Strategies for the Formalization of Scrap Businesses on the Old Fadama Scrap Yard

Report of Module 3.1 of the GIZ E-Waste Programme in Ghana,
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1. Introduction

So far, e-waste management in Ghana is almost exclusively organized by the informal sector. The current system provides livelihood for many people, but as well causes heavy environmental pollution and serious health problems. Major strengths of the current system are high collection rates – of more than 90% - and very labor-intensive processes. It is estimated that only in Accra about 5,000 people are working as informal scavengers collecting e-waste appliances from private households and companies with their pushcarts.

This big advantage is recognized by the Ghanaian national e-waste strategy. For example, within the "Technical Guidelines on Environmentally Sound E-Waste Management" (EPA, SRI: 2018) door-to-door collection of e-waste done by informal collectors are defined as Tier 1 and through that principle as well recognized as an important pillar within a future integrated e-waste management system. According to the technical guidelines the interface between informal and formal sector shall be provided by collection centers (buy back centers), where collectors will be able to deliver collected e-waste and shall get remunerated for their collection services as soon as the recycling fund is in operation.

According to the technical guidelines transporters (Tier 3) are supposed to bring e-waste, which is aggregated at the collection centers, to treatment facilities/ recyclers (Tier 4), which must be operated as registered companies and dispose of an environmental permit emitted by EPA. One main activity under Tier 4 is permitted dismantling, for which collection centers can apply as well. In this case collected e-waste can be dismantled in defined recyclable, hazardous and non-hazardous fractions, which then have to be destined to recyclers, which have the specific required permits for further treatment and/or final disposal.

In the current system dominated by the informal sector the collectors in general work on behalf of so-called "masters", which own and operate informal worksheds on one of numerous scrap yards in the country. There, collected e-waste is dismantled into recyclable fractions as well, but under conditions, where the hazardous character of e-waste appliances is widely ignored. Contained oil is released into the ground, other hazardous components such as batteries, capacitors, toner-cartridges or Hg-containing lamps are openly dumped. Cables are burnt to get copper liberated from the isolation and a lot of other recycling practices are applied, which cause serious environmental and health impacts not only to the involved workers but to the entire communities living around these scrap yards.

One of the biggest scrap yard in Ghana is the Old Fadama Scrap Yard – more famous by the name of Agbogbloshie. It is estimated that 3,000-4,000 scrap workers are working on this scrap yard alone. Owusu-Sekyere, Karoline (2018) could show, that the annual turn-over of material of the scrap yard is around 70,000 tons per year, from which around 17,000 t/a is e-waste. All over Ghana probably

more than 100,000 people are working in the scrap business most of them as part of the informal sector.

These figures show quite clearly that an integrated e-waste management system for Ghana cannot only focus on employing the informal sector for the collection of e-waste and to assign all further recycling activities to the formal recycling industries. Sustainable strategies must as well strongly include approaches for the formalization of informal e-waste businesses, including some of their processing activities. This needs to be done by building partnerships between the informal and formal recycling sector and in general by introducing well defined interfaces between informal and formal sector activities.

2. Proposed General Approach

This paper proposes a process for e-waste worksheds on the Old Fadama Scrap Yard to achieve environmental permits. The proposed approach was developed against the background that there exist clear criteria and a well-defined process from EPA-side how to apply and grant an environmental permit for recycling companies on the one hand. On the other hand, worksheds on the scrap yard are not yet in the position to receive an environmental permit but need to be oriented to improve their set-up towards environmental sound processes and to fulfil a lot of other formal requirements.

Furthermore, in many cases it is not even totally clear, who will be the entity, that is going to apply for an environmental permit. Does it make sense, that every single workshed applies for an individual environmental permit or would it be better to seek for a situation, where several worksheds are represented by a cooperative business-structure, which would be the entity to apply for the permit and take the responsibility concerning environmental sound e-waste management? Is it possible to adapt operational models for the scrap yard, where registered companies or associations provide space for informal collectors to conduct dismantling of e-waste under controlled conditions?

The approach presented here therefore focuses on the preparational phase, in which

- the potential operator models for e-waste recycling under controlled conditions can be developed within a participatory process,
- concerned actors can be introduced step by step into environmental sound e-waste recycling and
- further administrative processes can be prepared at the same time

In this approach the official application to gain environmental permit is therefore only the last steps after several preparational works.

3. Proposed Preparational Steps

The following are the proposed preparational steps to prepare worksheds on the Old Fadama Scrap Yard to gain environmental permit and to fully integrate in the formalized e-waste management chain. All of them can be started in parallel and contribute on the different levels to fulfil the administrative requirements for an environmental permit.

