**Cloud Enabled Waste Collection Management – The Problem**

Waste generation and its collection has become one of the biggest challenges in Ghana. Huge amount of waste is generated in our municipalities and districts daily by households and commercial areas. The volume of waste generated daily and its clearance has become a challenge and as a result Government is partnering with the private sector to tackle this challenge.

While private companies partnering with Government are doing their bit, oftentimes the challenge has been accurate data on the location of waste bins distributed to household to help facilitate the collection of those waste. Whiles the districts and municipalities also do not have the necessary tools to check whether the waste has been collected.

This tool seeks to fill that gap and provide accurate, real time information on the status of the waste bins. This gives the environmental managers the ability to monitor and supervise contractors involve in waste collection. This can tremendously help in our waste collection effort in Ghana

**How eWaste Collection Management Seeks to Address Collection Gap**

The system has two modules. One for the environmental managers and the other for the waste collectors and their clients.

The first module which is a waste collection viewer and reporting allows environmental managers check daily the location of individual bins and whether waste has been collected or not. They can view by collector/contractor and location. They can also view by collector/contractor and status. Daily reports can also be generated to know which areas have been collected by collector/contractor. It will also make provision for environmental managers to view reports on which areas are due for collection. They can also view reports on which areas collection date has expired. They can visualize by way of graphs to know which clients/contractors are meeting their target etc. They can also view report on pending check-ins.

The second module will be used by clients/contractors. All locations will be identified with special codes for easy identification. Districts and municipalities will generate this code. Where household numbers are readily available, the districts and municipalities can make use of that. However, bins in open markets and places will required special code identifications.

All locations will be identified by both collector/contractor and the district or the municipalities and setup in the app. The collectors/contractors will also be identified and setup in the app. Collectors/Contractors will be linked to a special codes and locations data.

The app simply works by checking in to say the waste has been collected. This check-ins will be pending until it has been released by the client/person in charge of the bins in the area. Clients can send notifications indicating the area special code and the location when the bin is full. By this, it is also required that while setting up locations we also includes the person in charge of where the bin is located.

**How eWaste Collection Management Concept Can Be Applied to Informal Revenue Mobilization**

Locations of potential taxpayers are identified and given special codes. Revenue collectors can now use the app to collect revenue. Once revenue is collected, they check-in, it is released by the taxpayer and the system is automatically updated. The GRA can now have a completed view of all its taxpayers in the informal sector, be able to track them and know who is paying his/her and who is not. They will be able to know overdue payment etc

**Bismark’s Addition:**

Clients will be given daily education on how to keep the environment clean. This will come in the form of notification directly delivered to their mobile phone (via sms or through the app itself).

We will also include a complaint module where clients can log a complaint when they are not happy with the service. The complaint could either be channeled through the districts/municipal assemblies or to the collector/company.

**Richmond’s Addition:**

Clients should be able to pay for waste fees and the waste companies can also use it as check/accounts keeping.

***Note: we can consider this one in the next upgrade of the app.***

ECG can potentially use it. However, if ECG succeeds in having prepaid meters across the country, the app may not be necessary.