



# OREGON DEQ RECYCLING SYSTEM FRAMEWORKS RESEARCH: EVALUATION OF EXISTING FRAMEWORKS

Presented to Recycling Steering Committee and Legal &  
Relational Frameworks subcommittee: December 3<sup>rd</sup> 2019

# OUR TEAM



Victor Bell  
Gabriella Dobrot

Garth Hickle



SKUMATZ ECONOMIC  
RESEARCH ASSOCIATES

Lisa Skumatz  
Dana D'Souza

# OUR ADVISORS



Jerry Powell

Chris Parta

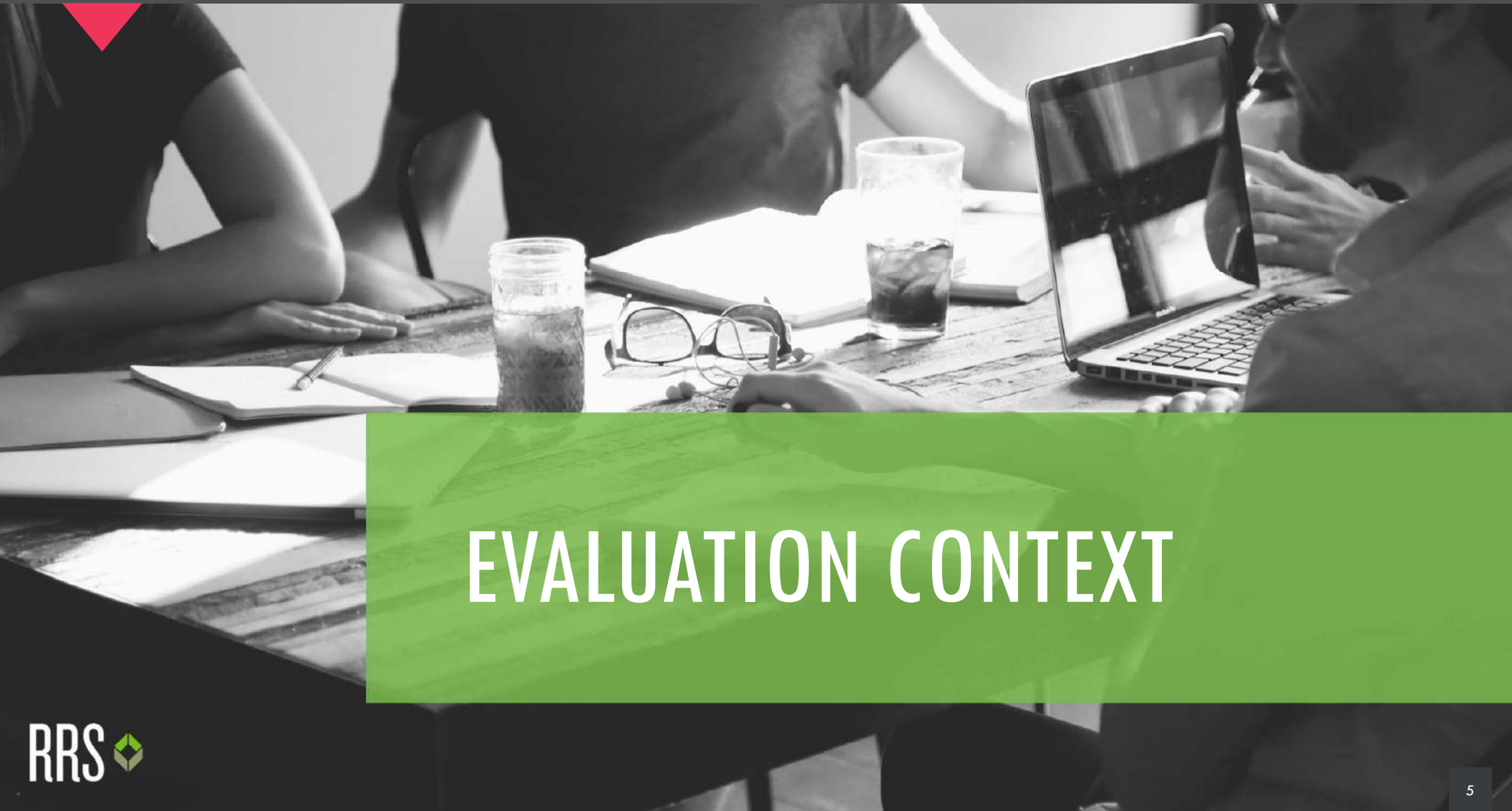


David Stitzhal



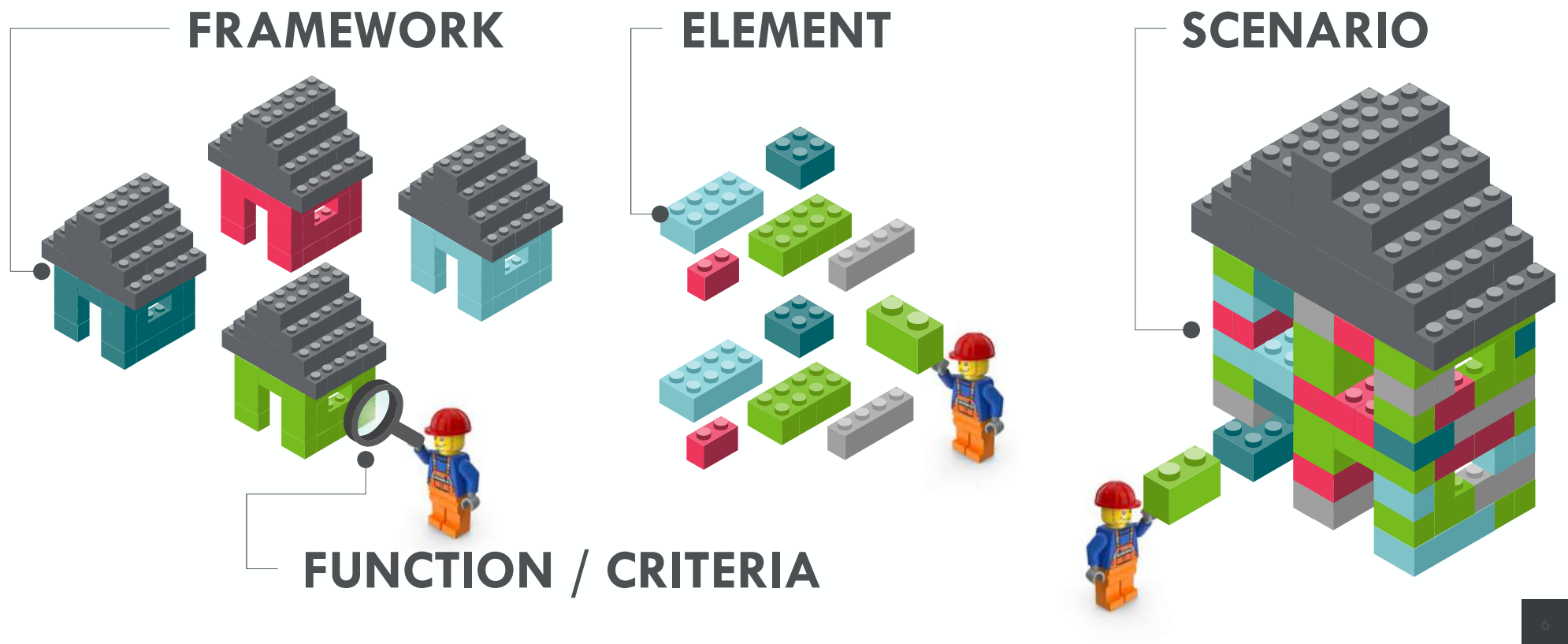
# AGENDA

- Evaluation Context
- Framework Evaluations
- Putting it all together: Scenario Building



# EVALUATION CONTEXT

# RELATIONSHIP BETWEEN FRAMEWORK, FUNCTION, CRITERIA, ELEMENT, SCENARIO



# FRAMEWORKS

<b>1.</b> Comprehensive Local Government <b>Tompkins County, NY</b>	<b>2.</b> State Contracts / Certifying MRFs <b>Onondaga County (NY) Resource Recovery Agency (OCRRA)</b>	<b>3.</b> Comprehensive Statewide System <b>Vermont</b>	<b>4.</b> SMM Authority <b>Conceptual Model</b>	<b>5.</b> EPR For Processing / Marketing Only <b>Conceptual Model</b>
<b>6.</b> Shared EPR <b>Manitoba</b>	<b>7.</b> Full Integrated EPR <b>BC</b>	<b>8.</b> EPR with Upstream Focus <b>France</b>	<b>9.</b> Full Financial EPR with Municipal Services <b>Quebec</b>	<b>10.</b> Full Integrated EPR with Competitive PROs <b>Austria</b>

# FUNCTIONS

<b>A</b>	<b>Optimization:</b> Optimizes the benefits of recycling considering life-cycle-impacts and costs
<b>B</b>	<b>Resiliency:</b> Resiliently adapts to changes in material supply and end-market demand
<b>C</b>	<b>Financing:</b> Provides sustainable and equitable financing for stable operations and capital investments
<b>D</b>	<b>Integration:</b> Integrates system components to achieve overall system goals
<b>E</b>	<b>Upstream:</b> Includes mechanisms to reduce upstream impacts of materials
<b>F</b>	<b>Equity:</b> Designs for equity – examining the burdens and benefits across the state
<b>G</b>	<b>Shared Responsibility:</b> Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry
<b>H</b>	<b>Goals:</b> Uses goals and metrics to measure progress and support ongoing improvement

<b>I</b>	<b>Education:</b> Educates and encourages residents and businesses to use the system properly
<b>J</b>	<b>Understanding Impacts:</b> Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their life-cycles
<b>K</b>	<b>Material Selection:</b> Identifies beneficial materials acceptable for collection programs
<b>L</b>	<b>Collection:</b> Collects clean, acceptable materials for processing
<b>M</b>	<b>Incoming Processing:</b> Ensures processing facilities receive clean materials and in sufficient volumes
<b>N</b>	<b>Outgoing Processing:</b> Produces quality materials that reach end markets
<b>O</b>	<b>Downstream:</b> Ensures materials are managed responsibly from collection through end markets
<b>P</b>	<b>Accountability:</b> Ensures all players in the system perform responsibly



# EVALUATION OVERVIEW

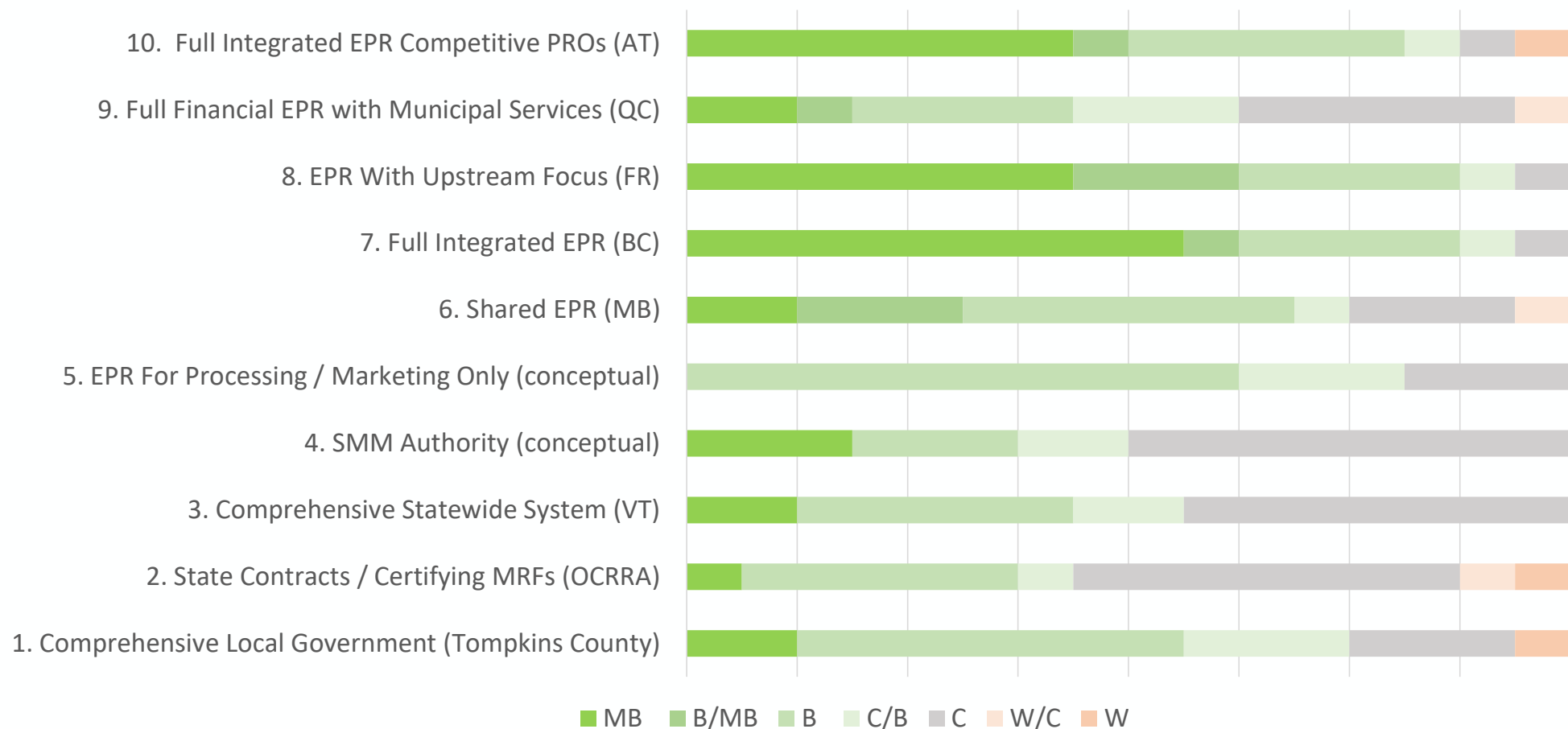
<b>MW</b>	Much Worse than current framework
<b>W</b>	Moderately Worse than current framework
<b>C</b>	Matches current framework
<b>B</b>	Moderately Better than current framework
<b>MB</b>	Much Better current framework
<b>N/A</b>	Function unaffected by framework

