

E-Waste Project in the uMgungundlovu District

Introduction

The uMgungundlovu District is located within the KwaZulu Natal Midlands Collectively Umgungundlovu and accounts for approximately 9'190 km² of land area with an estimated population of 927'846. The area represents a diverse range of settlement including major urban centers, secondary and local centers as well as semi-rural and rural residential settlement. Within the boundaries of the uMgungundlovu District there are 7 Local Municipalities separate administrative seats. Msunduzi is the most populated Municipality with 60 % of the District's population. The remaining municipalities are rather rural structured and contribute with 3 to 13 % to the district's population. Consequently a diverse range of development needs exists across the district. Appropriately, the domestic industry and business structure is less dense as in metropolitan centers like Cape Town or Johannesburg. Therefore, the challenges to implement an e-waste management system will differ from the pilot projects in Cape Town and Johannesburg.

A few private companies in and near the uMgungundlovu District already collect and disassemble e-waste up to a certain degree. However the recovery process in order to minimize waste is not optimized and the implementation of an integrative e-waste management system is considered as urgent.

To raise awareness among stakeholders as well as to build capacity for an improved e-waste management system in the uMgungundlovu District, a Material Recovery Facility (MRF) for training purposes shall be set up in Cedara (1). Moreover a survey of the local municipalities shall provide a better understanding of the current and future e-waste situation in the study area (2).

1 E-waste training facility in Cedara

1.1 Project

The Department of Agriculture and Environmental Affairs (DAEA) unlocked a budget for the establishment of an e-waste MRF for training purposes in Cedara (20 min drive from Pietermaritzburg). This budget enables to

- acquire two parkhomes for working spaces as well as an office, a conference room and a kitchenette
- acquire a shipping container (74 m³) for stock receipts
- acquire a small shipping container (37 m³) for storing recovered materials
- furnish the working spaces as well as the office complex (see separate table "Equipment")
- employ 6 to 9 people for the training period of 1 to 2 years (see separate table "Personnel")
- equip the employees with tools and personal protection equipment (PPE) (see separate table "Equipment")

Once the training facility is set up, local stock on e-waste of the DAEA can be initially processed. Approximately 5 tons of e-waste (broken printers, phones, monitors and PC systems) are stored in a shipping container in Cedara.

1.2 Personnel

An initial manpower of 6 to 9 persons the working process should be effective along the experiences from the MRF in Maitland, Cape Town. According to Gerry Newson, the following setup of personnel is required to run the facility:

| Function | # Persons | Description |
|-----------------------------|-----------|---|
| Coordinator | 1 | Coordination and organisation of the incoming and outgoing material, management of processes |
| Testing and Repair | 1 – 2 | Recovery of function: testing and repairing of incoming equipment, prepare equipment for second hand use |
| Disassembly | 3 - 4 | Stripping of equipment (mostly PCs, printers and monitors) Cleaning monitors Cleaning of the plastic casing recovered Cleaning and mechanical stripping of all wires |
| Waste to Art | 1 – 2 | Development of alternative consumer products out of recovered material |
| Training responsible | 2 | Two persons of the above mentioned staff are responsible for the working procedures within the training facility |

1.3 Equipment

To setup the training facility Personal Protection Equipment (PPE), tools, and infrastructure is needed, which approximately cost 25'000 to 31'000 Rand. Containers for e-waste stock and recovered material as well as parkhomes for working spaces are not included. Also salaries for employees are not considered.

| Equipment | Amount | Costs [in ZAR] | Costs in Total | Description |
|---------------------------|--------|----------------|----------------|--|
| PPE | 3 – 4 | 500 | 1'500 – 2'000 | Overalls, masks, glasses, gloves |
| Tool kits | 5 – 8 | 250 – 500 | 1'250 – 4'000 | Basic working tools |
| Special tools | 1 | 1'000 | 1'000 | Blowers to clean up dust, hover, brushes |
| Work benches | 8 | 1'000 | 8'000 | Robust working tables (timber) |
| Scale | 1 | 2'500 | 2'500 | Scale to weight incoming and outgoing material |
| Power installation | | | 3'000 – 5'000 | Electricity installation |
| Office | | | 1'500 | Office table, shelf, |

| | | |
|------------------------|------------------------|--|
| | | chairs; computer and phone not included |
| Conference room | 1'500 | Table, chairs, Flipchart |
| Kitchenette | 2'500 | Microwave, cups, glasses, plates, little table, water boiler, plastic chairs |
| Other | 3'000 | Other equipment |
| Total | 25'750 – 31'000 | |

