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Where Do We Go Next

- Present strategies and rankings to the Stakeholder Group on September 30th
- Receive input from Stakeholder Group
- Reconvene to
 - Reevaluate strategy ranking
 - Identify implementation timelines, responsible party, funding measures, and performance metrics
- Present implementation requirements to Stakeholder Group

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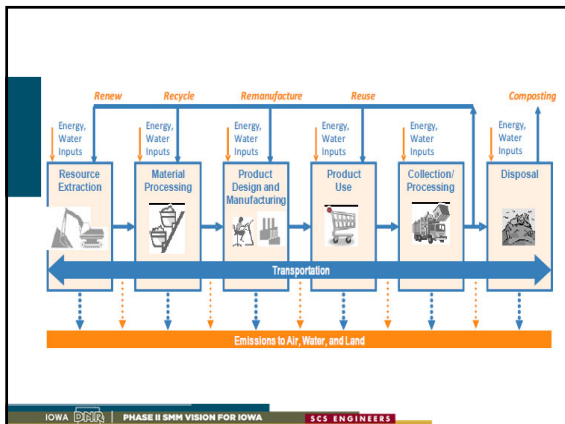
Stakeholder Meeting #2: Sept 30th

- Subcommittees Present Recommendations
- Led by Appointed Representative
- Assistance from Facilitators
- Breakout rooms for Further Discussion

Agenda

- 9:00 – 9:15 Welcome and Introductions
- 9:15 – 11:30 Subcommittee Updates
- 11:30 – 11:45 Initial Group Comments/Breakout Selection
- 11:45 – 12:30 Lunch Break
- 12:30 – 1:15 Breakout #1
- 1:15 – 1:20 Switch Break
- 1:20 – 2:05 Breakout #2
- 2:05 – 2:30 Wrap Up and Next Steps

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Single-Use Plastic Bottles & Other Containers

IMPACT INDICATORS	PRODUCTS CONSIDERED IN STUDY			
	Class bottle	Aluminum can	PET bottle (0.5 l)	PET bottle (2 l)
Abiotic depletion potential	Best	Best	Best	Best
Acidification	Best	Best	Best	Best
Eutrophication	Best	Best	Best	Best
Freshwater aquatic ecotoxicity potential	Best	Best	Best	Best
Climate change	Best	Best	Best	Best
Human toxicity potential	Best	Best	Best	Best
Marine aquatic ecotoxicity potential	Best	Best	Best	Best
Ozone layer depletion potential	Best	Best	Best	Best
Photochemical oxidant creation potential	Best	Best	Best	Best
Terrestrial ecotoxicity potential	Best	Best	Best	Best
Primary energy demand	Best	Best	Best	Best

UNEP Plastic Bottles Report 2020

PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Bottles Made of Virgin fossil, Recycled Fossil, and/or Virgin Bio-Based PET

IMPACT INDICATORS	PRODUCTS CONSIDERED IN STUDY					
	100% fossil-based PET	100% bio-based PET (TPA)	100% bio-based PET (TPA)	65% fossil- and 35% bio-based PET	65% bio-based (TPA) and 35% recycled PET	65% fossil-based and 35% recycled PET
Climate change	Best	Best	Best	Best	Best	Best
Fossil fuel consumption	Best	Best	Best	Best	Best	Best
Water consumption	Best	Best	Best	Best	Best	Best

UNEP Plastic Bottles Report 2020

PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Single Use Plastic Bags and Alternatives

IMPACT INDICATORS	Bags considered in study					
	Conventional single-use HDPE bag	Partly recycled single-use HDPE bag	Single-use Paper bag (100% recycled)	Single-use Paper bag (50% recycled)	Reusable LDPE bags	Reusable WWP bags
Number of uses	1	1	1	1	144	144
Weight per functional unit (kg)	61 - 2084	61 - 2084	487 - 20116	457 - 20116	208	502
Weight per bag (g)	6.2	6.2	54.4	54.4	36.6	36.6
Climate change	Best	Best	Best	Best	Best	Best
Water depletion	Best	Best	Best	Best	Best	Best
Cumulative Energy Demand	Best	Best	Best	Best	Best	Best
Terrestrial acidification	Best	Best	Best	Best	Best	Best
Freshwater eutrophication	Best	Best	Best	Best	Best	Best
Marine eutrophication	Best	Best	Best	Best	Best	Best
Human toxicity	Best	Best	Best	Best	Best	Best
Terrestrial ecotoxicity	Best	Best	Best	Best	Best	Best
Photochemical oxidant formation	Best	Best	Best	Best	Best	Best
Fossil Fuel Depletion	Best	Best	Best	Best	Best	Best
Photochemical oxidant formation	Best	Best	Best	Best	Best	Best

UNEP SUPB and Alternatives, 2020

PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Takeaway Food Containers Single-Use and Reusable

IMPACT INDICATORS	PRODUCTS CONSIDERED IN STUDY			
	Aluminum takeaway container	Extruded polystyrene takeaway container	Polypropylene takeaway container	Polypropylene food saver, reusable (Ingenue)
Abiotic depletion potential of elements	Best	Best	Best	Best
Abiotic depletion potential of fossil resources	Best	Best	Best	Best
Acidification potential	Best	Best	Best	Best
Eutrophication potential	Best	Best	Best	Best
Freshwater aquatic ecotoxicity potential	Best	Best	Best	Best
Global warming potential	Best	Best	Best	Best
Human toxicity potential	Best	Best	Best	Best
Marine aquatic ecotoxicity potential	Best	Best	Best	Best
Ozone layer depletion potential	Best	Best	Best	Best
Photochemical ozone creation potential	Best	Best	Best	Best
Terrestrial ecotoxicity potential	Best	Best	Best	Best
Primary energy demand	Best	Best	Best	Best