## FRAMEWORKS

### FUNCTION

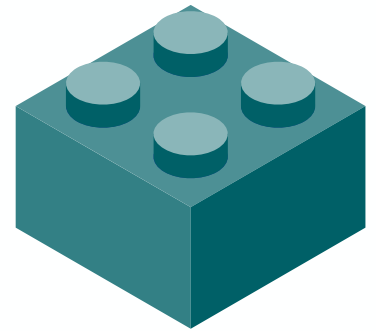
		1. Comprehensive Local Government Tompkins County, NY	2. State Contracts / Certifying MRFs OCRRA	3. Comprehensive Statewide System Vermont	4. SMM Authority Conceptual Model	5. EPR System For Processing / Marketing Only Conceptual Model	6. Shared EPR Manitoba	7. Full Integrated EPR BC	8. EPR with Upstream Focus France	9. Full Financial EPR with Municipal Services Quebec	10. Full Integrated EPR with Competitive PROs Austria
A	Optimization	C/B	C	B	C/B	B	B	MB	B/MB	B	B
B	Resiliency	B	C	C	B	C/B	B/MB	MB	MB	C/B	MB
C	Financing	MB	W/C	B	C	C/B	MB	B/MB	MB	B/MB	MB
D	Integration	C	C	C	MB	B	B	MB	MB	B	B/MB
E	Upstream	C	W	C	B	B	B	B	MB	B	B
F	Equity	MB	C	MB	C	B	B	B	B	MB	MB
G	Shared Responsibility	B	B	B	C	B	MB	MB	MB	MB	B
H	Goals	C/B	C/B	C/B	MB	B	B/MB	B	B	C/B	MB
I	Education	W	C	C	C	C	C	C	C	C	C
J	Understanding Impacts	B	B	C/B	B	B	W/C	W/C	C	W/C	W
K	Material Selection	B	MB	MB	MB	C	B/MB	MB	MB	C	B
L	Collection	B	C	C	C	B	B	MB	B/MB	C	MB
M	Incoming Processing	B	B	B	C	C	C/B	MB	B/MB	C/B	MB
N	Outgoing Processing	C/B	B	C	C	B	C	MB	B	C	B
O	Downstream	C	C	C	C	B	C	MB	C/MB	C	C/B
P	Accountability	B	B	B	C/B	C/B	B	B	MB	B	MB

# FRAMEWORK SCORING SUMMARY BY FUNCTION



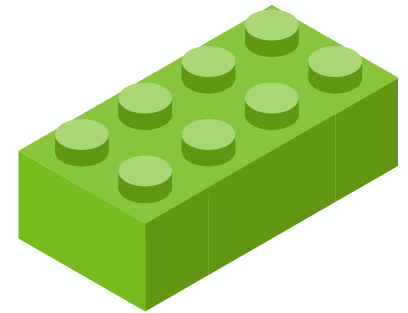
# MAIN DIFFERENCES IN FRAMEWORKS: FINANCING

- Who pays
- Revenue/risk sharing
- Level of capital investment
- If EPR
  - Extent of producer responsibility
  - Eco-modulation penalties / incentives



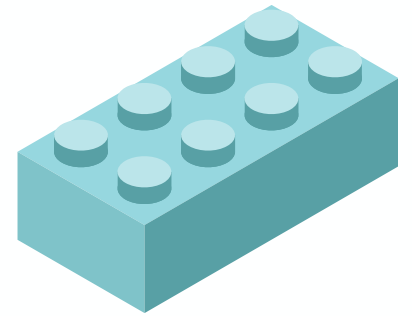
# MAIN DIFFERENCES IN FRAMEWORKS: OPERATIONAL

- Role of local government
- Extent of contractual / regulatory oversight post-collection
- Responsible party for education and outreach
- Extent of system integration / coordination
- Level of strategy and coordination of market development and technology improvement activities
- If EPR, extent of management by PRO



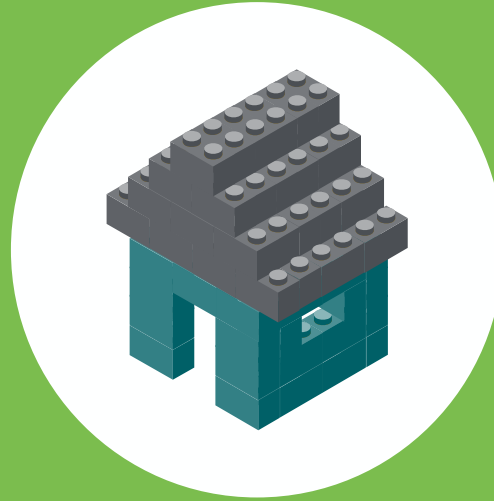
# MAIN DIFFERENCES IN FRAMEWORKS: GOVERNANCE

- Role of state agency, local government, multi-stakeholder authority, and / or producers
- Transparency / reporting requirements
- Level of oversight
- Enforcement authority / provisions
- IF EPR:
  - Single PRO vs competitive vs individual
  - Non-profit vs for profit
  - Board composition and selection process





# FRAMEWORK EVALUATIONS



# FRAMEWORK 1

Local government programs utilizing  
comprehensive policy and contractual tools

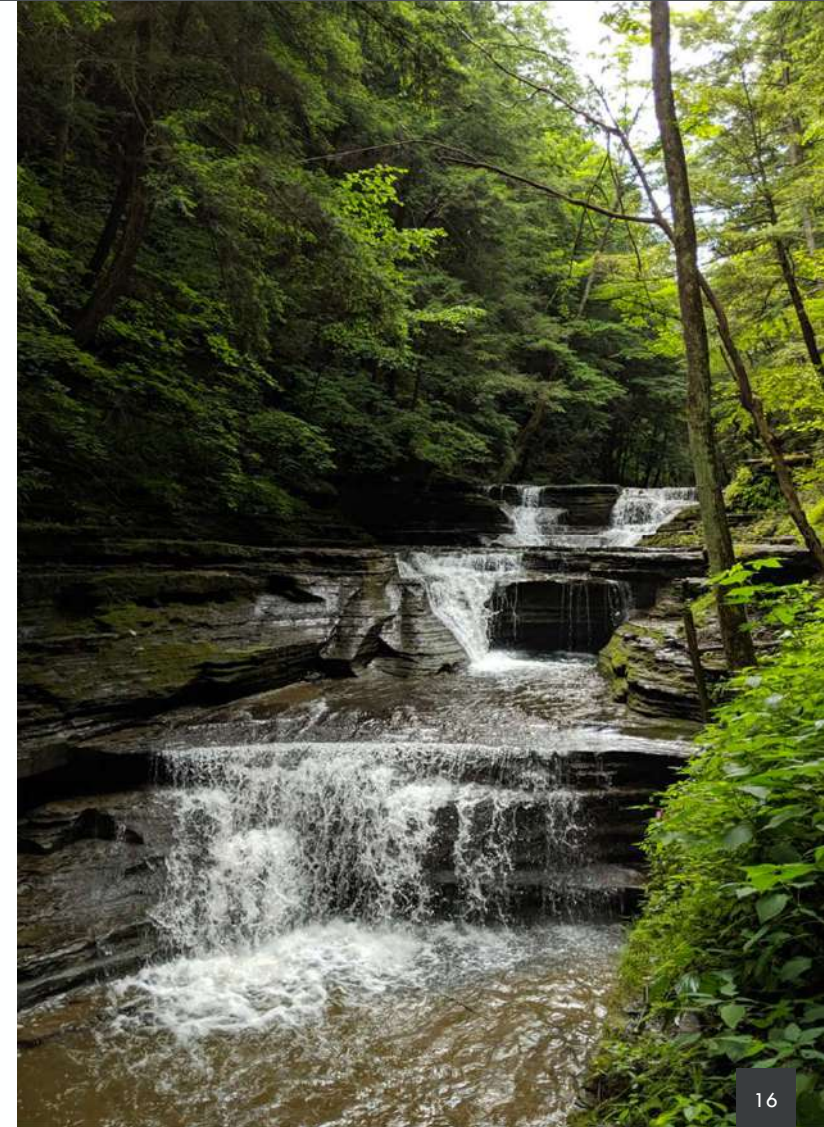
**REFERENCE PROGRAM: TOMPKINS COUNTY, NY**

# FRAMEWORK 1

Local government programs utilizing comprehensive policy and contractual tools

**REFERENCE PROGRAM:  
TOMPKINS COUNTY, NY**

A	Optimization	C/B
B	Resiliency	B
C	Financing	MB
D	Integration	C
E	Upstream	C
F	Equity	MB
G	Shared Responsibility	B
H	Goals	C/B
I	Education	W
J	Understanding Impacts	B
K	Material Selection	B
L	Collection	B
M	Incoming Processing	B
N	Outgoing Processing	C/B
O	Downstream	C
P	Accountability	B





# ROLES AND RESPONSIBILITY: TOMPKINS COUNTY, NY



## REGULATOR

- Permits facilities
- Issues regulations
- Approves LSWMPs
- Collects reports from local gov's, collection service providers, facilities



## PRODUCER / PRO

- No role in curbside recycling
- Beverage distributors financing and operate deposit program



## CONSUMER

- Recycle appropriately
- Pay variable rate fees (PAYT)
- Pay generator fee



## LOCAL GOVERNMENT

- Prepare LSWMP
- Enact source separation law and other policy
- Implement programs
- Report results
- Owns key infrastructure, contracts operations
- Licenses collection service providers



## COLLECTOR

- Obtain license from county
- Sell PAYT tags; only collect tagged waste
- Operate recycling services pursuant to a contract with county
- Provide customers with cost breakdown



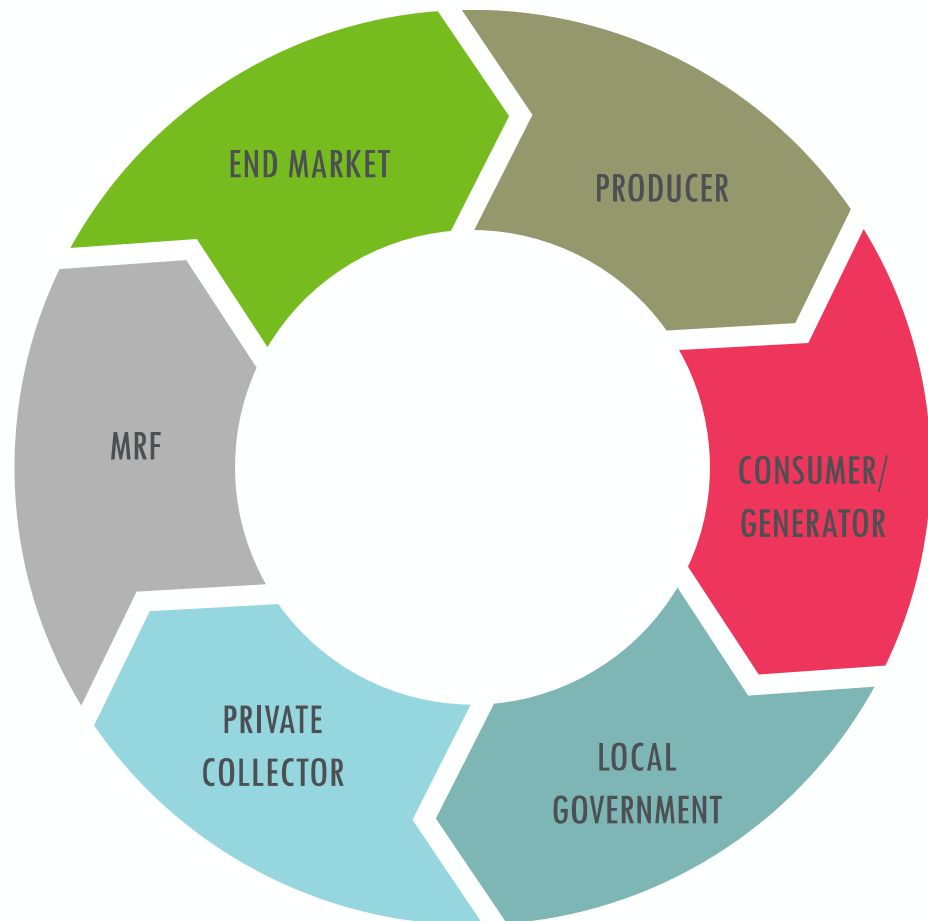
## PROCESSOR

- Be registered with NYS DEC
- Operate MRF pursuant to contract with the County, including County approval of end markets



