



## **Mission Findings Summary:**

# **1<sup>st</sup> Mission to South Africa / Gauteng Province**

**February 22-29<sup>th</sup> 2004 to launch the Assessment Phase**

**of the seco Project**

**"Knowledge Partnerships with Developing and Transition Countries in e-Waste Recycling" / Sub-Project "Capacity Building"**

## 1 Objectives

Main Goals of the entire assessment phase are:

- understand the present e-waste recycling system of three regions (Delhi, Beijing, Gauteng)
- to publish findings, insights and ideas on [www.ewaste.ch](http://www.ewaste.ch)
- rank the situations for a selection in a possible project continuation (Planning - & Implementation Phase)

During the 1<sup>st</sup> mission we wanted to achieve at least the following:

- setup an investigation team
- have workshop-like events to inform & rise awareness
- assess and document the present situation of e-waste recycling especially the technological, economical and social aspects in the informal and the formal sector.
- meet with resource persons in the relevant sectors to discuss the following issues:
  - data, data, data on e-waste streams and their impacts
  - synergy effects with existing similar recycling schemes (batteries, refrigerators, paper...).
  - the legal / institutional ... framework

## 2 Meetings and Outcome

A schedule of all meetings including participants, venues, agendas and outcomes is attached.

The main outcome from the discussions were:

- In the RSA "e-waste" seems not to be an issue of any priority so far. It does not appear in policy discussions or documents. Generally, first comments regarding e-waste handling were expressions of surprise ("what is e-Waste? I've never heard about!"), followed by vague or even contradictory statements about its management.. However, as soon the topic is explained, there is a tremendous interest and readiness to support this investigation. There appears to be a completely transparent approach in the formal business sector. Somehow, this kick-off mission turned partially into a successful "awareness campaign"!
- Considerable amounts of e-Waste have been found. e-Waste has not been identified as a waste stream in the characterization studies that have been regularly carried out on municipal waste streams. e-waste streams from industry and large scale consumers (government offices, banks etc.) seem to be handled by the formal recycling industry. e-waste streams from households however are rather directed to landfills.
- The formal sector of the e-Waste recycling industry consists of a handful of large and many smaller companies. It is mostly well organized, partly state of the art and very actively entrepreneurial.
- We found some unawareness of existing legislation which indicates lack of communication and/or weakness in enforcement structures.
- The workshops and meetings demonstrated the great interest of the recycling industry in this subject. One reason could be the difficulties to handle some of the recycled fractions, especially CRT glass and flame retarded plastics. As they have to be disposed of safely (and costly) they become a major problem for recyclers.
- Extracted materials, mainly metals, are either exported overseas, or sent to local smelters, depending on the dictates of strategic metal prices determined by the London Metal Exchange. Importation of electronic production wastes is taking place.
- Part of the e-waste stream ends in municipal land fill sites where "salvagers" appreciate e-waste as a particularly valuable source of revenue. We found some indications that printed wiring boards (PWBs), after some manual dismantling are returned to the "formal" e-waste streams.

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However, what really is happening with e-waste salvaged at landfills or collected informally is yet to be researched.

- There is little knowledge of recovery activities in the informal sector. However, some hints were made that backyard industry activities similar to those found in India or China could occur in the RSA.
- Precious metals are strictly regulated in the RSA. This might be one reason why activities in the informal sector are well hidden and not easy to track. However, it might also be that "informal gold recovery" has not yet been established in RSA.
- Fortunately there is much experience in all matters of waste handling and recycling available in the private and public sector. This allows for an efficient and promising investigation which will certainly produce information on the present situation in e-waste handling.
- Poverty alleviation through the creation of "good" jobs is one of the highest government priorities. It is hoped that in the proper handling of e-waste streams a large number of such jobs can be generated.