3.1. Introduction and Selection of Potential Operator Models

Now there exist more than 200 informal worksheds on the scrap yard each of them employing 5-20 people on an informal basis. Some of them might have the financial and technical capacity to fulfil required standards and reporting in the future and to transform their infrastructure towards this goal. The majority is operating under fragile conditions and will need supportive infrastructures to fulfil the required standards under an environmental permit.

Therefore, the introduction of alternative operator models is a very important precondition that the Old Fadama Scrap Yard can be transformed into an environmental sound recycling park. There exist several models worldwide, which could be looked at as potential models. Within the first phase of the GIZ E-Waste Program an approach to buy out cables from the scrap yard to destine to state-of-the-art recycling has been successfully tested and can be further developed as well.

The following approaches/ models could be considered:

1. Existing worksheds will be upgraded to registered e-waste recycling MSMEs[1].
2. Several worksheds form cooperative business structures such as scavenger cooperatives in Brasil. Within the logic of the national e-waste strategy of Ghana the joint structures could be permitted and work as collection centers/ buy back centers.
3. External players provide space and additional support for informal scrap workers/ worksheds, dispose of the required permits and ensure environmental sound practices within their premises. E[co]work Space (India) or the recycling company DESCO (South Africa).
4. Permitted external players provide services for processes, which cannot be operated in an environmental sound manner on the scrap yard within the current structure and/or are crucial for an environmental permit. Within this logic an external service provider could get the permit to operate a collection center/ buy back center at the scrap yard. The incentive system, which was tested by the technical component and is going to be implemented on a broader scope within the financial component of the e-waste program is a potential operationalisation of this approach.

[1] MSMEs = Micro, Small and Medium Enterprises

Within a participatory process existing alternative operator models will be presented to the concerned actors and stakeholders. Based on detailed discussions potential operator models for the scrap yard will be selected. Potentially considerable options will be adapted to Ghanaian conditions to then take the required steps to test and introduce them to the scrap yard.

3.2. Elaboration of SOPs

As one very important criterion for worksheds on the Old Fadama Scrap Yard to achieve environmental permit they will have to prove against EPA, that their dismantling, recycling and or recovery processes are done in an environmental sound manner protecting the environment and the health of their workers.

The requirements are defined in the technical guidelines (EPA, SRI, 2018), further international standards can be used to define them on a more detailed level. What is missing are procedures describing how the required standards and further legal requirements can be met by the operating worksheds on the process level and supported by examples and illustrations

The GIZ E-Waste program has been working in this area since 2017. Since then the following analysis have been carried out on the Old Fadama Scrap Yard:

- Estimation of input- and output-flows
- Naming and characterization of all recycling activities/ assignment to processes
- Detailed assessment of selected processes concerning environmental and health impacts as well concerning economic efficiency

In 2020 the detailed assessment of further recycling processes on the scrap yard will carried out. Based on the assessment existing recycling practices will be divided into 3 groups:

- Processes, which are carried out in an environmental sound manner already and therefore do not need to be adapted (some re-use and storage activities, …)
- Processes, which could be carried out on the scrap yard in the future as well, but need to be changed and adapted to meet legal requirements
- Processes, which must be stopped in general because of their environmental impacts (burning of cables, ...) or where the worksheds on the scrap yard do not yet have the required resources to transform them into environmental sound practices (sound recycling of fridges, …)

For all processes where the analysis allows the conclusion that they can be transformed into environmental sound recycling activities, detailed SOPs – Standard Operational Procedures will be worked out, which can be then used as application documents by applying worksheds, as soon as they are prepared for an environmental permit. In several cases the elaboration of innovative

appropriate technical solutions will be required as well to meet the required standards. Both parts will be integrated activities of the GIZ E-Waste program for 2020-2022.

Strong interaction and coordination between the program and EPA regarding the recognition of the elaborated SOPs as environmental sound practices will be a crucial part of these activities.

3.3. Constant Capacity Building

Elaborated SOPs will not be implemented on its own by the concerned e-waste worksheds on the scrap yard, but there will have to take place extensive capacity building concerning this issue. Since July 2019 the GIZ E-Waste Program operates a technical training center (TTC) on the scrap yard, where scrap workers receive technical trainings about proper dismantling practices, how to store fractions properly and how protect themselves while doing potentially harmful recycling steps.

As by now the trainers working on behalf of the program are offering a 3-day basic training module, which all the 3,000 – 4,000 scrap workers on the scrap yard should have attended until the end of 2020. At the same time the trainers already work on advanced course modules, which participants who successfully attended the basic training, will be invited to attend. These course modules will focus on topics such as business registration, health & safety aspects and further processing possibility such as product recycling and/ or separation of plastics. For several topics the engaged trainers will receive further training themselves, before they apply their knowledge to design new courses (train-the-trainers approach).