## END MARKET

# FINANCIAL AND OPERATIONAL FLOWS: TOMPKINS COUNTY

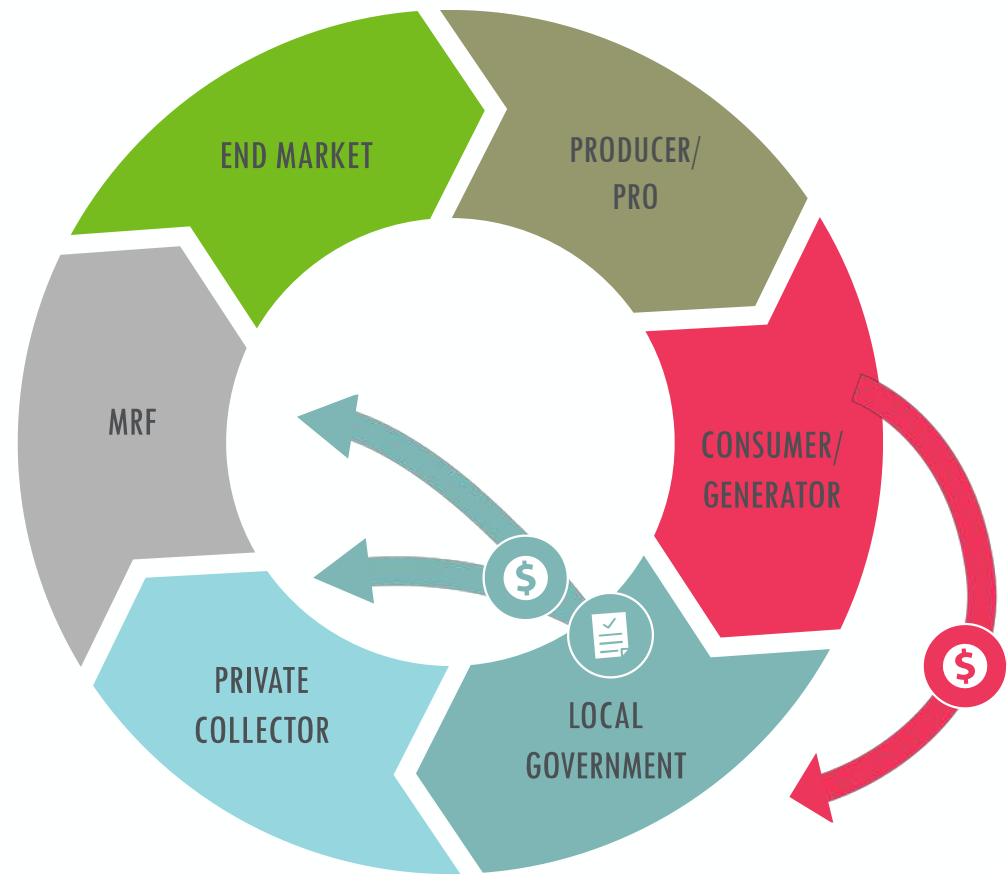


FINANCING



OPERATIONAL / CONTRACTUAL

# FINANCIAL AND OPERATIONAL FLOWS: TOMPKINS COUNTY



FINANCING



OPERATIONAL / CONTRACTUAL



# FRAMEWORK 1

Local government  
programs utilizing  
comprehensive  
policy and  
contractual tools

**REFERENCE PROGRAM:  
TOMPKINS COUNTY, NY**

## OVERVIEW:

- Manages the solid waste within its borders through public / private partnerships.
- Provides oversight and regulation; allows the private sector to manage all operational aspects.
- Requires 1) Mandatory Recycling, 2) A Trash Tag (PAYT) system for generators to pay for solid waste management, 3) Hauler Licensing and Reporting, 4) SW Disposal in authorized facilities to deter illegal dumping.
- There is no landfill in the county.
- The county owns a MRF and a transfer station that accepts municipal solid waste (MSW), recycling, and food scraps generated within the county only. The county contracts the operation of the facility, collection and marketing of the recyclables, composting the organics, and transportation and disposal of landfill material.
- The private company that operates the county's MRF is responsible for marketing recyclables. The county does not have a role in marketing of materials or end market development, but can approve / disapprove of end markets identified by the contractor.

# HIGHLIGHTS: HIGH SCORING FUNCTIONS

<b>C</b> Provides sustainable and equitable financing for stable operations and capital investments	MB
<b>F</b> Designs for equity – examining the burdens and benefits across the state	MB
<b>L</b> Collects clean, acceptable materials for processing	B
<b>M</b> Ensures processing facilities receive clean materials and in sufficient volumes	B

## KEY ELEMENTS

- System Finance – diverse and reliable funding sources
- Equity – provides access to everyone including multi-family and businesses
- Clean materials in sufficient volume – mandatory recycling and PAYT trash fees incentivize recycling

# WEAKNESS: LOW SCORING FUNCTIONS

<b>E</b> Includes mechanisms to reduce upstream impacts of materials	C
<b>I</b> Educates and encourages residents and businesses to use the system properly	W
<b>O</b> Ensures materials are managed responsibly from collection through end markets	C

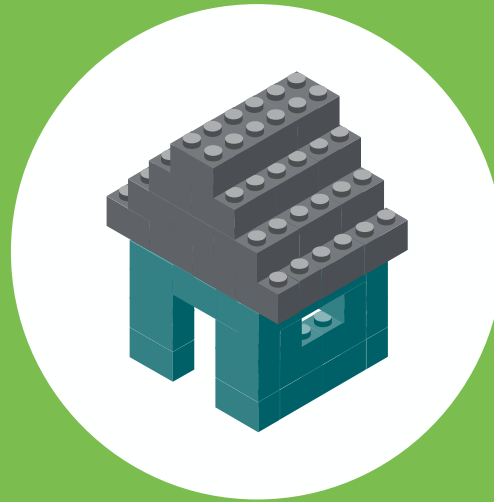
- Includes PAYT, but does not include any incentive for use of recycled content, or any other element that would impact upstream production
- Does not explicitly allocate responsibility for education and outreach
- Does not control or guide end markets, although the contract allows for county approval



# QUESTIONS

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Clarifying questions to  
round out understanding of  
the framework



# FRAMEWORK 2

## State Contracts / Certifying MRFS

**REFERENCE PROGRAM: OCRRA**

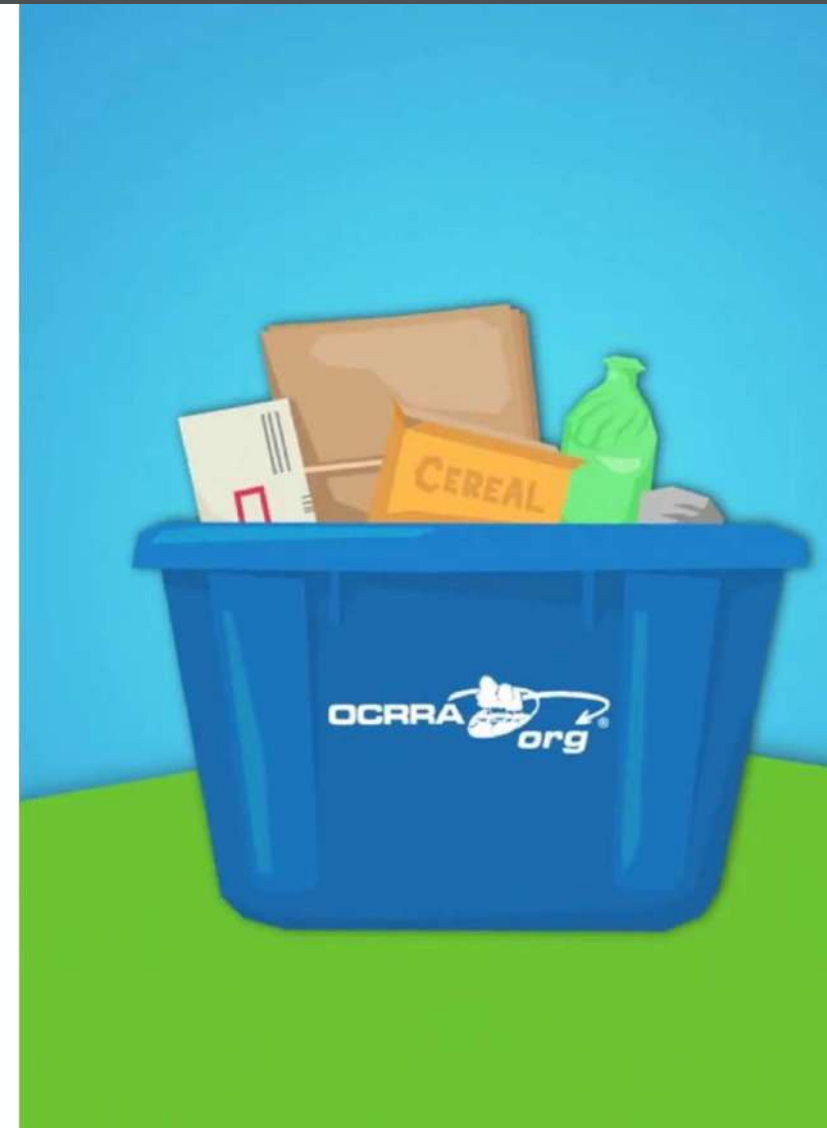


# FRAMEWORK 2

## State Contracts / Certifying MRFS

REFERENCE PROGRAM:  
OCRRA

A	Optimization	C
B	Resiliency	C
C	Financing	W/C
D	Integration	C
E	Upstream	W
F	Equity	C
G	Shared Responsibility	B
H	Goals	C/B
I	Education	C
J	Understanding Impacts	B
K	Material Selection	MB
L	Collection	C
M	Incoming Processing	B
N	Outgoing Processing	B
O	Downstream	C
P	Accountability	B



# ROLES AND RESPONSIBILITY: OCRRA



## REGULATOR

- Permits facilities
- Issues regulations
- Approves LSWMPs
- Collects reports from local gov's, collection service providers, facilities



## PRODUCER / PRO

- No role in curbside recycling
- Beverage distributors financing and operate deposit program



## CONSUMER

- Recycle appropriately
- Subscribe for recycling service, if municipality does not provide or contract for service



## LOCAL GOVERNMENT

- Prepare LSWMP
- Contract w/ MRF; shares revenue & pays processing fee when necessary (OCRRA)
- Collect or determine collection method (municipalities)
- Enact source separation ordinance (County)



## COLLECTOR

- Collect materials
- Deliver materials to processor
- Comply with OCRRA contract terms



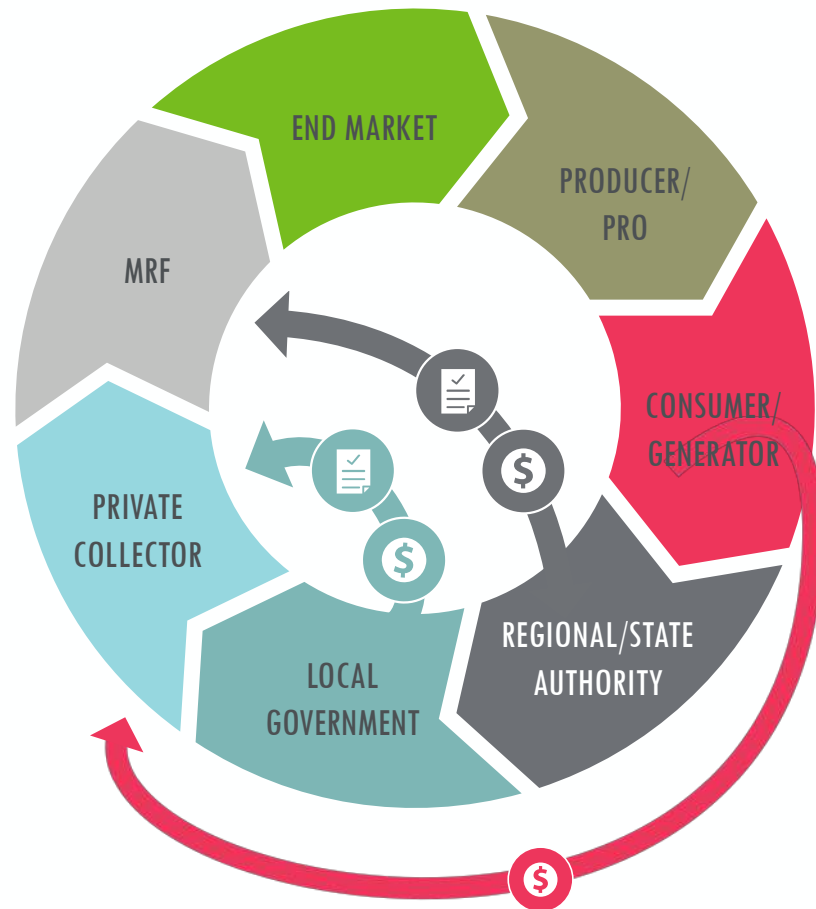
## PROCESSOR

- Process materials
- Accept recyclables at no cost
- Market to appropriate end markets



## END MARKET

# FINANCIAL AND OPERATIONAL FLOWS: OCRRA



FINANCING



OPERATIONAL / CONTRACTUAL



## FRAMEWORK 2

### State Contracts / Certifying MRFS

**REFERENCE PROGRAM:  
OCRRA**

#### OVERVIEW:

- New York's Onondaga County Resource Recovery Agency (OCRRA) oversees waste and recycling for 33 participating municipalities within the county.
- Besides owning a WTE facility operated by a contractor, the agency takes an active role in many additional facets of the county's recovery system.
- All waste (not recyclables) generated in participating municipalities is flow-controlled to the OCRRA system.
- OCRRA contracts and pays processing costs at MRF(s), allowing collection service providers to deliver material to contracted MRFS at no cost.
- OCRRA does not perform collection services; these are provided by municipalities directly, or via community-wide contract, or contracted for by residents through individual subscription.
- Recyclable materials are standardized under local law and the agency's contracts.
- Framework currently operates on the local level but could be applied state-wide.

