Market Analysis of Ghana’s E-Waste and Plastics Sector

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Outline of Presentation

- Objectives of the Webinar
- Brief overview of the GrEEEn project
- Plastic and E-waste situation in Ghana
- Respondents Information
- Size of plastic and e-waste sectors
- Opportunities and Challenges in the e-waste and plastic value chain
- Opportunities for SMEs in entry and growth in the e-waste and plastic markets
- Identification of opportunities for youth, women and returnees to be engaged in the sectors
- Level of informality of the sector and implications for job creation, enterprise promotion and inclusion
- Business models and case studies for replication
- Conclusions and Recommendations
Objective of the Webinar

➢ To validate the findings of the Market Analysis conducted on Ghana’s e-waste and plastic sector

➢ To seek input and feedback on:
  • the size, opportunities and challenges in the e-waste and plastic sectors, especially in Ashanti and Western regions;
  • the level of informality of the sector and implications of that for job creation and enterprise promotion;
  • the opportunities for SMEs in entering the markets and growing within the sectors, along the value chains;
  • opportunities available for youth, women and returnees to be engaged in the sectors, either as entrepreneurs or as employees of SMEs; and
  • existing business models and case studies that can be replicated and up-scaled by the project.
Boosting Green Employment and Enterprise Opportunities in Ghana

Sustainable and climate resilient local economies, green jobs and development

Result 1: Local economies are stimulated and short-term job opportunities for youth, women and returnees are created through green and climate resilient investments.

Result 2: Employability and entrepreneurship capabilities of youth, women and returnees are improved in sectors of economic opportunities, for the benefit of green and climate resilient local economies.

Result 3: Increased access and usage of financial services, leveraging remittances, adapted to the needs of (i) youth, women and returnees benefiting from cash for work schemes and (ii) local communities and MSMEs.

Result 4: SMEs, offering decent and sustainable jobs to youth, women and returnees, are incubated and/or accelerated and contribute to green and climate resilient local economies.

Project duration: 11/2019 - 11/2023
Target regions: Ashanti & Western
Target sectors: Agriculture, Energy, Water
Plastic and E-waste situation in Ghana

- It is estimated that averagely, about 22,500 tons of waste is generated per day (Holland Circular Hotspot, 2019).

- Plastic constitutes the second largest fraction of waste in Ghana - about 17% (Ghana Plastics Manufacturers Association, 2019), amounting to about 3,825 tons /day.


- Inadequate gender mainstreaming into national development policies require more deliberate efforts to address (Ghana Statistical Service, 2013).
Fleischer (2018) indicated that about 40,000 tons of e-waste is imported into Ghana annually.

The scrap market located at Agbogbloshie, Accra is major hotspot for informal e-waste recycling activities.

Ghana’s Hazardous and Electronic Waste Management Act 2016 (Act 917) to deal with the challenge

GIZ funding initiatives on e-waste with MESTI and EPA as the leading implementing Ministry and agency.
## Distribution of SMEs Engaged