1.4 Situation

See plan “Situation MRF Cedara” in the appendix

1.5 Schedule

| Task | Time Frame |
|---|-------------------|
| Introduction of DAEA, development of project idea | 28/10 |
| Establish list of equipments needed | 03/11 |
| Estimate project costs | 03/11 |
| Contact retailers | 10/11 |
| Establish contacts with recyclers | 10/11 |
| Establish implementation plan | 14/11 |
| Present implementation plan to DAEA | 17/11 |
| Prepare a Draft Report | 03/12 |
| Finalize Report | 12/12 |

2 E-Waste Management Survey

2.1 Research Problem

Very little is understood about the volumes and types of electronic waste generated and stored by the public sector within the uMgungudlovu district municipal area. It is also unclear what policies and regulations govern the disposal of electronic assets of the state. This lack of knowledge prevents viable recycling projects being conceptualized and implemented for the public sector.

2.2 Research Questions

To prospect the feasibility of an e-waste management system within the public sector in the uMgungudlovu district municipal area, the following research questions should be considered:

- What volumes and types of electronic waste is generated and stored by national provincial and local governments within the uMgungundlovu district municipal area?
- What measures are currently in place to reduce the generation of electronic waste by state institutions within uMgungundlovu district municipal area?
- What measures are in place to safely dispose of electronic waste generated by the state institutions within the uMgungundlovu district municipal?
- What constraints and risks exist with regards to recycling and reusing electronic waste generated by the state institution within uMgungundlovu district municipal area?
- What opportunities exist with regards to recycling and reusing electronic waste generated by the state institutions within the uMgungundlovu district municipal area?

2.3 Data Collection

In order to answer the research questions, the following instruments should be considered:

- Conduct interviews face to face or telephonically with SETA and other provincial government IT stakeholders, IT Managers at the Msunduzi Municipality, uMgungundlovu District Municipality and uMngeni Municipality to establish the status quo.
- Send out questionnaires or conduct telephone or face to face interviews with other IT stakeholders e.g. organized IT industry and large commercial enterprises within the district municipal area in order to gain insights from the private sector.
- Interview sample of cell phone repair technicians on e-waste recycling and disposal practices, opportunities and constraints
- Arrange stakeholders workshop to present preliminary findings in order to obtain feedback from stakeholders on information collected and recommendations made in the report.