# HIGHLIGHTS: HIGH SCORING FUNCTIONS

**G**

Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry

B

**K**

Identifies beneficial materials acceptable for collection programs

MB

**N**

Produces quality materials that reach end markets

B

**P**

Ensures all players in the system perform responsibly

B

## KEY ELEMENTS

- Responsibility - strong regulatory and contractual approach that clearly defines responsibilities and allows for enforcement
- Processing - ensures recycling processing is available to all collection service providers and residents at “no cost”
- Competition – allows for competition among MRFs

# WEAKNESS: LOW SCORING FUNCTIONS

<b>A</b> Optimizes the benefits of recycling considering life cycle-impacts and costs	<b>C</b>
<b>C</b> Provides sustainable and equitable financing for stable operations and capital investments	<b>W/C</b>
<b>E</b> Includes mechanisms to reduce upstream impacts of materials	<b>W</b>

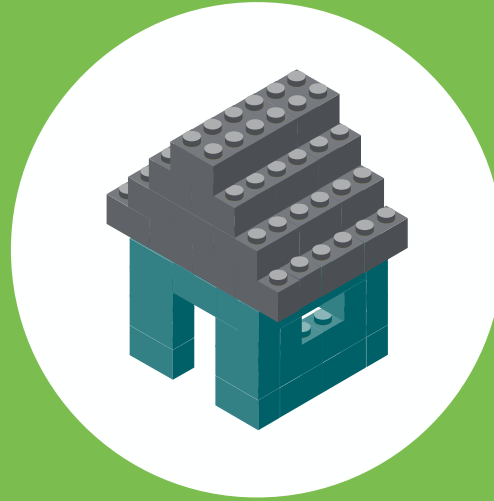
- Despite strong public policy driving recycling, does not optimize recycling due to limited oversight of recycling supply chain
- Does not affect upstream environmental impacts
- Does not include a sustainable funding mechanism
- Does not explicitly support market development or provide end market oversight



# QUESTIONS

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Clarifying questions to  
round out understanding of  
the framework



# FRAMEWORK 3

## Comprehensive Statewide System Reference System

**REFERENCE PROGRAM: VERMONT**



# FRAMEWORK 3

## Comprehensive Statewide System Reference System

**REFERENCE PROGRAM:  
VERMONT**

A	Optimization	B
B	Resiliency	C
C	Financing	B
D	Integration	C
E	Upstream	C
F	Equity	MB
G	Shared Responsibility	B
H	Goals	C/B
I	Education	C
J	Understanding Impacts	C/B
K	Material Selection	MB
L	Collection	C
M	Incoming Processing	B
N	Outgoing Processing	C
O	Downstream	C
P	Accountability	B



# ROLES AND RESPONSIBILITY: VERMONT



## REGULATOR

Solid waste management planning

Regulatory oversight

Permitting

Collect and audit state-wide tip-fee surcharge; distribute 17% to local governments / districts



## PRODUCER / PRO

No role in curbside recycling

Beverage distributors financing and operate deposit program



## CONSUMER

Recycle appropriately

Pay variable rate disposal fees



## LOCAL GOVERNMENT

Develop and implement SWIPs, on own or through solid waste districts

Assess local tip fee surcharge to fund programs (typically)



## COLLECTOR

Provide recycling service to all generators at no additional charge



## PROCESSOR

Process materials for market (on contract to districts, or as merchant operators)



## END MARKET

# FINANCIAL AND OPERATIONAL FLOWS: VERMONT



FINANCING



OPERATIONAL / CONTRACTUAL



# FRAMEWORK 3

## Comprehensive Statewide System Reference System

**REFERENCE PROGRAM:  
VERMONT**

### OVERVIEW:

- Framework is governed by legislation that creates a strong policy structure to support recycling, including requirements for statewide Pay As You Throw (PAYT) incentive programs, universal recycling access (wherever waste collection is provided), and recyclables disposal bans.
- Programs implemented primarily by regional solid waste districts.
- The state's system is funded by statewide and local tip-fee surcharges, as well as PAYT.
- Beverage distributors are responsible for financing and operating the recycling programs for beer, carbonated soft drinks, and liquor under the state's bottle bill.
- The state achieves an impressive 72% recovery rate for recyclable paper and containers.

# HIGHLIGHTS: HIGH SCORING FUNCTIONS

<b>C</b> Provides sustainable and equitable financing for stable operations and capital investments	B
<b>G</b> Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	B
<b>F</b> Designs for equity – examining the burdens and benefits across the state	MB
<b>K</b> Identifies beneficial materials acceptable for collection programs	MB
<b>M</b> Ensures processing facilities receive clean materials and in sufficient volumes	B

## KEY ELEMENTS

- Equity – Mandatory source separation, universal (parallel) recycling access, landfill bans, mandatory regional planning, and mandatory PAYT drive recycling equally everywhere
- Identifies beneficial materials – Consistent list of materials to be collected includes a process for adapting/updating list
- Clean materials in sufficient volumes – mandatory recycling, universal access, and PAYT trash fees incentivize recycling
- Sustainable financing – relies on a diverse based of funding mechanisms
- Engages and motivates all players except producers

# WEAKNESS: LOW SCORING FUNCTIONS

<b>B</b> Resiliently adapts to changes in material supply and end-market demand	C
<b>D</b> Integrates system components to achieve overall system goals	C
<b>E</b> Includes mechanisms to reduce upstream impacts of materials	C
<b>L</b> Collects clean, acceptable materials for processing	C

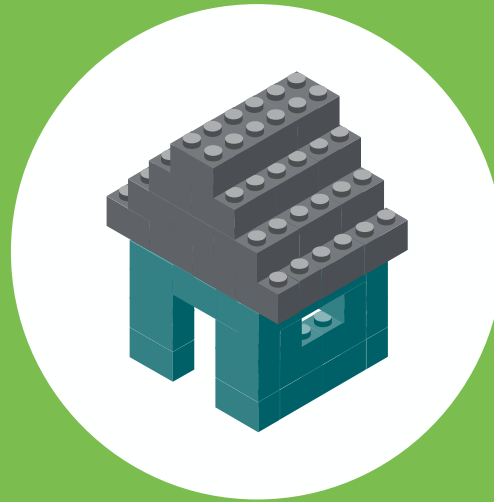
- Does not focus downstream, having little effect on processing and end markets
- Does not focus on upstream impacts beyond promoting reduction and reuse planning; does not incentivize use of recycled content
- Focus on extensive collection, rather than quality
- Material recovery decisions driven not only by markets, but also by other factors (toxicity, volume)



# QUESTIONS

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Clarifying questions to  
round out understanding of  
the framework



# FRAMEWORK 4

## SMM Authority

**REFERENCE PROGRAM:  
CONCEPTUAL MODEL**



# FRAMEWORK 4

## SMM Authority

### REFERENCE PROGRAM: CONCEPTUAL MODEL

A	Optimization	C/B
B	Resiliency	B
C	Financing	C
D	Integration	MB
E	Upstream	B
F	Equity	C
G	Shared Responsibility	C
H	Goals	MB
I	Education	C
J	Understanding Impacts	B
K	Material Selection	MB
L	Collection	C
M	Incoming Processing	C
N	Outgoing Processing	C
O	Downstream	C
P	Accountability	C/B



# ROLES AND RESPONSIBILITY: SMM AUTHORITY



## REGULATOR\*

Regulatory oversight  
Enforcement  
Policy development



## PRODUCER / PRO

Comply with requirements imposed by SMMA (e.g. single-use products, source reduction, recycled content, reuse/ repair, expanded deposits)



## CONSUMER

Recycle appropriately



## LOCAL GOVERNMENT

Ensure opportunities for recycling  
Provide recycling services directly or through contracts with service providers



## COLLECTOR

Maintain current service provisions under Oregon framework  
Implement changes directed by SMMA (e.g, change in scope of products/ packaging)



## PROCESSOR

Maintain current service provisions under OR framework  
Implement changes directed by SMMA (e.g, change in scope of products/ packaging)



## END MARKET

\*Regulator includes roles of SMMA and DEQ

# FINANCIAL AND OPERATIONAL FLOWS: SMM AUTHORITY



STRATEGIC / REGULATORY AUTHORITY



# FRAMEWORK 4

## SMM Authority

**REFERENCE PROGRAM:  
CONCEPTUAL MODEL**

### OVERVIEW:

- The Sustainable Materials Management (SMM) Authority is a conceptual model that draws on existing cooperative models of governance for solid waste management and recycling.
- It is designed to advance the SMM vision in Oregon through a consolidated and focused decision-making structure composed of a multi-stakeholder board that is representative of the actors in the materials management chain.
- The SMM Authority and its activities could be financed by a variety of means.

# HIGHLIGHTS: HIGH SCORING FUNCTIONS

<b>D</b> Integrates system components to achieve overall system goals	MB
<b>H</b> Uses goals and metrics to measure progress and support ongoing improvement	MB
<b>J</b> Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles	B
<b>K</b> Identifies beneficial materials acceptable for collection programs	MB

## KEY ELEMENTS

- System integration, coordination, and improvement
- Beneficial Materials - Enable prioritization of products and packaging to be emphasized
- Service delivery and financing system would not be fundamentally affected

# WEAKNESS: LOW SCORING FUNCTIONS

**G**

Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry

C

**M**

Ensures processing facilities receive clean materials and in sufficient volumes

C

**N**

Produces quality materials that reach end markets

C

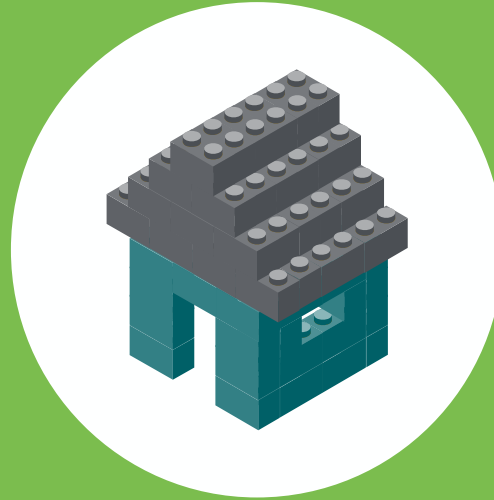
- Anticipated that the local government and ratepayer financing responsibility for recycling activities will remain intact
- Players would largely maintain current roles
- Material flows may be reduced in response to source reduction and reuse efforts
- Limited impact on any operational elements



# QUESTIONS

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Clarifying questions to  
round out understanding of  
the framework



# FRAMEWORK 5

## EPR System for Processing/Marketing

**REFERENCE PROGRAM: CONCEPTUAL MODEL**



# FRAMEWORK 5

## EPR System for Processing/ Marketing

### REFERENCE PROGRAM: HYBRID EPR SYSTEM

A	Optimization	B
B	Resiliency	C/B
C	Financing	C/B
D	Integration	B
E	Upstream	B
F	Equity	B
G	Shared Responsibility	B
H	Goals	B
I	Education	C
J	Understanding Impacts	B
K	Material Selection	C
L	Collection	B
M	Incoming Processing	C
N	Outgoing Processing	B
O	Downstream	B
P	Accountability	C/B



# ROLES AND RESPONSIBILITY: HYBRID EPR



## REGULATOR

Set requirements  
Regulatory oversight  
Enforcement



## PRODUCER / PRO

Set / collect fees  
Finance and control marketing of sorted materials (post – MRF)  
Comply with regulatory requirements



## CONSUMER

Recycle appropriately



## LOCAL GOVERNMENT

Provide collection and processing services (either directly or by contract)  
Provide material to producers at no cost



## COLLECTOR

Collect and deliver materials to processor (on contract to local government)



## PROCESSOR

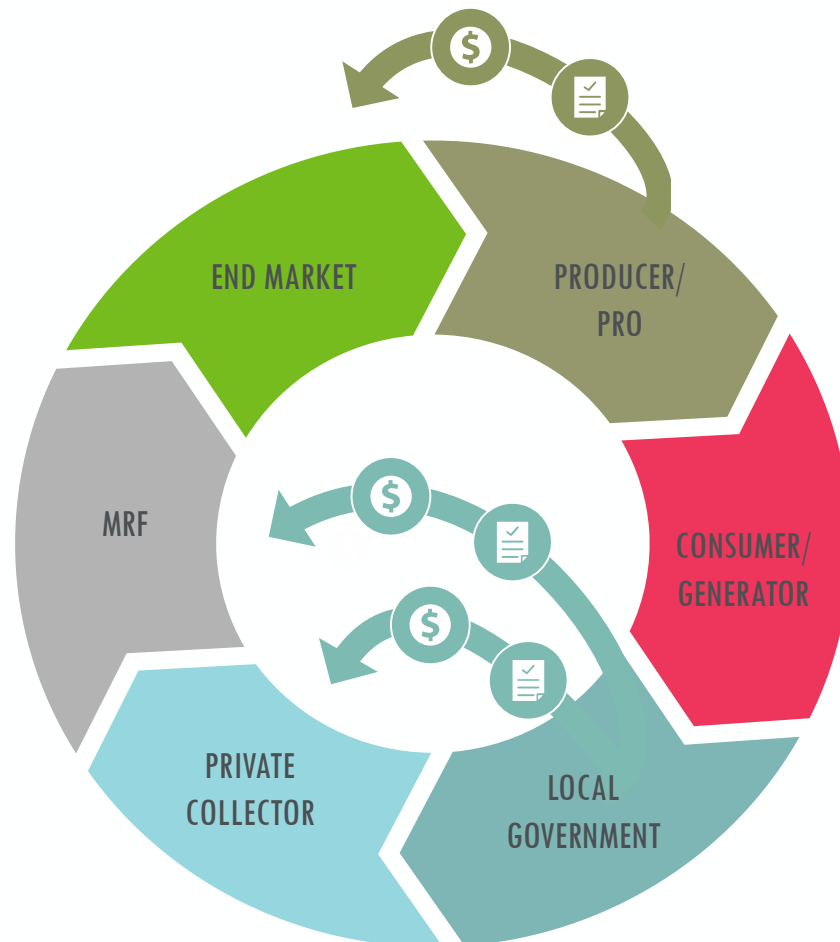
Process materials  
Provide sorted material to producer responsibility organization (PRO)



## END MARKET

Reprocess materials, per agreement with PRO

# FINANCIAL AND OPERATIONAL FLOWS: HYBRID EPR



FINANCING



OPERATIONAL / CONTRACTUAL



# FRAMEWORK 5

EPR System for  
Processing/  
Marketing

**REFERENCE PROGRAM:  
CONCEPTUAL MODEL**

## OVERVIEW:

- This framework is a hybrid EPR model with the producers bearing financial and operational responsibility for the marketing and end market processing of packaging collected for recycling, while the municipalities finance the collection and sorting of the collected materials. Examples of this approach include Slovenia in the European Union but other program examples, (e.g., BC), could be modified to reflect this hybrid approach.
- In the EPR system in Slovenia, the municipalities are required to provide recycling collection to households for waste packaging. They also contract for processing.