<table>
<thead>
<tr>
<th>Selected Pilot Districts</th>
<th>Business location</th>
<th>Number of SMEs Interviewed in the Area (96% Male-owned)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ashanti Region</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sekyere Kumawu District</td>
<td>Kumawu</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Sekyere Afram Plains District</td>
<td>Dabonso</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>Ejura - Sekyedumase District</td>
<td>Ejura</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td>Offinso North District</td>
<td>Akomadan</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>Offinso Municipal</td>
<td>Offinso South</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>Greater Kumasi</td>
<td>Kumasi</td>
<td>5</td>
<td>19.2</td>
</tr>
<tr>
<td><strong>Western Region</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ahanta West District</td>
<td>Agona Nkwanta</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>Nzema East Municipal</td>
<td>Axim</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Jomoro District</td>
<td>Half Assini</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Sekondi-Takoradi Metropolis</td>
<td>Takoradi</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>26</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field data, 2020
<table>
<thead>
<tr>
<th>MDAs (kg/p/day)</th>
<th>Waste generation based on population (tons/day)</th>
<th>Component of Plastic waste per day/tons (17%)*</th>
<th>E-waste component per day/tons (0.01%)**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ashanti Region</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adansi South District</td>
<td>10.5</td>
<td>1.8</td>
<td>0.1</td>
</tr>
<tr>
<td>Ejura - Sekyedumase Municipal</td>
<td>66.7</td>
<td>11.3</td>
<td>0.7</td>
</tr>
<tr>
<td>Offinso Municipal</td>
<td>60.0</td>
<td>10.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Sekyere Afram Plains District</td>
<td>74.0</td>
<td>1.2</td>
<td>0.7</td>
</tr>
<tr>
<td>Offinso North District</td>
<td>14.7</td>
<td>2.5</td>
<td>0.1</td>
</tr>
<tr>
<td>Sekyere Kumawu District</td>
<td>24.3</td>
<td>4.1</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Western Region</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ahanta West Municipal</td>
<td>89.0</td>
<td>15.1</td>
<td>0.9</td>
</tr>
<tr>
<td>Jomoro Municipal</td>
<td>125.8</td>
<td>21.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Nzema East Municipal</td>
<td>51.0</td>
<td>8.7</td>
<td>0.5</td>
</tr>
<tr>
<td>Wassa Amenfi East Municipal</td>
<td>70.0</td>
<td>11.9</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>586</td>
<td>88.2</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Selected Pilot Assemblies (Total waste/ton/day)

- PET: 4.37
- HDPE: 12.87
- SACHET: 15.22
- LDPE: 30.53
- PP: 15.22
- PS: 11.41
- PVC: 9.91
- Other Plastics: 11.41

Estimated Quantities of Plastics by Type
Source: MONDAN, 2020 based on Amaninampong, 2015

Opportunities and challenges in the e-waste value chain

Opportunities include:

• Improving the collection of e-waste products through collaboration with stakeholders.
• Creating awareness among households on the value of e-waste related products.
• Creating refurbishing and repair centres for electronic related products for the youth.
• Creating dismantling centres to properly break-up obsolete electronic and electric products into components and the functional parts to be sold as spare-parts.
• Dismantled metal products from e-waste have already existing markets locally and internationally.
• Increasing access to available land to create such centres for community benefits.

Challenges include:

• Limited e-waste materials to be recovered considering the usage of electronic and electrical equipment in the selected pilot areas.
• Perception that dealing with electronic and electrical equipment are male oriented.
Opportunities and challenges in the plastic value chain

For the plastic value chain, opportunities include:
• Improving collection by creating buy-back centres in all project areas with pre-processing facilities
• Engaging more youth in the collection of plastics from towns and dumpsites
• Implementing plastics waste separation at institution and household levels
• Potential to export PET bottles to Europe and America
• Adopting upcycling of plastics
• Reprocessing the plastics into construction materials

Challenges include:
• Low economic value of plastics due to their lightweight which affects the amount paid per unit kilo.
• High cost of transporting plastics making it unattractive to some of the SMEs.
• Access to finances to expand e.g. buying equipment for crushing and plastic pellet production.
Opportunities for SMEs to enter and growing within the sectors, along the value chains

<table>
<thead>
<tr>
<th>Segments of Value Chain</th>
<th>Plastics</th>
<th>E-waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection</td>
<td>Opportunities to expand collection from households through waste separation</td>
<td>Limited opportunity to expand collection</td>
</tr>
<tr>
<td>Aggregation</td>
<td>Opportunities for buyback centres to be operated targeting other plastics that are neglected</td>
<td>Volumes not significant</td>
</tr>
<tr>
<td>Transportation</td>
<td>Limited opportunity since Aggregators leverage on existing transport systems.</td>
<td>Volumes not significant</td>
</tr>
<tr>
<td>Pre-processing</td>
<td>Major opportunity to have pre-processing in the Western Region (Ahanta West). Setting up in all project areas will not be economically viable.</td>
<td>Establish e-waste dismantling centre to produce electronic and electrical spare-parts</td>
</tr>
<tr>
<td>Recycling</td>
<td>Opportunity to have recycling plant in the Ashanti Region – Offinso North</td>
<td>Opportunity to use some e-waste for fabricating other products</td>
</tr>
<tr>
<td>Remanufacturing</td>
<td>This opportunity can be implemented in Greater Kumasi and Sekondi-Takoradi</td>
<td>Opportunity to have refurbishment centre in Kumasi and Sekondi-Takoradi</td>
</tr>
</tbody>
</table>
General Challenges faced by SMEs as enumerated by Enterprise Owners