2.4 Questionnaire for local Municipalities

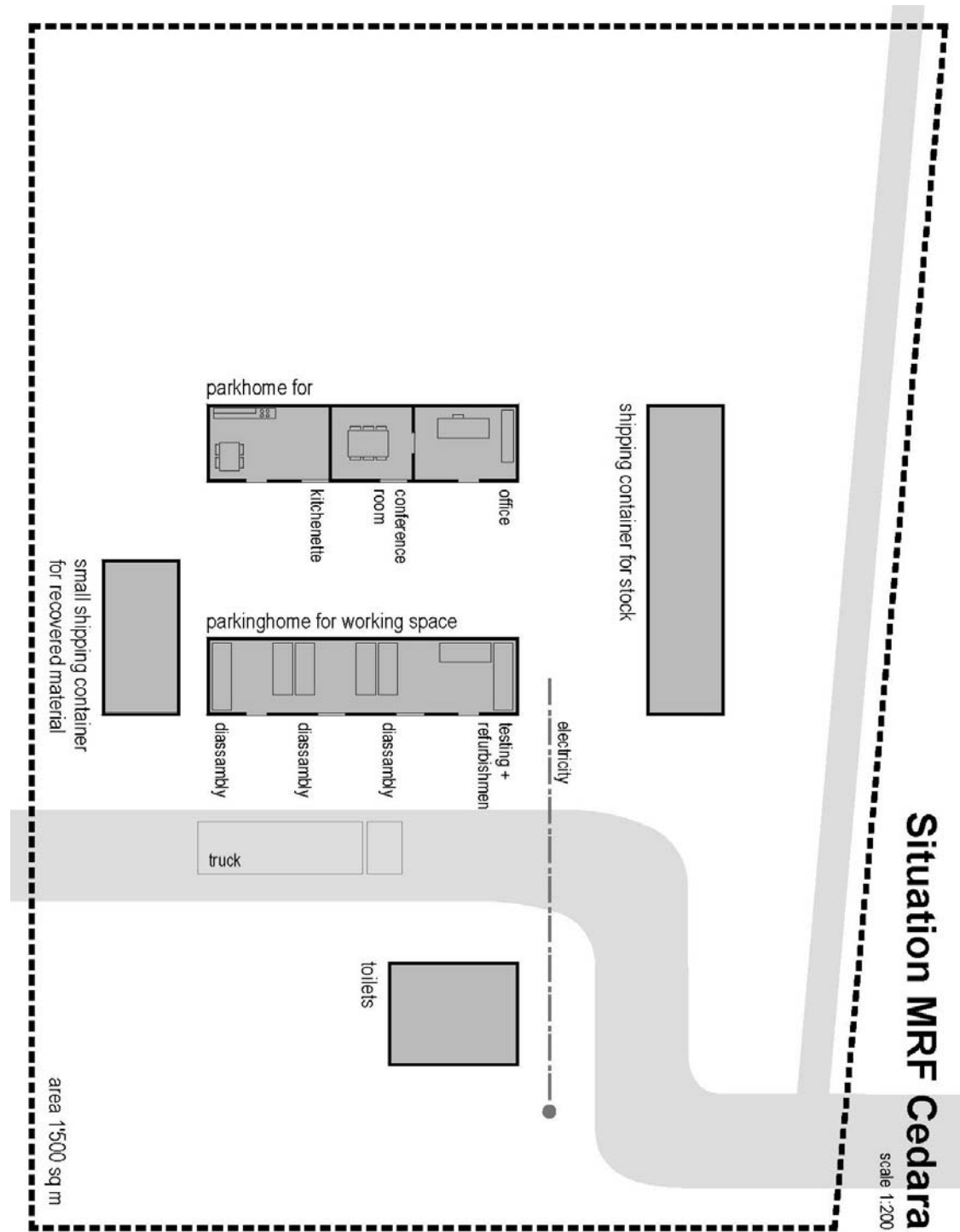
See Questionnaire “E-Waste Assessment Survey” in the appendix.

2.5 Schedule

| Task | Time Frame |
|--|---------------|
| Develop Questionnaire | 03/11 |
| Establish contact with identified stakeholders | 03/11 |
| Conduct Interviews | 04/11 – 21/11 |
| Interpret and Analyze Data | 26/11 |
| Prepare a Draft Report | 03/12 |
| Host a stakeholder Workshop | 08/12 |
| Finalize Report | 12/12 |

3 Appendix

3.1 Situation MRF Cedara



3.2 Questionnaire

Umgungundlovu District Municipality Electronic Waste - Survey within Municipalities

Dear Colleagues

Umgungundlovu District Municipality in collaboration with the Electronic Waste Association of South Africa (eWASA) is undertaking a mini survey to assess the types and volumes of electronic waste in the district with special reference to municipal offices, institutions of higher learning and the private sector.

The purpose of the study is to inform the District of the current status quo in order to develop strategies and solutions towards an effective electronic waste management in the District. This will also inform future policies and regulations as well as the setting of targets within the province about the future disposal of electronic assets with reference to the Municipal Financing Act (MFA) and other relevant environmental legislation.

Since this is a new initiative in the District we have sourced the expertise of Matthias Kolb from EMPA, Switzerland and Mbaweni Manqele the Coordinator of eWASA in the province to facilitate this process on our behalf. The project is funded by eWASA and EMPA. They will be reporting to Mr Riaz Jogiat of the UMDM Waste Technical Department.