# HIGHLIGHTS: HIGH SCORING FUNCTIONS

**G**

Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry

**B**

**N**

Produces quality materials that reach end markets

**B**

**O**

Ensures materials are managed responsibly from collection through end markets

**B**

## KEY ELEMENTS

- Shared responsibility – shares responsibility of different aspects with all parties
- End Markets – essentially ensures an end market creating stability and resiliency

# WEAKNESS: LOW SCORING FUNCTIONS

<b>I</b> Educates and encourages residents and businesses to use the system properly	C
<b>K</b> Identifies beneficial materials acceptable for collection programs	C
<b>M</b> Ensures processing facilities receive clean materials and in sufficient volumes	C
<b>P</b> Ensures all players in the system perform responsibly	C/B

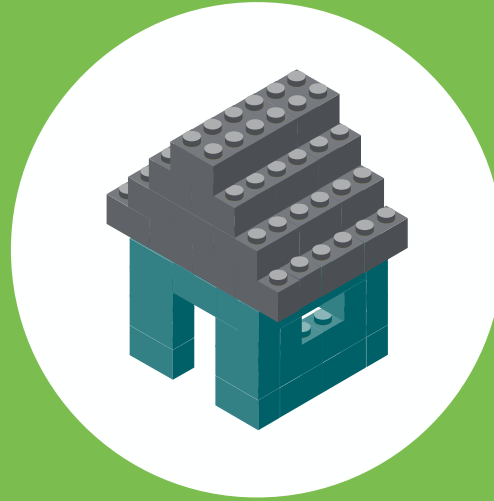
- Would not finance or influence other parts of the system, including collection and education, which may be vulnerable depending on local conditions.
- System integration benefits that normally come with EPR would not be a factor.



# QUESTIONS

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Clarifying questions to  
round out understanding of  
the framework



# FRAMEWORK 6

## Shared EPR System

**REFERENCE PROGRAM: MANITOBA**



# FRAMEWORK 6

## Shared EPR System

### REFERENCE PROGRAM: MANITOBA

A	Optimization	B
B	Resiliency	B/MB
C	Financing	MB
D	Integration	B
E	Upstream	B
F	Equity	B
G	Shared Responsibility	MB
H	Goals	B/MB
I	Education	C
J	Understanding Impacts	W/C
K	Material Selection	B/MB
L	Collection	B
M	Incoming Processing	C/B
N	Outgoing Processing	C
O	Downstream	C
P	Accountability	B



# ROLES AND RESPONSIBILITY: MANITOBA



## REGULATOR

- Set requirements
- Negotiate and approve stewardship plans
- Regulatory Oversight
- Enforcement



## PRODUCER / PRO

- Develop and implements Program Plan
- Meet packaging recovery targets
- Set / collect fees
- Develop program agreement with municipalities
- Set list of Materials
- Finance 80% of recycling costs



## CONSUMER

- Recycle appropriately



## LOCAL GOVERNMENT

- Design and implement recycling program; provide service directly or contract with private companies
- Meet PRO program agreement requirements (e.g., materials collected)



## COLLECTOR

- Collect materials, as contracted
- Deliver materials to processor, as contracted



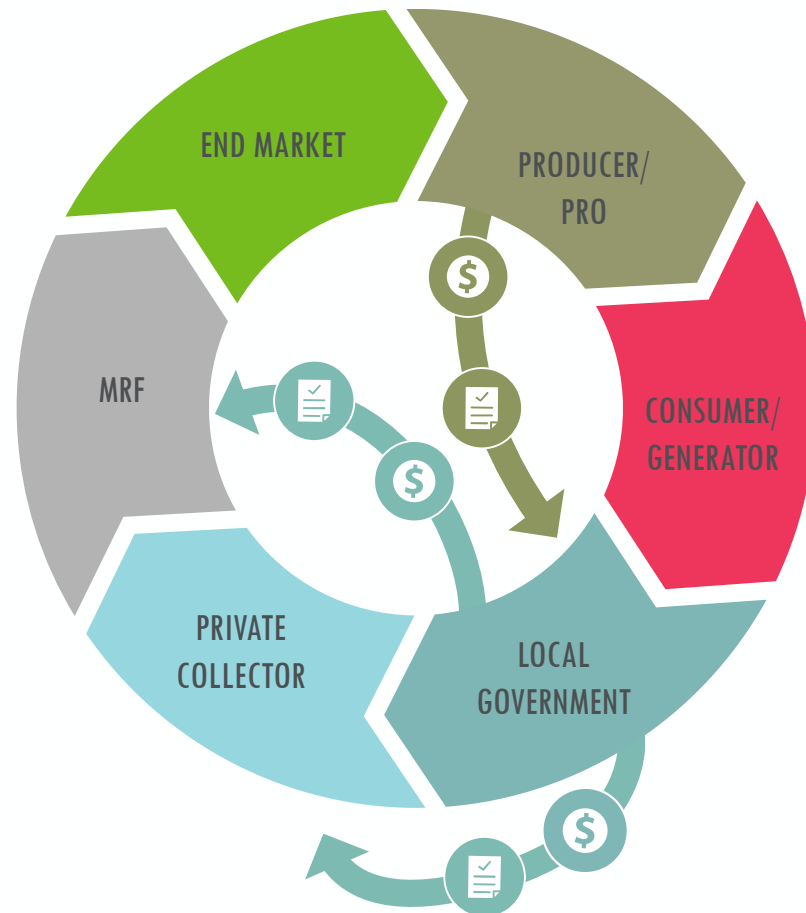
## PROCESSOR

- Process designated materials
- Register with PRO
- Market to end markets



## END MARKET

# FINANCIAL AND OPERATIONAL FLOWS: MANITOBA



FINANCING



OPERATIONAL / CONTRACTUAL



# FRAMEWORK 6

## Shared EPR System

**REFERENCE PROGRAM:  
MANITOBA**

### OVERVIEW:

- The Manitoba framework is a shared producer responsibility system for managing residential printed paper and packaging (PPP), where producers cover 80% of the costs of recycling, and municipalities pay the remaining 20%.
- Producers meet their obligation through two stewardship organizations, one focused on beverage containers (Canadian Beverage Container Recycling Association, CBCRA) and one focused on all other packaging and printed paper (Multi-Material Stewardship Manitoba, MMSM).
- MMSM is responsible for financing 80% of the net program cost of the residential curbside and drop off recycling programs.
- A municipal program must meet certain requirements, including types of material collected, in order to be eligible for financing. Nearly all communities participate.
- CBCRA works in conjunction with MMSM to finance beverage containers in residential stream and provides bins and promotion to support beverage container recycling at events and public spaces.

# HIGHLIGHTS: HIGH SCORING FUNCTIONS

<b>B</b> Resiliently adapts to changes in material supply and end-market demand	B/MB
<b>C</b> Provides sustainable and equitable financing for stable operations and capital investments	MB
<b>G</b> Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	MB
<b>H</b> Uses goals and metrics to measure progress and support ongoing improvement	B/MB
<b>K</b> Identifies beneficial materials acceptable for collection programs	B/MB

## KEY ELEMENTS

- Shared responsibility – shares responsibility both operationally and financially with all parties
- Identifies beneficial materials – harmonizes with a consistent material list
- Local government role – more responsibility than some other EPR systems; feedback loops between MMSM and local governments

# WEAKNESS: LOW SCORING FUNCTIONS

<b>J</b> Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles	W/C
<b>N</b> Produces quality materials that reach end markets	C
<b>O</b> Ensures materials are managed responsibly from collection through end markets	C

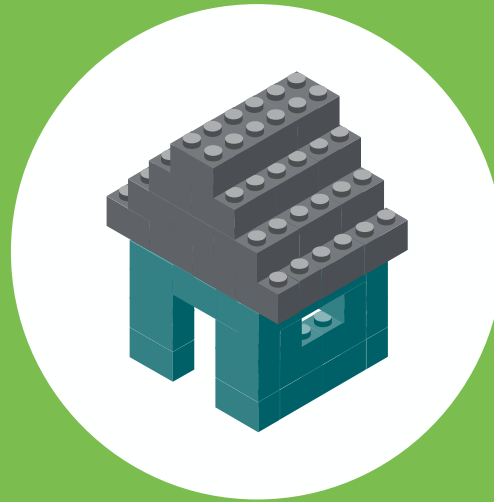
- No economic mechanisms engaging public to understand cost of recycling, waste prevention or other life cycle impacts of decisions
- Inconsistency in collection systems further leads to contamination
- No control or guidance related to processing or end markets
- No incentive for use of recycled content



# QUESTIONS

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Clarifying questions to  
round out understanding of  
the framework



# FRAMEWORK 7

## Full EPR System

**REFERENCE PROGRAM: BRITISH COLUMBIA**



# FRAMEWORK 7

## Full EPR System

**REFERENCE PROGRAM:  
BRITISH COLUMBIA**

A	Optimization	MB
B	Resiliency	MB
C	Financing	B/MB
D	Integration	MB
E	Upstream	B
F	Equity	B
G	Shared Responsibility	MB
H	Goals	B
I	Education	C
J	Understanding Impacts	W/C
K	Material Selection	MB
L	Collection	MB
M	Incoming Processing	MB
N	Outgoing Processing	MB
O	Downstream	MB
P	Accountability	B



# ROLES AND RESPONSIBILITY: BC



## REGULATOR

- Set requirements
- Negotiate and approves stewardship plans
- Regulatory oversight
- Enforcement



## PRODUCER / PRO

- Develop and implement Program Plan
- Set / collect fees
- Finance System
- Meet packaging recovery targets
- Coordinate and implement Operations
- Contract with collection and processing service providers



## CONSUMER

- Recycle appropriately



## LOCAL GOVERNMENT

- Contract with PRO as Collection Agent (optional)



## COLLECTOR

- Contract with PRO or subcontract with LG
- Collect designated materials
- Deliver materials to processor



## PROCESSOR

- Process designated materials on contract to PRO
- Market to appropriate end markets, per agreement with PRO



## END MARKET

- Meet or exceed OECD Standards

# FINANCIAL AND OPERATIONAL FLOWS: BRITISH COLUMBIA



FINANCING



OPERATIONAL / CONTRACTUAL



# FRAMEWORK 7

## Full EPR System

**REFERENCE PROGRAM:  
BRITISH COLUMBIA**

### OVERVIEW:

- Manages residential packaging and printed paper (PPP) through fully producer financed and operated system
- Producers meet obligations through Producer Responsibility Organization (PRO) – RecycleBC
- There is a broad list of materials collected through curbside programs and depots
- Operational elements – material list, level of service, downstream flow - are harmonized province wide
- Local governments can have a role as “collection agent” OR can outsource to RecycleBC to directly contract for service, at which point they have no functional role
- RecycleBC has preference for multi-stream programs and incentivizes them
- Post-Collection is coordinated through a province-wide contract that utilizes preexisting footprint plus new infrastructure that developed as a result of the contract award
- There are limited eco-design-based incentives

# HIGHLIGHTS: HIGH SCORING FUNCTIONS

<b>A</b> Optimizes the benefits of recycling considering life cycle-impacts and costs	MB
<b>B</b> Resiliently adapts to changes in material supply and end-market demand	MB
<b>C</b> Provides sustainable and equitable financing for stable operations and capital investments	B/MB
<b>D</b> Integrates system components to achieve overall system goals	MB
<b>G</b> Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	MB
<b>K</b> Identifies beneficial materials acceptable for collection programs	MB
<b>L</b> Collects clean, acceptable materials for processing	MB
<b>M</b> Ensures processing facilities receive clean materials and in sufficient volumes	MB
<b>N</b> Produces quality materials that reach end markets	MB
<b>O</b> Ensures materials are managed responsibly from collection through end markets	MB

## KEY ELEMENTS

- Shared Responsibility – all system players have active roles
- Sustainable and Comprehensive Financing – fees cover all costs, adjust annually, allows for R&D and market development, provide limited design incentives
- Coordination and harmonization along supply chain – improved quality, high performance, economies of scale, private investment stimulation

# WEAKNESS: LOW SCORING FUNCTIONS

**J**

Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles

W/C

**D.6/K.5**

Framework decides on materials to be included for collection based on whether there are consistent, robust markets

W

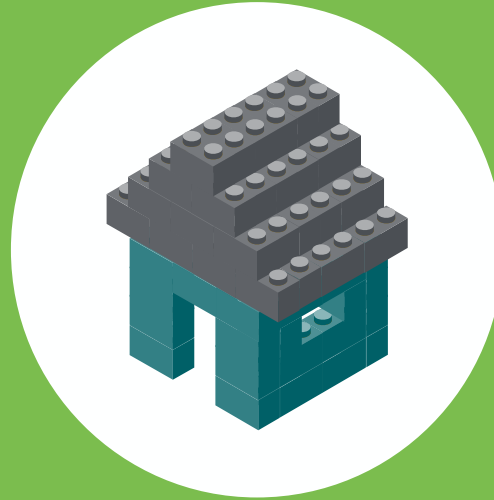
- Does not incorporate economic incentives for waste reduction, or mechanisms engaging public to understand cost of recycling, waste prevention or other life cycle impacts of decisions
- Includes materials that don't have robust markets – flexible pouches, PE tubes



