

Decision Making for Integrated Waste Management in South Africa



Workshop: Resource-Efficient Waste Management
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The GreenCape Sector Development Agency

Goal

To provide a snapshot overview of the decision making landscape for integrated waste management in South Africa

Outline

- National Context & Mandates
- Department of Environmental Affairs & Waste Management Bureau
- Industry Waste Management Plans
 - Post-consumer waste: Extended Producer Responsibility (EPR)
 - Production waste: Firm Level Industry Waste Management Plans (IndWMP)
- Provincial, regional and local: Integrated Waste Management Plans

Cabinet

**Constitutional
Court**

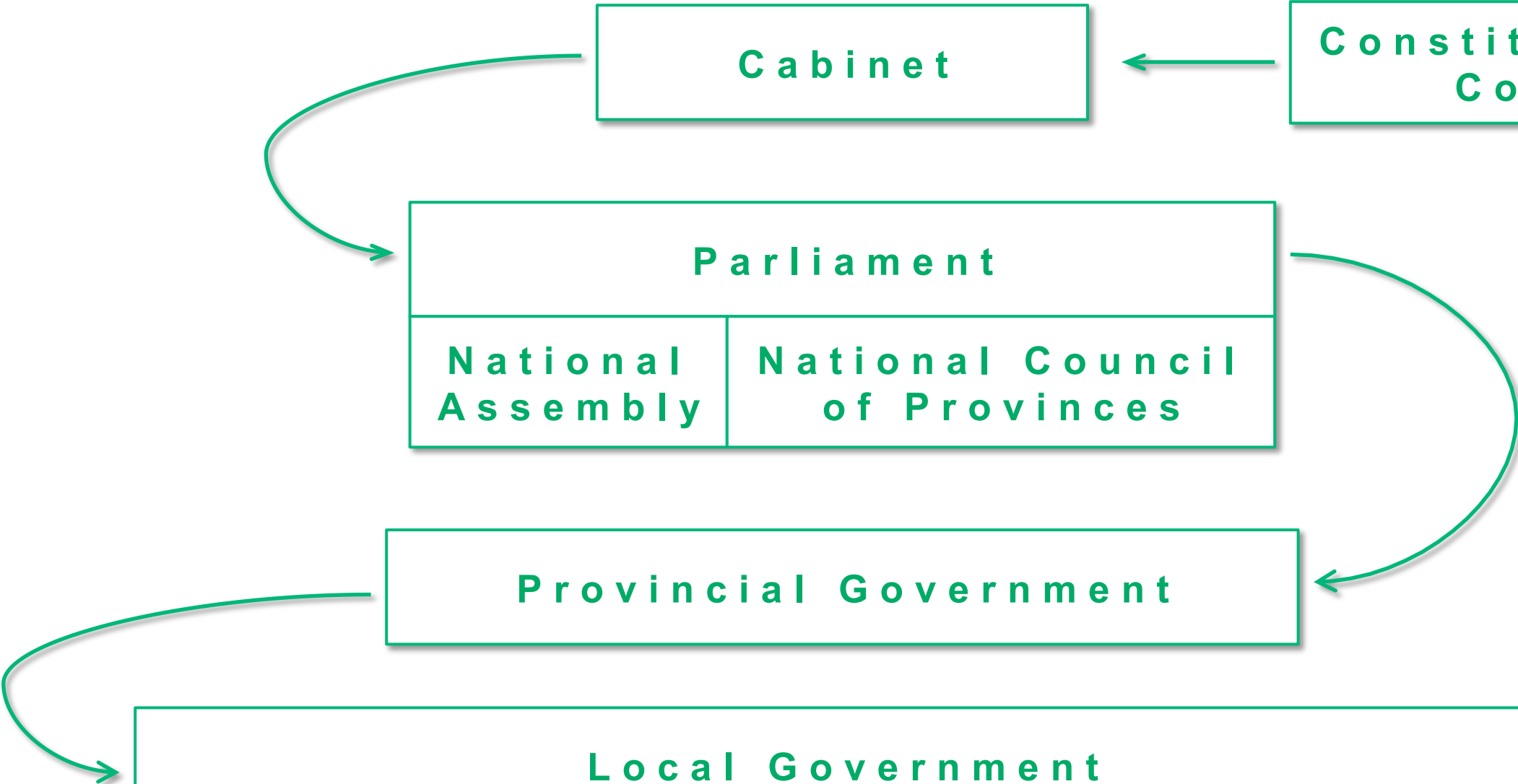
Parliament

| | |
|------------------------------|------------------------------------------|
| National Assembly | National Council of Provinces |
|------------------------------|------------------------------------------|