As soon as first SOPs on certain processes are developed, the content of the SOPs will be as well used for the design of advanced training courses. Making them a topic for training courses it is as well a strategy to get feed-back from the participants, how required technical solution could be applied on the scrap yard and how available resources could be used to develop innovative appropriate solutions on the scrap yard.

It is expected that – applying this strategy - concerned scrap workers and workshed owners can be made familiar with environmental sound technics, so that they learn and apply environmental sound practices step by step. The application would be the last formal step and this transition process.

3.4. Installation and Operation of a Temporary Storage Facility for Hazardous Components

A temporary storage facility for hazardous components operated by the GIZ E-Waste Program will be an essential element for workshed owners and scrap workers to get familiar in taking care of hazardous components in a proper way.

Every entity applying for an environmental permit to recycle must have a state-of-the-art storage for hazardous components. As none of the worksheds on the scrap yard currently has a suitable storage

for hazardous components and most of them do not even know how such a storage has to look like, it is a suitable strategy to showcase such a storage on the program level.

It is the joint strategy of GIZ and EPA, that the storage facility will be operated temporarily by the program to give worksheds the possibility to dispose of hazardous waste properly. In that way scrap workers can transfer content from the training courses into praxis. The storage facility shall receive hazardous fractions coming out e-waste dismantling from all worksheds on the scrap yard.

Main objectives of the temporary storage facility are:

- Create a model and be a piloted model for creating a joint learning process for the envisioned permitted dismantling which will invariably bring about the formation of associations that will arise and would be required by EPA to have storage facilities of hazardous fractions.
- Bridge the gap between the current status (where there is no storage facility for hazardous fractions) and when permitted dismantling is in place thereby making it mandatory that every group or individual dismantlers have a storage facility for hazardous fractions. The facility will also collect the hazardous fractions that are not covered by the financial cooperation component of GIZ
- The facility will also serve as a business model which will be permitted by EPA and financed by the ECO levy which will be similar to the piloting of the collection of cables (piloting payment system) as a clear example of what this temporary storage facility for hazardous fractions seeks to replicate.

For the time the storage facility will be operated the program will take care of proper disposal of collected hazardous waste. It will be operated until most of the worksheds will have their own temporary storage facilities for hazardous fractions.

3.5. Land title

As described by Manhart (2018) one important precondition for upgrading Old Fadama is a guarantee that the scrap market and the presence and economic activities of the collectors / dismantlers / scrap dealers is tolerated for a defined minimum period and under certain conditions. Therefore, an agreement should be negotiated between scrap workers, AMA, NYA and also EPA. AMA will most probably be the most important government partner and should commit on a high political level.

The negotiation of such an agreement and the following implementation process will need a sound organization of scrap workers so that project module 3.1. will play an important role.

Possibly contents of an agreement:

- Scrap workers will be tolerated in Old Fadama for a minimum of 5 more years (possibly longer), but certain conditions are made:
    - The scrap market shall not be used for housing purposes and families and children should be there only in exceptional cases to avoid that the area transforms into a residential slum area (the land is flood prone and highly contaminated and therefore surely unsuitable for housing purposes).
    - In addition, the land close to the river and lagoon should not be used for recycling and disposal activities anymore and should be kept free from any structures.
    - At the same time scrap workers commit to register (e.g. as scrap collectors) and in line with the new Technical Guidelines. The process could later be facilitated by GIZ and EPA. Considering the fact that it will be impossible to register every individual, the agreement could use an indicative target number (e.g. at least 300 individuals within one year).
    - Defined types of wastes (e.g. plastics, residual wastes) are not disposed uncontrolled or burned any more but disposed in containers to be provided by AMA.
    - AMA commits to improve infrastructure (e.g. access roads, water supply, electricity supply, sanitary facilities, health post).
    - The agreement partners will meet every 4-8 weeks to discuss about upcoming issues and to monitor improvements.
    - GIZ commits to support community driven initiatives (to be further defined).
    - AMA may probably also commit to give groups of scrap collectors a formal role in the city's waste management system (e.g. contract them for cleaning measures in the lagoon area)

For the success of such an agreement, political will and stamina of AMA will decisive. It will not be enough if they just do it for 1 or 2 nice events and some media coverage! Thus, bilateral meetings with the political level of AMA could be a first but important preparatory step.

4. Final Step Environmental Permit

All preparational steps will implemented in strong collaboration between the E-waste program and EPA and MESTI. This approach makes it possible to decide together about the moments, when certain worksheds are prepared to apply for an environmental permit, invite and support them in finalizing implemented preparational steps with the submission of the official application.

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