# QUESTIONS

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Clarifying questions to  
round out understanding of  
the framework



# FRAMEWORK 8

Full EPR with Elements to Incentivize Reduction  
of Upstream Impacts

REFERENCE PROGRAM: FRANCE

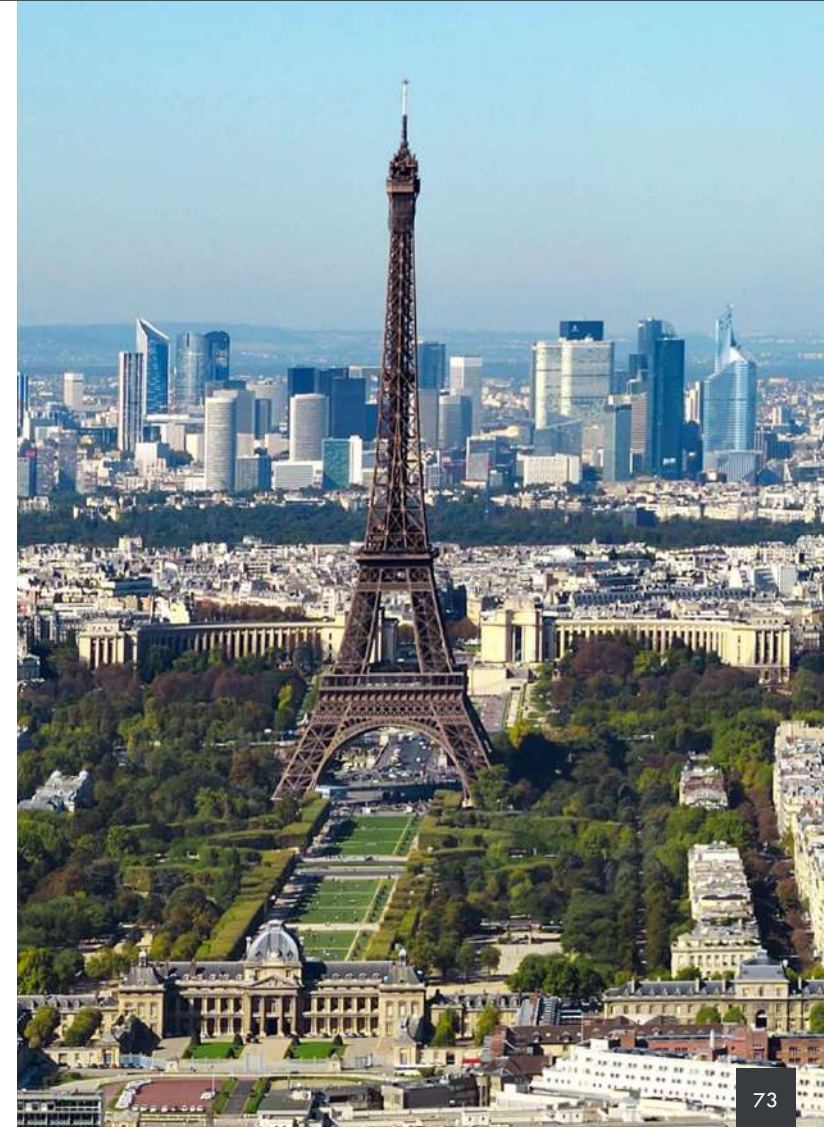


# FRAMEWORK 8

Full EPR with  
Elements to  
Incentivize  
Reduction of  
Upstream Impacts

REFERENCE PROGRAM:  
FRANCE

A	Optimization	B/MB
B	Resiliency	MB
C	Financing	MB
D	Integration	MB
E	Upstream	MB
F	Equity	B
G	Shared Responsibility	MB
H	Goals	B
I	Education	C
J	Understanding Impacts	C
K	Material Selection	MB
L	Collection	B/MB
M	Incoming Processing	B/MB
N	Outgoing Processing	B
O	Downstream	C/MB
P	Accountability	MB



# ROLES AND RESPONSIBILITY: FRANCE



## REGULATOR

- Set requirements
- Negotiate and approve stewardship plan
- Regulatory Oversight
- Enforcement



## PRODUCER / PRO

- Develop and implement Program Plan
- Meet packaging recovery targets
- Set fees that reflect recyclability and upstream impacts
- Finance most of the cost of the system (~80%)



## CONSUMER

- Recycle appropriately



## LOCAL GOVERNMENT

- Implement recycling program
- Meet requirements for PRO funding
- Fund a portion of program costs (~20%)



## COLLECTOR

- Provide services to LGs or the recycling networks



## PROCESSOR

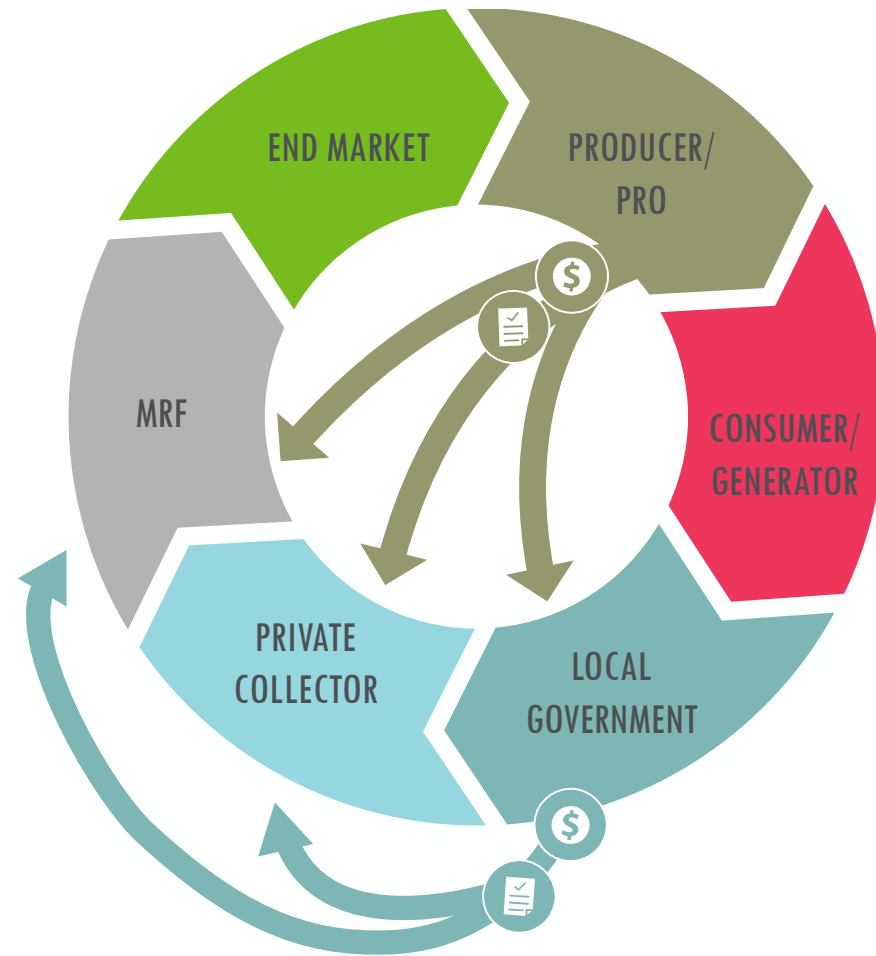
- Provide services to LGs or the recycling networks



## END MARKET

- Collaborate with PRO and LGs through recycling networks

# FINANCIAL AND OPERATIONAL FLOWS: FRANCE



FINANCING



OPERATIONAL / CONTRACTUAL



## FRAMEWORK 8

Full EPR with  
Elements to  
Incentivize  
Reduction of  
Upstream Impacts

**REFERENCE PROGRAM:  
FRANCE**

### OVERVIEW:

- France's recycling framework is a producer responsibility system for managing residential packaging and printed paper (PPP) that incorporates incentives for design for recyclability and reducing upstream impacts
- Producers are obligated to cover most of the costs and to coordinate recycling programs and material management
- Program is implemented by a single producer responsibility organization (PRO), CITEO. System operations are funded through fees paid by producers.
- Recycling services are generally provided by municipalities, with most costs covered by the PRO. Sorting, processing and end-use are managed by the PRO.
- The fee structure incorporates eco-modulated fees to incentivize good packaging design and use of recycled content, and penalize producers of packaging that challenges the recycling system.

# HIGHLIGHTS: HIGH SCORING FUNCTIONS

<b>B</b> Resiliently adapts to changes in material supply and end-market demand	MB
<b>C</b> Provides sustainable and equitable financing for stable operations and capital investments	MB
<b>D</b> Integrates system components to achieve overall system goals	MB
<b>E</b> Includes mechanisms to reduce upstream impacts of materials	MB
<b>G</b> Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	MB
<b>K</b> Identifies beneficial materials acceptable for collection programs	MB
<b>P</b> Ensures all players in the system perform responsibly	MB

## KEY ELEMENTS

- Shared responsibility – shares responsibility with all parties, including producers and materials industry groups
- Eco-modulation – incentivizes upstream design choices
- System integration – CITEO's role allows for efficiencies and coordinated investments in processing technologies/end markets

# WEAKNESS: LOW SCORING FUNCTIONS

J

Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles

C

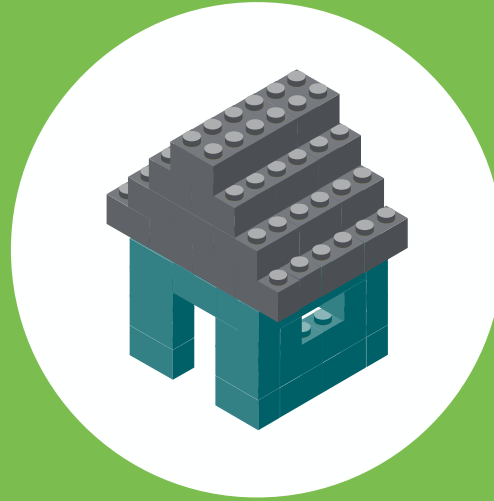
- No incentives to drive appropriate behavior among residents
- CITEO public education program focuses on benefits of recycling on GHG and other environmental impacts



# QUESTIONS

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Clarifying questions to  
round out understanding of  
the framework



# FRAMEWORK 9

Full EPR System Where Municipalities Deliver  
Services and Producers Cover all Costs

REFERENCE PROGRAM: QUEBEC



# FRAMEWORK 9

Full EPR System  
Where  
Municipalities  
Deliver Services  
and Producers  
Cover all Costs

REFERENCE PROGRAM:  
QUEBEC

A	Optimization	B
B	Resiliency	C/B
C	Financing	B/MB
D	Integration	B
E	Upstream	B
F	Equity	MB
G	Shared Responsibility	MB
H	Goals	C/B
I	Education	C
J	Understanding Impacts	W/C
K	Material Selection	C
L	Collection	C
M	Incoming Processing	C/B
N	Outgoing Processing	C
O	Downstream	C
P	Accountability	B



# ROLES AND RESPONSIBILITY: QUEBEC



## REGULATOR

- Set requirements
  - Regulatory Oversight
- Approve fee schedule
- Acts as arbiter among producers and municipalities
- Certify PRO (EEQ)
- Enforcement



## PRODUCER / PRO

- Set / Collect fees
- Finance cost of municipal recycling services
- Meet packaging recovery targets
- Provide operational support as appropriate



## CONSUMER

- Recycle appropriately



## LOCAL GOVERNMENT

- Operate curbside recycling, either directly or through contracted services
- Operate under an approved Plan (RMMP)
- Report net program costs to Recyc-Québec



## COLLECTOR

- Provide service according to contract with LGs



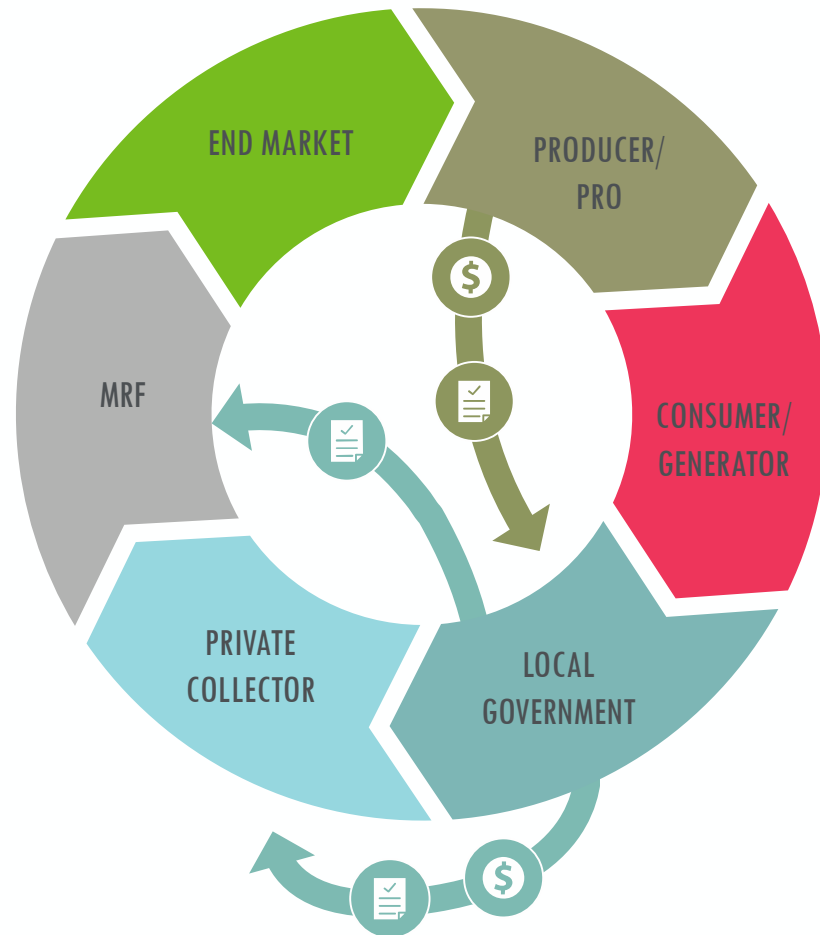
## PROCESSOR

- Provide service according to agreement with LGs



## END MARKET

# FINANCIAL AND OPERATIONAL FLOWS: QUEBEC



FINANCING



OPERATIONAL / CONTRACTUAL



## FRAMEWORK 9

Full EPR System  
Where  
Municipalities  
Deliver Services  
and Producers  
Cover all Costs

**REFERENCE PROGRAM:  
QUEBEC**

### OVERVIEW:

- A producer responsibility system for managing residential printed paper and packaging (PPP) in which producers compensate municipalities for the cost of residential recycling services; compensation is intended to cover full costs, but formula allows for adjustment related to program efficiency.
- Producers can meet obligations individually, but in practice they work collectively through Éco Entreprises Québec (EEQ)
- Local governments implement recycling programs either through direct service or by contracting with private service providers.
- The Province has robust curbside access, an optional harmonized list, and includes some eco-design-based incentives in the fee structure.
- A privately managed beverage container deposit program is in place and covers beer and carbonated beverages.
- The PPP and deposit programs are overseen by Recyc-Québec, a public corporation under the direction of the Minister of the Environment.