Provincial Government

Local Government

| | | |
|----------------------------------------|------------------------------------|---------------------------------|
| Metropolitan Municipalities | District Municipalities | Local Municipalities |
|----------------------------------------|------------------------------------|---------------------------------|



Constitutional Mandates

National

Provincial

Local

LEGISLATION

- Formulate
- Monitor implementation

SERVICES

- Planning (national)
- Process applications for waste licences (hazardous)

LEGISLATION

- Formulate (inline with national)
- Regulate

SERVICES

- Planning (Provincial)
 - Provision of strategic leadership and support
- Review
- Compliance
 - Process applications for waste licences
- Auditing

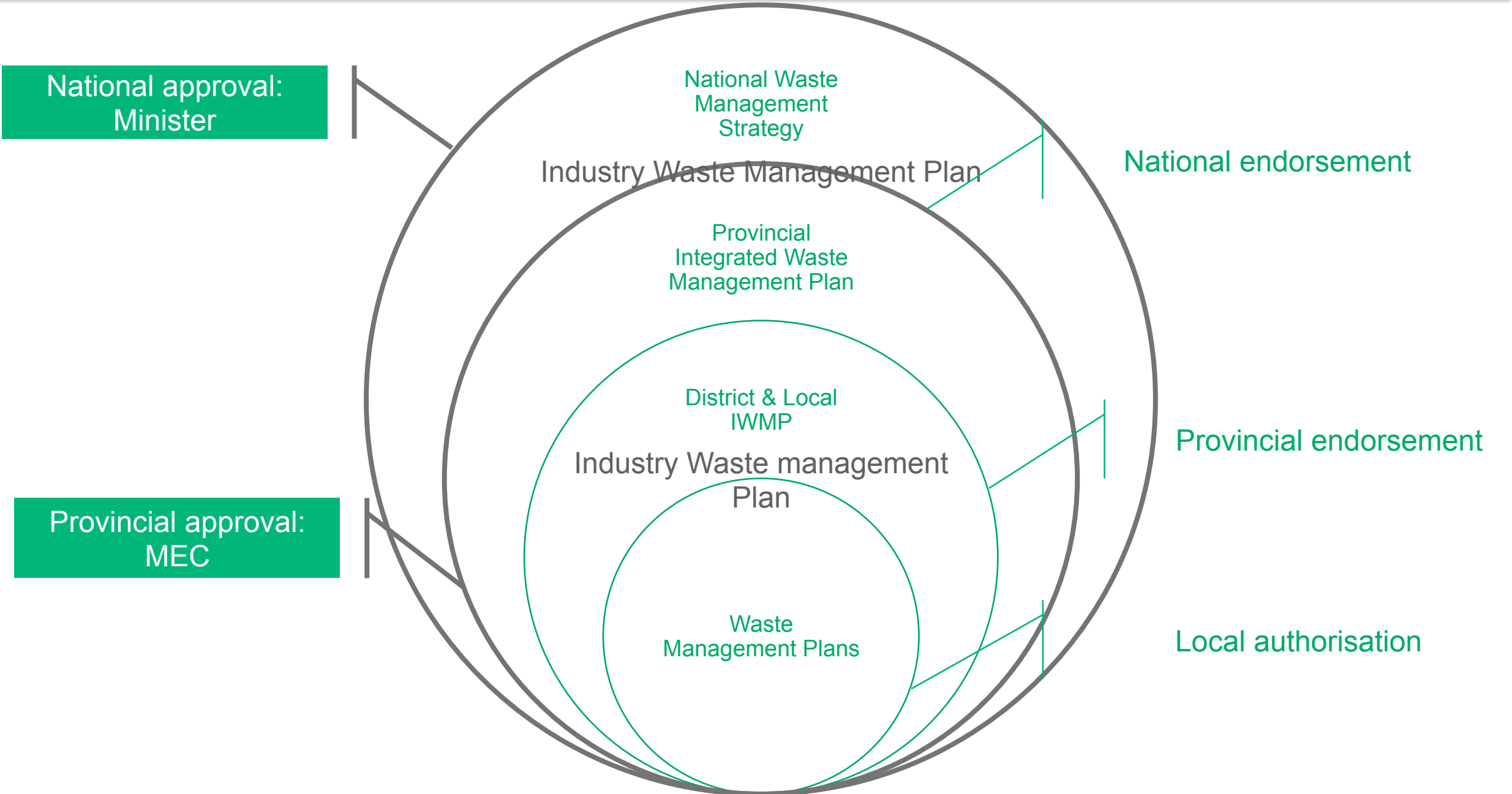
LEGISLATION

- Formulate (inline with national and provincial)
- Regulate
- Implement

SERVICES

- Waste management
 - Cleansing
 - Refuse removal
 - Disposal

Integrated Planning



Industry Waste Management

National

Waste
Bureau

Provincial

Industry

RESPONSIBILITIES

- Set charging structure
- Identify specific industries to develop
- Approve/reject