Parallel to this is an initiative which is currently conducted by the Department Agriculture and Environmental Affairs (DAEA). DAEA is in the process to implement an integrated electronic waste (e-waste) dismantling and recovery program at the DAEA head office in Cedara under the supervision of Dr T. Fasheun ..

Your office is therefore requested to provide information about the stock on electronic equipment as well as current strategies and the general modus operandi for their disposal in your department if they exist.

We request you to either please make time to physically meet with the above mentioned EMPA/eWASA consultants or to fill in the attached questionnaire.

Please return the filled in questionnaire to matthias.kolb@gmx.ch or fax it to **086 614 2081** by no later than **17 November 2008**.

NB. All findings will be presented to all those who participated before the final report is produced.

We thank you for your anticipated response and cooperation.

Kind regards

Riaz Jogiat

Manager
Umgungundlovu District Municipality
Technical Department

For more information on eWASA and EMPA please visit the website. www.ewasa.org.

This Survey is sent to all Governmental Departments in order to establish a database for quantifying the volume of e-waste in the uMgungundlovu district municipal area.

I) Please answer the following questions about the electronic equipment in your department.

- 1) How much electronic equipment of the following types is currently **in use**? In the case you don't know the exact amount, please estimate.
(please specify in numbers)

| Type | PC drives | Monitors | Laptops | Printers | Copiers | Phones |
|--------|-----------|----------|---------|----------|---------|--------|
| Amount | | | | | | |

- 2) When do you plan to replace the above specified equipment with new equipment. In case you do not know please give at least estimates?
(please specify by giving the amounts in numbers)

Example

| Years | PC drives | Monitors | Laptops | Printers | Copiers | Phones |
|--------|-----------|----------|---------|----------|---------|--------|
| 0 – 1 | 14 | 25 | -- | 3 | 1 | 21 |
| 1 – 2 | 2 | -- | -- | 2 | -- | 10 |
| 2 – 4 | 10 | 5 | 5 | 3 | -- | -- |
| over 4 | -- | -- | 12 | -- | -- | -- |

| Years | PC drives | Monitors | Laptops | Printers | Copiers | Phones |
|-------|-----------|----------|---------|----------|---------|--------|
| 0 – 1 | | | | | | |
| 1 – 2 | | | | | | |

| | | | | | | |
|--------|--|--|--|--|--|--|
| 2 – 4 | | | | | | |
| over 4 | | | | | | |

- 3a) Do you currently store **broken or obsolete** electronic equipment?

Yes No I don't know

- 3b) If you do please specify the quantity of **stored** e-waste items in numbers.

| Type | PC drives | Monitors | Laptops | Printers | Copiers | Phones |
|--------|-----------|----------|---------|----------|---------|--------|
| Amount | | | | | | |

- 4a) Do you currently store **workable or reusable** electronic equipment?

Yes No I don't know

- 4b) If you store workable/reusable equipment, can you specify the quantity in numbers?

| Type | PC drives | Monitors | Laptops | Printers | Copiers | Phones |
|--------|-----------|----------|---------|----------|---------|--------|
| Amount | | | | | | |

- 4 c) Where (physical location) do you store this? (physical location)

II) Please answer the following questions about initiatives taken at your department

5a) Are there any government programs or initiatives that have been put in place regarding e-waste (e.g. recycler responsibility; supplier take-back initiatives,)?

- | | | |
|--------------------------|--------------------------|--------------------------|
| Yes | No | I don't know |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

5b) If yes, please specify this program in a few words.

6) If you were to dispose off the unused equipment what administrative and technical processes do you follow?

7. Where / from whom do you buy your electronic equipment?

PC drives: _____

Monitors: _____

Laptops: _____

Printers: _____

Copiers: _____

Phones: _____

7a) Are there any servicing, leasing, repair or disposal deals involved?

- | | | |
|--------------------------|--------------------------|--------------------------|
| Yes | No | I don't know |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

7b) If yes, please specify this process in a few words.

III) Please specify your contact details

Name of Institution / Department

Location

Contact Details:

Name

Phone number

e-mail

Date

Thank you for your time spent to fill in this questionnaire!!

We will inform you about our progress.