# HIGHLIGHTS: HIGH SCORING FUNCTIONS

<b>C</b> Provides sustainable and equitable financing for stable operations and capital investments	B/MB
<b>F</b> Designs for equity – examining the burdens and benefits across the state	MB
<b>G</b> Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry	MB

## KEY ELEMENTS

- Shared responsibility – shares responsibility with all parties, including producers
- Sustainable funding and broad access to residents, small business public spaces and some ICI
- Local governments have operational control without financial responsibility
- Fees create some eco-design incentives

# WEAKNESS: LOW SCORING FUNCTIONS

<b>J</b> Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles	W/C
<b>K</b> Identifies beneficial materials acceptable for collection programs	C
<b>N</b> Produces quality materials that reach end markets	C
<b>O</b> Ensures materials are managed responsibly from collection through end markets	C

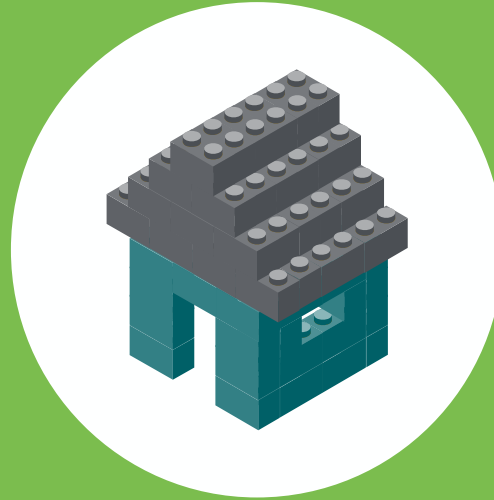
- No economic mechanisms engaging public to understand cost of recycling, waste prevention or other life cycle impacts of decisions
- Contamination is a concern
- Harmonization could be improved
- No control or guidance related to processing or end markets



# QUESTIONS

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Clarifying questions to  
round out understanding of  
the framework



# FRAMEWORK 10

Full EPR System With Competitive Producer  
Responsibility Organizations

**REFERENCE PROGRAM: AUSTRIA**



# FRAMEWORK 10

Full EPR System  
With Competitive  
Producer  
Responsibility  
Organizations

REFERENCE PROGRAM:  
AUSTRIA

A	Optimization	B
B	Resiliency	MB
C	Financing	MB
D	Integration	B/MB
E	Upstream	B
F	Equity	MB
G	Shared Responsibility	B
H	Goals	MB
I	Education	C
J	Understanding Impacts	W
K	Material Selection	B
L	Collection	MB
M	Incoming Processing	MB
N	Outgoing Processing	B
O	Downstream	C/B
P	Accountability	MB



# ROLES AND RESPONSIBILITY: AUSTRIA



## REGULATOR

Set requirements

Oversee the Packaging Coordination Office (VKS) and PROs

Approve local recycling and PRO plans

Coordinate role of each PRO (VKS)

Compile data

Enforcement



## PRODUCER / PRO

Full financial and operational responsibility for residential and commercial packaging recycling

Join one of 7 PROs that finance recycling services

Meet packaging recovery targets



## CONSUMER

Recycle appropriately



## LOCAL GOVERNMENT

Provide recycling services to their residents or allow the designed PRO to provide direct service



## COLLECTOR

Contract with PRO or LG

Collect Designated materials



## PROCESSOR

Process designated materials

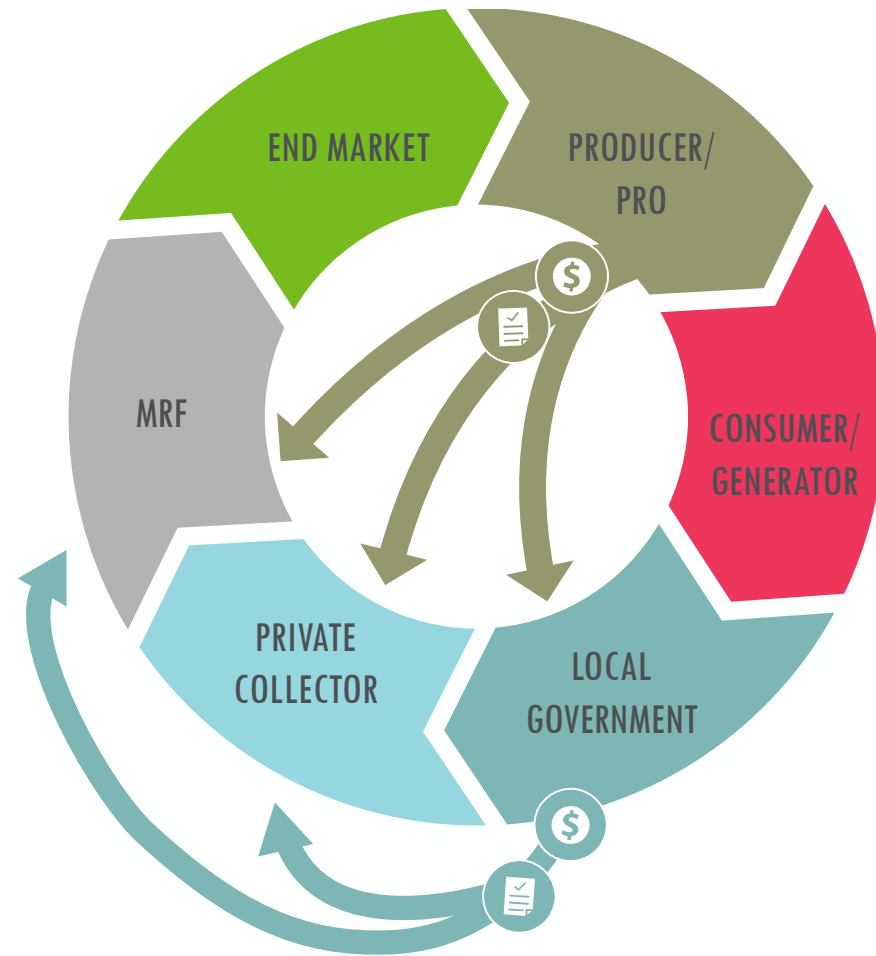
Market to appropriate end markets as coordinated by PROs



## END MARKET

Collaborate with PROs

# FINANCIAL AND OPERATIONAL FLOWS: AUSTRIA



FINANCING



OPERATIONAL / CONTRACTUAL



# FRAMEWORK 9

## Full EPR System With Competitive Producer Responsibility Organizations

**REFERENCE PROGRAM:  
AUSTRIA**

### OVERVIEW:

- Full producer responsibility system for residential and commercially generated packaging that includes multiple producer responsibility organizations (PROs)
- Requires producers to be operationally and financially responsible for the management of packaging, including planning, education, collection, handling, processing and marketing of materials. Producers can meet their obligations individually, but in practice they comply through participation in one of seven PROs, which are governed and funded by their member companies.
- Each PRO is assigned a distinct region to manage. The Packaging Coordination Office – VKS -GmbH – coordinates the PROs, assigning the regions and ensuring competition and fairness. VKS is funded by the PROs.
- Local governments can maintain a role as service provider or can delegate operations to the PRO assigned to their region, who would provide service through contracts with private collectors and processors.
- The recycling infrastructure is state of the art and is well-coordinated.
- The fee structure incentivizes source reduction and recyclability.

# HIGHLIGHTS: HIGH SCORING FUNCTIONS

<b>B</b> Resiliently adapts to changes in material supply and end-market demand	MB
<b>C</b> Provides sustainable and equitable financing for stable operations and capital investments	MB
<b>F</b> Designs for equity – examining the burdens and benefits across the state	MB
<b>H</b> Uses goals and metrics to measure progress and support ongoing improvement	MB
<b>L</b> Collects clean, acceptable materials for processing	MB
<b>M</b> Ensures processing facilities receive clean materials and in sufficient volumes	MB
<b>P</b> Ensures all players in the system perform responsibly	MB

## KEY ELEMENTS

- Competition among PROs fosters efficiency
- Shared responsibility – shares responsibility with all parties, including producers
- Sustainable funding and broad access to residents
- Collects high quality materials
- System integration through PROs and role of VKS
- Responsibility through marketing allows for system coordination and efficiencies

# WEAKNESS: LOW SCORING FUNCTIONS

J

Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles

W

- Does not provide economic incentives to reduce waste or drive recycling behavior
- Competition can lead to lack of transparency, reduces benefits of scale and greater coordination
- Does not incentivize the use of recycled content

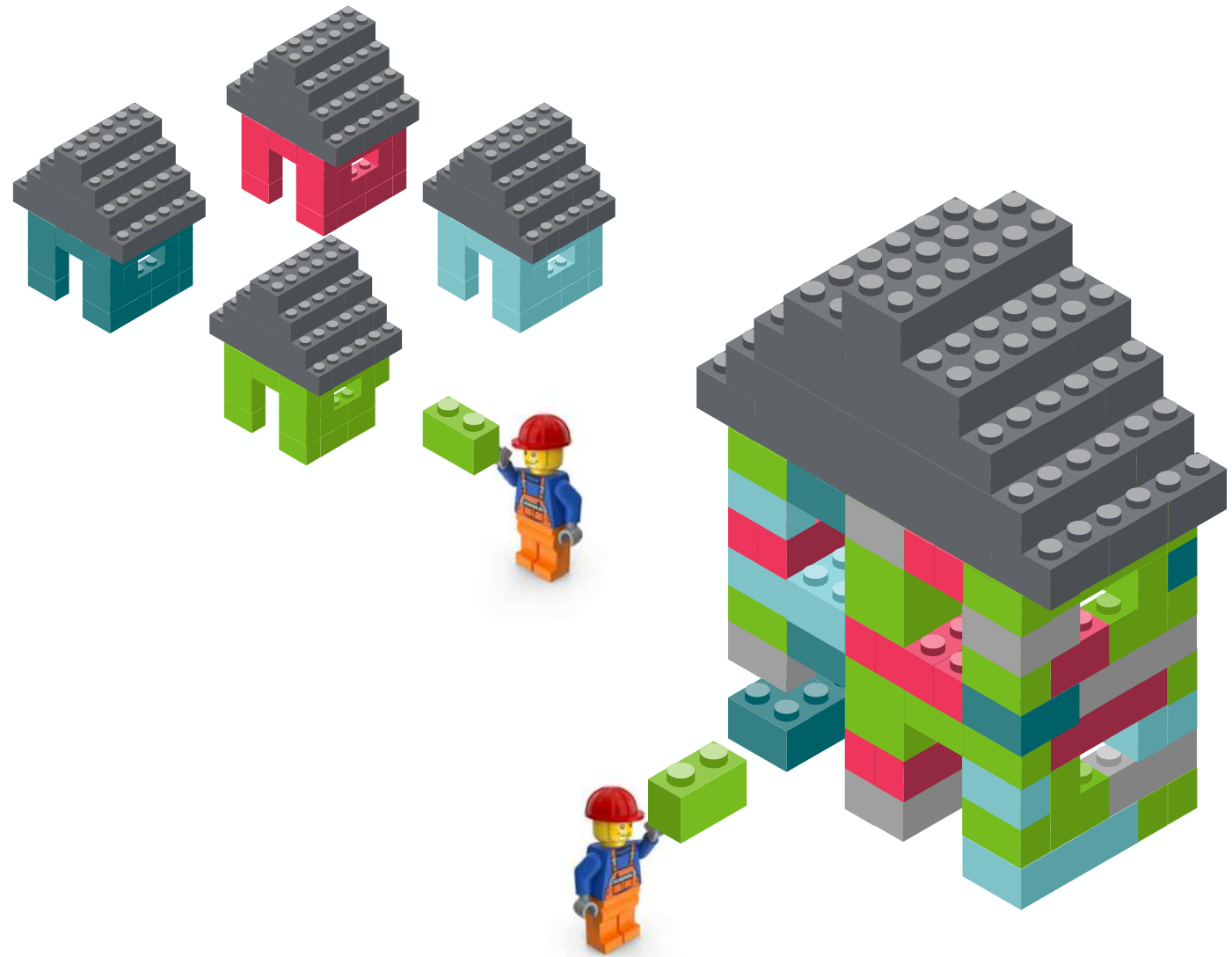


# QUESTIONS

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Clarifying questions to  
round out understanding of  
the framework