RESPONSIBILITIES

- support and advise on the development of IndWMP
- manage the disbursement of funds
- monitor implementation of industry waste management plans

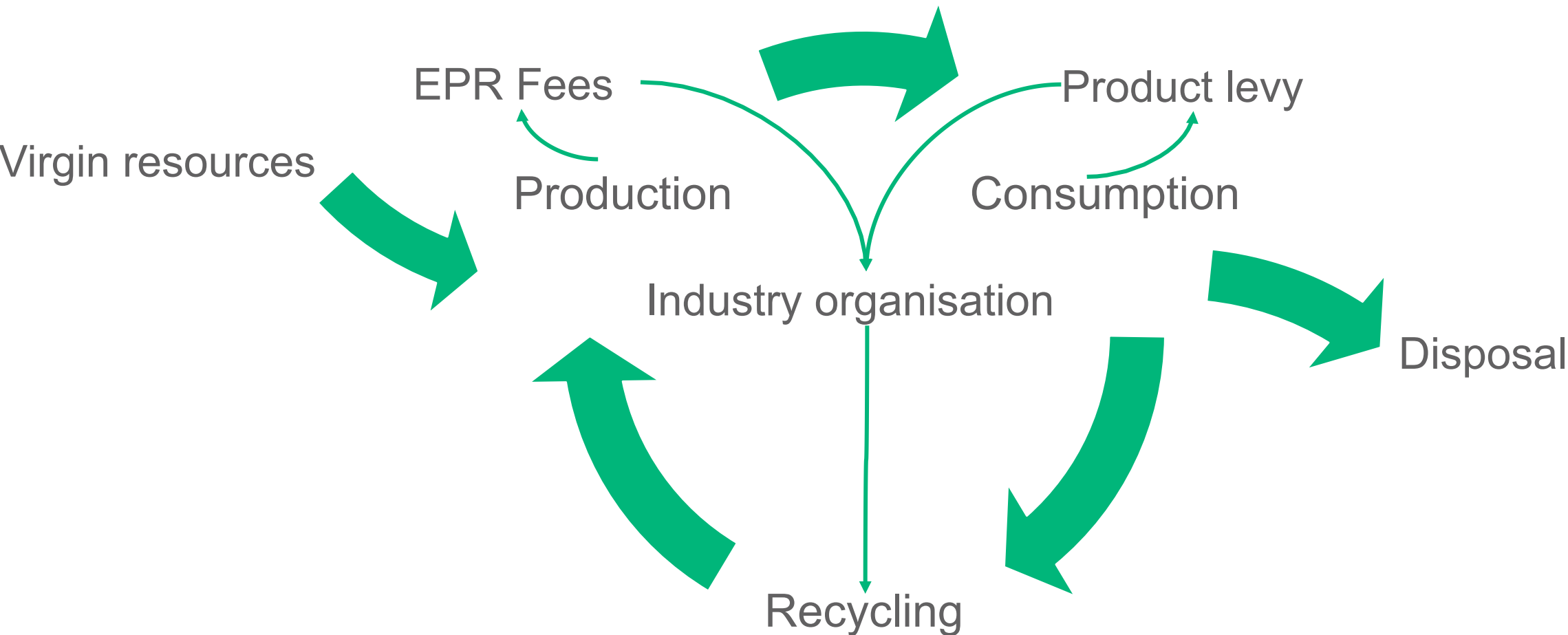
RESPONSIBILITIES

- Comment
- Identify specific industries to develop
- Approve/reject

RESPONSIBILITIES

- Develop
- Implement

Extended Producer Responsibility



Decision Situation: Industry Waste Management Plans (IndWMP)

Key decision: What is the best solution for each waste stream that would provide the best outcome for the company in the timeframe of the IndWMP

Stakeholders: Represent 70% of industry registered with the department and relevant organ of state, interested and affected persons and public.