UNEP, 2020

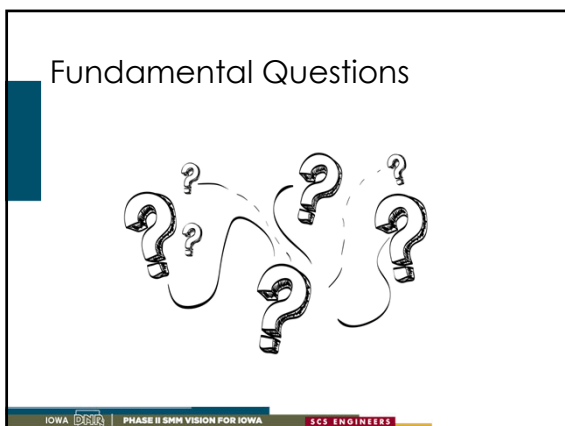
PHASE II SMM VISION FOR IOWA SCS ENGINEERS

Clamshell Containers

INDICATORS	PRODUCTS CONSIDERED IN STUDY		
	PLA	PET	PS
Climate change	Best	In-between	Worst
Aquatic acidification	Best	In-between	Worst
Ozone layer depletion	Best	In-between	Worst
Aquatic eutrophication	Best	In-between	Worst
Respiratory organics	Best	In-between	Worst
Respiratory inorganics	Best	In-between	Worst
Azatic eutrichity, water	Best	In-between	Worst
Energy	Best	In-between	Worst
Land occupation	Best	In-between	Worst

UNEP, 2020

Legend:
■ Best
■ In-between
■ Worst



Fundamental Questions

What are the environmental impacts associated with plastics?

What are the Iowa plastics prevention and landfill diversion gaps:

- Data
- Education
- Regulations
- Policies
- Infrastructure
- Funding

- ### Upstream Strategies
- Design for recycling or composting
 - Eliminate problematic and unnecessary packaging
 - Require post-Consumer Recycled Content for packaging
 - Adopt EPR policy framework for packaging
 - Establish producer registry and reporting for packaging
 - Ban Polystyrene Containers
 - Ban Plastic bags

- ### Consumer-Based Strategies
- Implement standard for customer opt-in for foodservice packaging and accessories
 - Encourage reusables for dine-in
 - Encourage reuse/Refill for take-out and delivery
 - Develop Reuse and refill pilots and funding
 - Provide education and awareness campaigns for refill, reuse, repurpose
 - Implement to-go container and cup charges
 - Implement Plastic bag fee

End-of-Life Strategies

- Provide education and awareness campaigns on contamination in recycling
- Provide education and awareness on littering
- Collect data on final destinations of materials/recycling facilities
- Support development and adoption of reusable packaging systems
- Add single-use plastic bottles to Bottle Bill
- Add all non-carbonated containers to Bottle Bill

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BREAK (10 Minutes)

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Whiteboard

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Important Considerations of Decision-Making

- Functional Differences
- Production Differences
- Technology Maturity
- End-of-Life Practices
- Future Technologies
- Geography
- Trade-offs and Risks

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What's Next?

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Where Do We Go Next

- Present strategies and rankings to the Stakeholder Group on September 30th
- Receive input from Stakeholder Group
- Reconvene to
 - Reevaluate strategy ranking
 - Identify implementation timelines, responsible party, funding measures, and performance metrics
- Present implementation requirements to Stakeholder Group

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Attachment C
Additional Information

Plastics

Immediate
(0-3 years)

Medium
(4-10 years)

Long-Term
(11+ years)

Upstream Measures

Design for recycling or composting

Data collection on post-consumer recycled content purchasing for government agencies

State define recyclable, compostable, biodegradable

Eliminate problematic and unnecessary packaging

Reconsider Ban on Bans

Require post-consumer recycled content purchasing for government agencies

Local or statewide ban plastic bags

Local or statewide ban polystyrene containers

Require post-consumer recycled content for packaging

Establish producer registry and reporting for packaging

Monitor EPR policy framework for packaging in other states

Consider/Adopt EPR policy framework for packaging

Consumer Actions

Develop reuse and refill pilots and funding

Encourage reuseables for dine-in

Education and awareness campaigns for refill, reuse, and repurpose

Implement to-go container and cup charges

Standards for customer opt-in for food service packaging and accessories

Implement plastic bag fee

Research H&S codes on reusable containers

Encourage reuse/refill for take-out and delivery

Reuse of take out containers for food distribution

End of Life

Data on volumes of bottle bill vs MRF for collection

Data on statewide (low) standards on labeling and recycling materials accepted - terminology consistent

Education and awareness campaign to reduce contamination in recycling programs

Add all non-carbonated containers to the Bottle Bill*

Add SUPB (water) to Bottle Bill*

Evaluation of recycling methods throughout state

Support development and adoption of reusable packaging systems

Support research on plastics transformation into new product, fuel, etc.

Education and awareness on littering

Collection data on final destinations of materials / recycling facilities

* Single-use plastic bottles addition to the Bottle Bill depends on data.