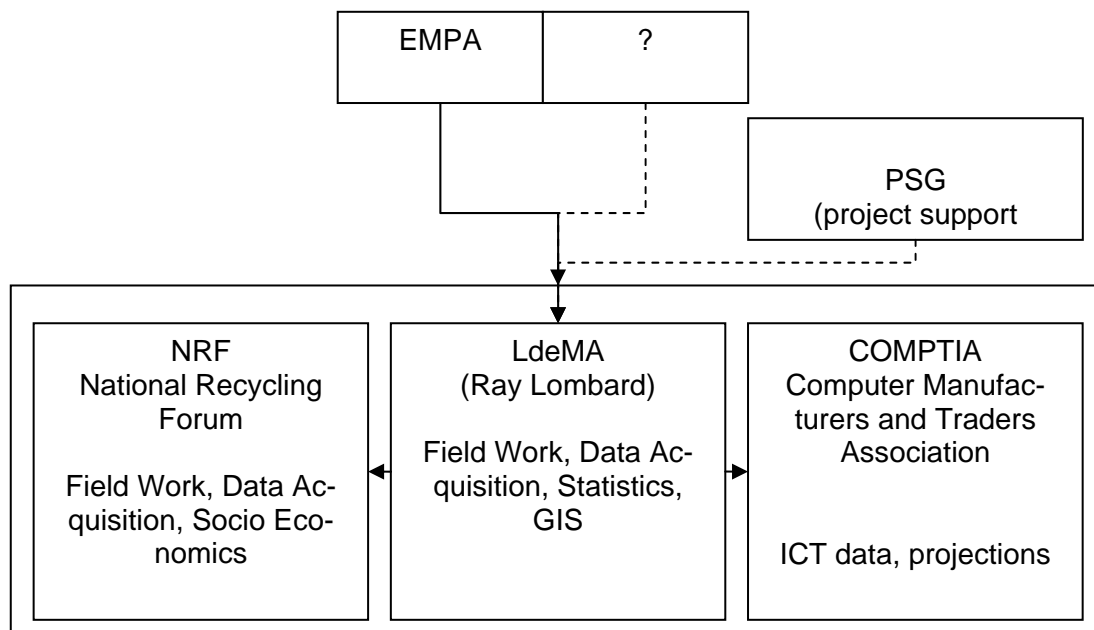
Picture: Dismantling of collected computers for metals recovery at Kraaifontein, Cape Town



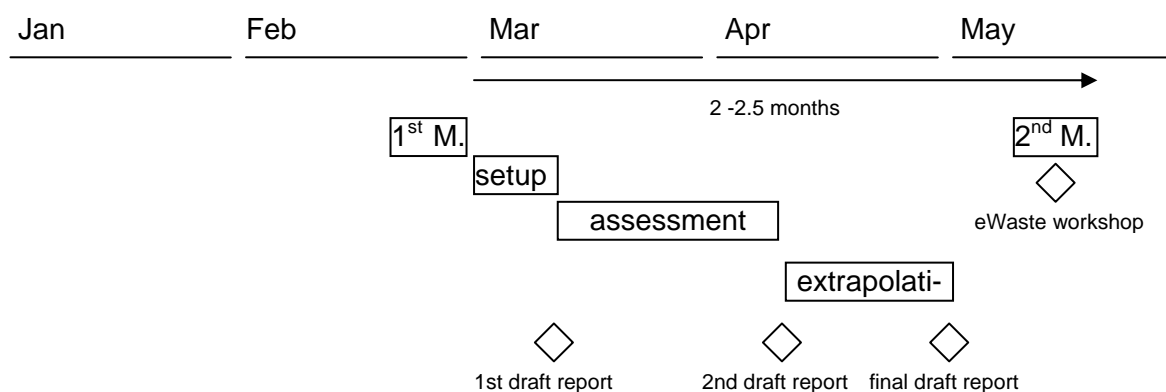
### 3 Cooperation Structure for the e-Waste Recycling Assessment

#### 3.1 Assessment Team Structure

The following organization chart displays a tentative set up of the investigations in the Gauteng Province.



#### 3.2 Assessment Schedule



1<sup>st</sup> draft report includes a documentation of the kick-off mission plus additional findings and a first overview on a map. It will also present the planned field investigations.