Criteria: Cost / Cost Savings, Disruption to Operations, Environmental Impact, Community Acceptance, Corporate Social Responsibility Objectives etc

Alternatives: A range of alternatives per waste stream with varying degrees of capital or labour intensity, delivery internally or via contractors etc

Challenges/Key Considerations: identify and list producers responsible for drafting the industry waste management plan; provide details of the manner in which the informal sector will be integrated in the implementation of the industry waste management plan, identify key stakeholders and determine their roles and responsibilities in the implementation of the industry waste management plan;

Decision Situation: Firm–Level Industry Waste Management Plans (IndWMP)

Key decision: What is the best solution for each waste stream that would provide the best outcome for the company in the timeframe of the IndWMP?

Stakeholders: Company Management, Employees, Local Community, Regulator.
Note: Consultation with authorities prior to IndWMP preparation will dictate extent of stakeholder engagement required

Criteria: Cost / Cost Savings, Disruption to Operations, Environmental Impact, Community Acceptance, Corporate Social Responsibility Objectives etc.

Alternatives: A range of alternatives per waste stream with varying degrees of capital or labour intensity, delivery internally or via contractors etc.

Challenges/Key Considerations: Ultimately a company decision, but requires balancing the interests of all the stakeholders (internal to company and external); developing a sense of ownership of the plan by all involved.

Decision Situation: Municipal Integrated Waste Management

Key decision:

How do we manage our waste in a sustainable manner over the short, medium and long-term?

Stakeholders:

Local and District Municipality

- SWM, MM, CFO, MayCo, Council

Provincial Government

- DoLG, DEA&DP, DED&T, Treasury

National

- DEA, Treasury

Municipal Decision Making Framework

- Alignment with National Plans (NDP, NWMS), Provincial Plans (OneCape 2040, IWMP) and District IWMPs
- Alignment with municipal management acts
 - Municipal Structures Act (MSA) – to provide for division of municipal functions and powers
 - Municipal Systems Act (MSyA) – to provide for how municipal functions and powers are exercised
 - Municipal Finance Management Act (MFMA) – to provide for sound financial systems and processes

Municipal Decision Making Framework



Municipal Decision Making Framework



Decision Situation: Municipal Integrated Waste Management

Criteria:

- **Financial** – capex & opex, risk, affordability, value for money etc.
- **Environmental** – GHC emissions, air quality, noise
- **Technical** – suitability to local context, capacity, landfill airspace etc.
- **Social** – social development, job creation , community/public acceptance

Alternatives – Systems Level:

- Centralised vs decentralised
- Local vs district (collaboration)
- Public vs private

Alternatives – Technologies:

- High tech vs low tech;
- Skilled vs unskilled labour required

Alternatives – Technologies (continued):

Per stream:

- source separation/mechanical biological treatment;
- composting/anaerobic digestion;
- incineration/gasification/pyrolysis etc.

Challenges/Key Considerations:

- Decision making to be embedded in municipal processes and Council decision making processes
- Limited capacity
- For collaboration: political will and alignment of municipal processes – requires strong district/regional leadership
- Low cost of landfill / landfill seen as “income”
- Lack of communication between stakeholders internal to municipality and external
- Lack of suitable sites for landfill – creates need for short term “fixes” rather than integrated view

GreenCape Interventions to Support Municipal Integrated Waste Management

- Alternative Waste Guide (Policy and Regulation)
- Municipal Decision Support Tool for Integrated Waste Management
- IWMP Technical Content Guide

Alternative Waste Guide (Policy and Regulation)

Purpose: To
environment

- Outlining
- Listing the
- licence a
- Outlining

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

HOME ▾ ALTERNATIVE WASTE ▾ TECHNOLOGIES ▾ MUNICIPAL PROCESSES ▾ LIBRARY ▾ LEGISLATION ▾

ALTERNATIVE WASTE TREATMENT GUIDE

The alternative waste treatment guide is focused on the following core components:

- An **overview** process of developing an alternative waste treatment project
- Appropriate **technologies** for alternative waste treatment
- **Municipal processes** (including procurement and financing)
- **Legislative requirements** (including licenses and permits per technology)