- Lack of machines to crush the materials they trade in.
- Inadequate land for business operation and storage/aggregation.
- Accusations of buying stolen items by both indigenes and residents in the communities where they operate.
- Arrest of collection workers sometimes.
- Police extortion during transportation of goods.
- Lack of access to loans and financial difficulties generally.
- Lack of support from government especially on access to capital in particular.
Informality of the Plastic and E-Waste Sectors

- Generally no association for the SMEs to work together and share ideas.
- SMEs and their owners employed people from their countries and family without any formal process.
- Employee benefits were not structured but were paid based on role and duties performed.
- Assets holding and financial capital of SMEs limited to family members.
- Unstructured system without working hours and days, and little regard for women’s household/care duties.
### Gender Roles in SME Operations

<table>
<thead>
<tr>
<th>Men’s roles (includes boys)</th>
<th>Women’s roles (includes girls)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply of materials (includes boys): aggregation; dismantling of e-waste products; cutting of plastics and crushing of metals (includes boys); operation of machinery; and loading and marketing.</td>
<td>Supply of materials (mostly plastics, at household level, includes girls); weighing and payment (supported by wives in 2 SMEs); sorting of plastics; washing, drying and packing of flakes (Limited support by young men).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender stereotyped perception</th>
<th>Additional Attention</th>
<th>Going forward with Market Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Not work for women</td>
<td>- Children collectors vs education, parental roles, safety, vulnerability &amp; entrepreneurship</td>
<td>- Admittance of need for expansion attracts labour of youth and women</td>
</tr>
<tr>
<td>* Socio-cultural view of women’ place at home</td>
<td>- Apprenticeship and inclusion</td>
<td>- Management of paid/unpaid work</td>
</tr>
<tr>
<td>* Structural causes of inequities</td>
<td>- Social support systems</td>
<td>- Income for vulnerables</td>
</tr>
<tr>
<td>* Informality of SMEs</td>
<td>- Gender sensitivity</td>
<td></td>
</tr>
</tbody>
</table>

**Gender Roles in SME Operations**

- **Men’s roles (includes boys):**
  - Supply of materials (includes boys): aggregation; dismantling of e-waste products; cutting of plastics and crushing of metals (includes boys); operation of machinery; and loading and marketing.

- **Women’s roles (includes girls):**
  - Supply of materials (mostly plastics, at household level, includes girls); weighing and payment (supported by wives in 2 SMEs); sorting of plastics; washing, drying and packing of flakes (Limited support by young men).

**Gender stereotyped perception**

- * Not work for women
- * Socio-cultural view of women’s place at home
- * Structural causes of inequities
- * Informality of SMEs

**Additional Attention**

- Children collectors vs education, parental roles, safety, vulnerability & entrepreneurship
- Apprenticeship and inclusion
- Social support systems
- Gender sensitivity