# PUTTING IT ALL TOGETHER: SCENARIO BUILDING

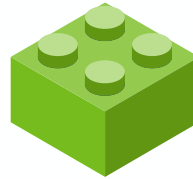




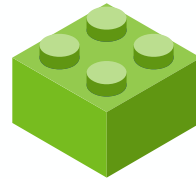
# HIGH PERFORMING ELEMENTS: FUNCTION A

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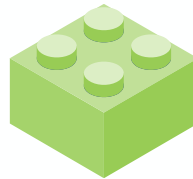
Optimizes the  
benefits of recycling  
considering life-cycle-  
impacts and costs



**MB:** Systems that integrate collections, operations and infrastructure decision making



**MB:** Systems that share responsibility with all players (including producers)

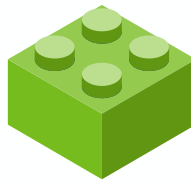


**B:** Strong underlying policy requirements, including mandatory recycling and / or extensive recycling service provided to generators at no additional charge

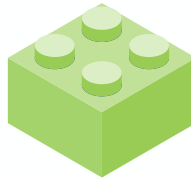
# HIGH PERFORMING ELEMENTS: FUNCTION B

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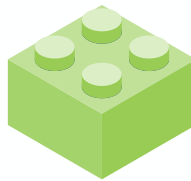
Resiliently adapts to  
changes in material  
supply and end-  
market demand



**MB:** Flexible and sufficient  
funding, including for market  
development and R&D



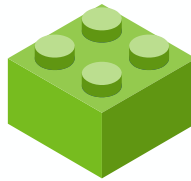
**B:** Diversified and flexible  
funding mechanisms



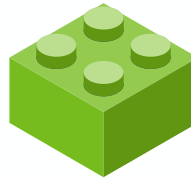
**B:** Ability to adjust processing  
arrangements to  
accommodate changes in the  
stream

# HIGH PERFORMING ELEMENTS: FUNCTION C

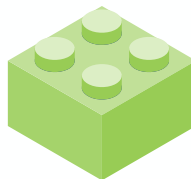
Provides sustainable  
and equitable  
financing for stable  
operations and  
capital investments



**MB:** Producer funding,  
including collection and  
processing



**MB:** Diversified funding  
mechanisms with high  
transparency

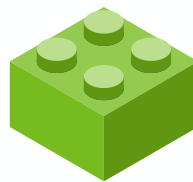


**B:** Diversified funding

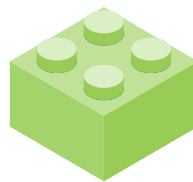
# HIGH PERFORMING ELEMENTS: FUNCTION D

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Integrates system  
components to  
achieve overall  
system goals



**MB:** One party responsible  
for full system coordination  
and / or integration

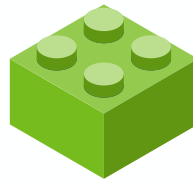


**B:** One party responsible for  
integration of collection and  
processing

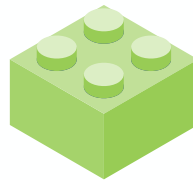
# HIGH PERFORMING ELEMENTS: FUNCTION E

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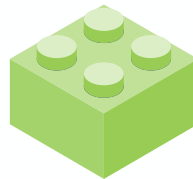
Includes mechanisms  
to reduce upstream  
impacts of materials



**MB:** Eco-modulated producer fees



**B:** Weight-based producer fees

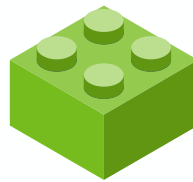


**B:** Waste reduction and reuse programs

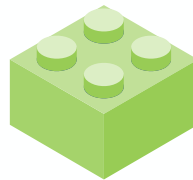
# HIGH PERFORMING ELEMENTS: FUNCTION F

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Designs for equity –  
examining the  
burdens and benefits  
across the state



**MB:** Broad recycling service provision including events, public spaces, etc. (e.g., universal access)

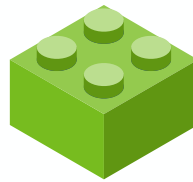


**B:** Consistent recycling service provision to all residential generators (single & multi-family)

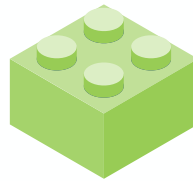
# HIGH PERFORMING ELEMENTS: FUNCTION G

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Shares responsibility for the system among players including residents and businesses, producers, state and local governments, and recycling industry



**MB:** Engages all system players, including producers and processors

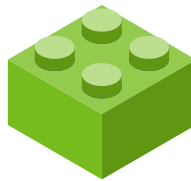


**B:** Incorporates materials processing

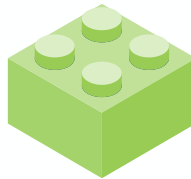
# HIGH PERFORMING ELEMENTS: FUNCTION H

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Uses goals and metrics to measure progress and support ongoing improvement



**MB:** Structural or coordinated feedback among players in the system



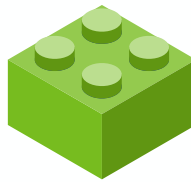
**B:** Regular and transparent reporting



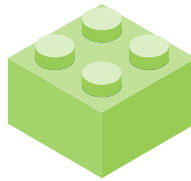
# HIGH PERFORMING ELEMENTS: FUNCTION I

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Educates and encourages residents and businesses to use the system properly



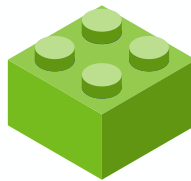
**MB:** None



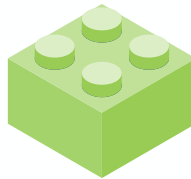
**B:** None

# HIGH PERFORMING ELEMENTS: FUNCTION J

Engages the public to understand the benefits and the costs of recycling, preventing waste and reducing impacts of materials throughout their lifecycles



**MB:** Public education and outreach efforts focused on waste prevention, reuse and system costs

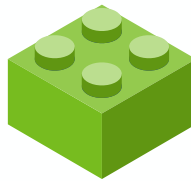


**B:** Public education and outreach focused on waste prevention and reuse

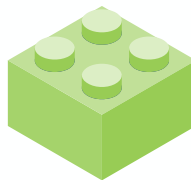
# HIGH PERFORMING ELEMENTS: FUNCTION K

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Identifies beneficial  
materials acceptable  
for collection  
programs



**MB:** Common list of  
recyclables for all  
residents/system participants  
and a consistent process for  
adding/removing materials

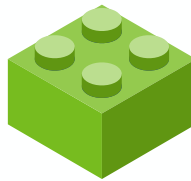


**B:** Common list of  
recyclables for all  
residents/system participants

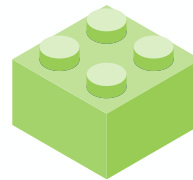
# HIGH PERFORMING ELEMENTS: FUNCTION L

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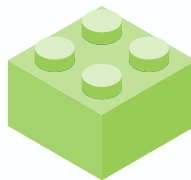
Collects clean,  
acceptable materials  
for processing



**MB:** Dual or multi-stream  
collection



**B:** Contamination penalties

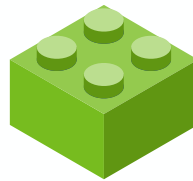


**B:** Integrated management /  
organization of collection  
and processing

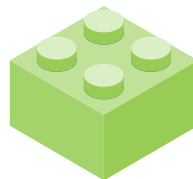
# HIGH PERFORMING ELEMENTS: FUNCTION M

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Ensures processing facilities receive clean materials and in sufficient volumes



**MB:** Mandatory recycling, expansive service (e.g., universal access), and incentives for multi-stream collection or low contamination

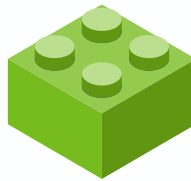


**B:** Mandatory recycling and expansive service

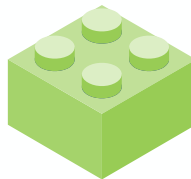
# HIGH PERFORMING ELEMENTS: FUNCTION N

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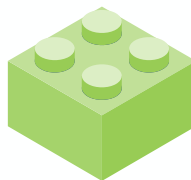
Produces quality  
materials that reach  
end markets



**MB:** Domestic end-market  
preference and standards for  
export



**B:** Compliance with the Basel  
Convention

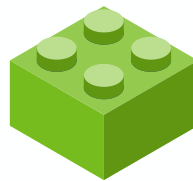


**B:** Contract requirements on  
processors

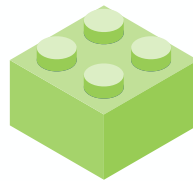
# HIGH PERFORMING ELEMENTS: FUNCTION 0

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Ensures materials are managed responsibly from collection through end markets



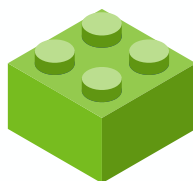
**MB:** Systems that integrate collection, processing and marketing decision making



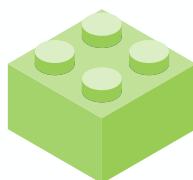
**B:** Tracking and reporting of end-markets

# HIGH PERFORMING ELEMENTS: FUNCTION P

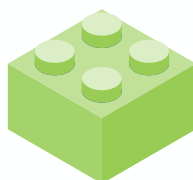
Ensures all players in  
the system perform  
responsibly



**MB:** Substantial and  
transparent reporting  
requirements



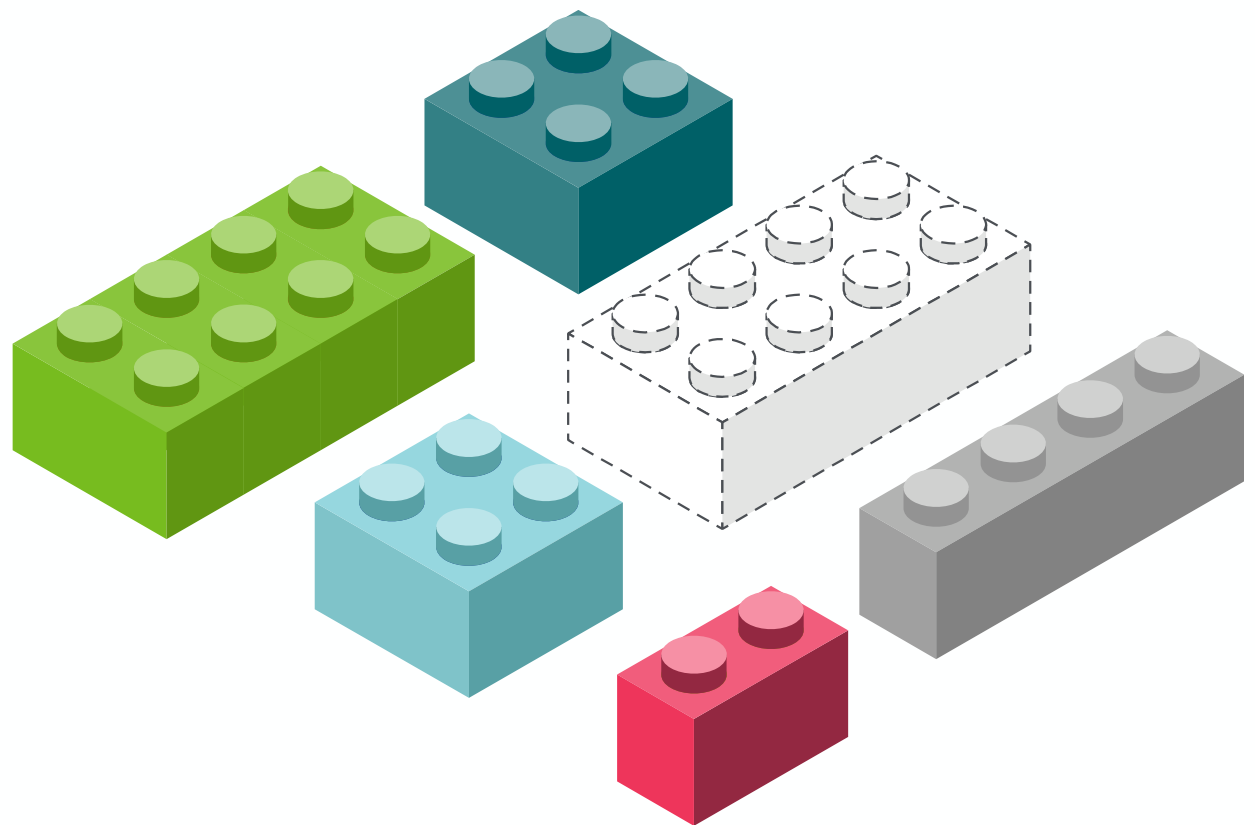
**B:** Compliance with the Basel  
Convention



**B:** Enforcement and economic  
incentives



ARE THERE  
ANY  
ELEMENTS  
MISSING?





**RESA DIMINO**

SENIOR CONSULTANT

518.610.8095

[RESA@RECYCLE.COM](mailto:RESA@RECYCLE.COM)

**BRYCE HESTERMAN**

CONSULTANT

917.520.0555

[BHESTERMAN@RECYCLE.COM](mailto:BHESTERMAN@RECYCLE.COM)