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Western Cape Government

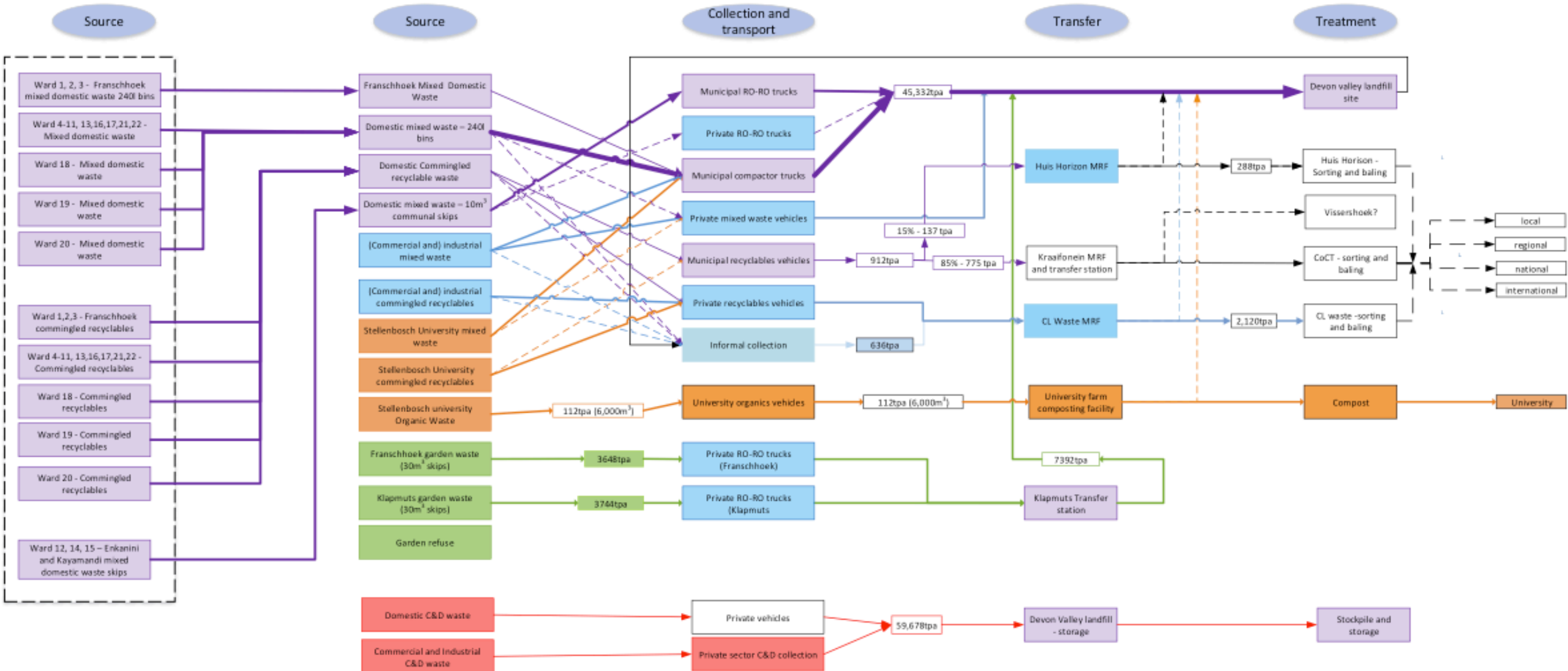
sandedi
South African National Energy Development Institute

SALGA
South African Local Government Association

GreenCape giz

See: awtguide.environment.gov.za

Municipal Decision Support Tool for Integrated Waste Management



IWMP Technical Content Guide

Overview of technical guide

What alternative waste treatment options are viable for (my) municipality?

Initial screen (decision tree)

- Do we have sufficient amount of waste for economies of scale?



High level viability assessment

Assess viability of potentially feasible options, considering:

- Reasonable “extraction”
- Current treatment cost per ton
- Comparative cost per tonne for AWT



Shortlist of options

- Feed into IWMP
- Guide focus of detailed feasibility studies

General Conclusions

- A range of opportunities to provide decision support for waste management in South Africa in public sector (national, provincial, district, local) & private sector (industry sector, firm level).
- Public sector opportunities for decision support range from policy (national) to local (planning)
- All are multi-stakeholder, multi-criteria decision situations. Some efforts to include key internal stakeholders and external stakeholders through (mandatory) public participation, but little experience / demonstration of structured processes for decision making
- Slow progress on true integrated waste management – need for demonstration of systems thinking and systems analysis
- Real opportunity for structured decision processes/multiple criteria decision analysis (MCDA), but:
 - Is this scalable given number and diversity of decision situations and capacity constraints?
 - What would be the priority areas?



Thank You

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