**Going forward with Market Opportunities**

- Admittance of need for expansion attracts labour of youth and women
- Management of paid/unpaid work
- Income for vulnerables
<table>
<thead>
<tr>
<th>Youth (Young women and men)</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Collection of plastics and e-waste from their sources (homes, offices and buying from</td>
<td>1. Household sales of (segregated) plastics (and e-waste)</td>
</tr>
<tr>
<td>pickers at disposal facilities/dumpsites)</td>
<td>2. Collection of plastics</td>
</tr>
<tr>
<td>2. Operators and support workers of plastic or metal bailer/compactor facilities of SMEs</td>
<td>3. Creation and operation of buy-back facilities within selected</td>
</tr>
<tr>
<td>3. Dismantling of e-waste products and sales/use of significant items</td>
<td>communities – including standalones for women</td>
</tr>
<tr>
<td>4. Use of plastics for production of construction materials (building blocks and bricks,</td>
<td>4. Added on recycling wares to corner shops in selected communities</td>
</tr>
<tr>
<td>pavement blocks, partition materials)</td>
<td></td>
</tr>
<tr>
<td>5. Use of recycled plastic for crafts, home ware etc.</td>
<td>5. Added on plastic sorting, crushing, washing, drying and bagging</td>
</tr>
<tr>
<td>6. Production of solar energy storage batteries using waste laptop batteries</td>
<td>facilities to some existing SMEs</td>
</tr>
<tr>
<td>7. Repair and refurbishment of e-waste products – creation of more green jobs and</td>
<td>6. Use of recycled plastics for craft, home ware etc.</td>
</tr>
<tr>
<td>contribute to prolonging the life cycle of electronic and electrical products</td>
<td></td>
</tr>
</tbody>
</table>
Business models and case studies that can be replicated and up-scaled

Collectors, households, offices & Buyers → SMEs → Recycling Companies → Off-takers (SMEs) → Flakes production → SMEs Aggregation & transportation → Selling to recycling Companies

Existing business flow for e-waste in the selected pilot districts

Business flow for Plastics
Business models and case studies that can be replicated and up-scaled (cont’d)

• An innovative initiative that uses PET bottles to produce bricks/blocks for construction
• Potential to produce other products
• Potential to include other types of plastics

• Linked to an innovation centre for developing solar energy storage battery from the batteries of obsolete laptops, repair faulty bulbs and power banks

• Provides opportunity for internship and training
Case studies that can be replicated and up-scaled - Hafiziyyia Enterprise

- The firm has 183 staff.
- Buy plastics waste (PP and HDPE) from various districts in the Ashanti, “Brong Ahafo”, and Northern regions.
- Plastic flakes production and sold at Accra at price of GH₵ 2.7 per kilo.
- Can provide opportunity for training others in the types of plastics, sorting, cutting, crushing, washing and bagging.
Business models and case studies that can be replicated and up-scaled - Dagomba Line Scrap in Ejura

- This SME is involved in buying and crushing of PP and HDPE plastics into flakes for sale in Accra.
- This SME could be supported to expand and absorb more workers.
- Association formation could increase raw materials to be processed into flakes to be more economical.
- Capacity building on management including personnel management- e.g. work hours/gender related issues.
Conclusions

- Men and women in the e-waste and plastics wastes sectors but have different roles.
- More foreigners involved in the e-waste and plastics collection and aggregation in the selected project areas compared to Ghanaians.
- Involvement of Ghanaians were predominantly found at the top level of the chain.
- PET, LDPE and sachet water bags are not collected.

- Opportunities for the existing SMEs to expand and for new entrants into the sectors – with some formalisation.
- Creation of take-back centres and added on pre-processing facilities will create more opportunities for women.
- Children involvement in scavenging for plastics and scraps requiring critical attention to prevent child labour issues.
Recommendations

- Facilitate generation of waste related data collection among the SMEs in the pilot districts and respective MMDAs to generate such data for future use and a more efficient ecosystem.
- Creation of E-waste Refurbishing and Dismantling Centre to properly dismantle e-waste into useful parts.
- Improve collection of e-waste by engaging users of e-waste products.
- Creating awareness among the citizens and households on where to send their e-waste.
- Transform the informality of the SMEs to make them more attractive to youth and women, and private/public (financial) support.
- Engage MMDAs and relevant security agencies to create win-win situation for SMEs and MMDAs.
Recommendations (cont’d)

• Support for the existing SMEs with crushing facilities.

• Establishing buy-back centres for plastics and e-waste (especially PET, HDPE, LDPE).

• Training and resourcing youth in the use of plastics for the production of construction products for the construction industry.

Gender equality dimensions
• Support to existing SMEs to expand and employ more people, especially women.

• Establishment and operation of take-back centres.

• Establishment of re-manufacturing facilities with potentials to take on skilled and unskilled men and women.
Thank you for attention.

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