2nd draft report presents the findings during the field investigations

final draft report includes the data from the analysis and extrapolation of the findings during the field assessments.

The project- team likes to thank all who have participated and helped in this mission with time and thought.

St. Gallen, 04.03.2004: Rolf Widmer, EMPA (team leader); Jonathan Hecke, SKAT; Ray Lombard, LdeMA

## ANNEX

### 1 Workshop Outline & Content

1st Part (PowerPoint presentation, R. Widmer / EMPA)

- Introduction of the Swiss e-waste project
- Presentation of the Swiss eWaste Recycling Model (SWICO / S.EN.S Model)
- Overview of the e-Waste handling Technologies in Switzerland

2nd Part (PowerPoint presentation, R. Widmer / EMPA)

- Presentation of eWaste Management in India / Greater Delhi

3rd Part

- Open Discussion on present and future eWaste management in RSA / Gauteng
- After official closure of workshop, bilateral discussions and arrangement of appointments.

#### 1.1 Presentation Notes (by Susanne Dittke, Envirosense CC)

As both presentations at CSIR and ECL were basically the same, only the notes taken by Susanne Dittke at ECL are given here.

##### 1.1.1 Welcome & Introduction

SD welcomed all e-waste workshop attendants and thanked the ECL team for hosting the workshop event. JH briefly introduced himself and RW and explained the purpose of their visit to South Africa. He shared with the delegates the intention of EMPA to do a qualitative study for e-waste in the Gauteng area. The Cape Town workshop has therefore to be seen as an “extra” to gather additional information and start to grow the South African network of e-waste specialist and Interested and Affected Parties (I&APs).

Participants were requested to introduce themselves (and their companies) and to highlight their special interest and affiliation to the e-waste problem in South Africa. Every participant was asked to share the circumstances of the last time when he or she was confronted with e-waste. Interestingly in most cases handling and management of e-waste in South Africa was not perceived to be a major problem at all since obsolete and/or broken down electronic equipment (such as cell phones, TVs, appliances etc) gets either just “passed on” directly to a needy person or “disappears” as soon as the item is given public access .

**Presentation 1:** E-waste situation in Switzerland. Key stakeholders, legal and financial implications of e-waste and a qualitative and quantitative overview

RW first gave a PowerPoint presentation on the situation of e-waste in Switzerland and how it is managed locally. After an overview on e-waste collection and processing points in Switzerland RW introduced participants into the general logistics of e-waste management and highlighted the role of all local key stakeholders in the collection, transport and treatment but also the auditing (role of EMPA) of e-waste facilities. The way of systematic mechanical processing from “cradle to grave” was shown with pictures of a process flow diagram from Immark Drisa and the explanation of various technical process steps.

Special emphasis was given to explaining the role of SWICO (Swiss Association for Information, Communication and Organisational Technology) and SENS (Foundation for Disposal in Switzerland) who share amongst them (to varying degrees) the holistic management of various components of e-waste including for example:

- IT equipment

- Electronic Household Appliances
- Fluorescent Tubes
- Consumer Electronics

Financial and legislative incentives for the responsible management of e-waste in Switzerland were introduced and discussed. In particular the role of the advance recycling fee (ARF) imposed on new equipment and paid for separately by the consumer was discussed. The complete Swiss Electronic-Waste Recycling system and all logistic points for take back/collection and processing as well as the financial flows were discussed with the help of various “E-Waste Material Flow” diagrams. The Swiss-based waste characteristics were presented to inform participants about the most prominent e-waste components and their financial as well as environmental implications.

### **Presentation 2:** E-waste case studies in Delhi (India) and Beijing (China)

RW started the second presentation by introducing the workshop participants to the key stakeholders in e-waste in India and China. RW showed the roles played by “Toxics Link”, IRG and MAIT in the Indian Study. He also highlighted the role both EMPA and GTZ played in practically assisting with the management, handling & processing of e-waste in Delhi.

The various project components of the Delhi case study and their respective time frames were shown. A series of pictures followed to graphically describe some typical process steps (such as gold extraction) typical for the informal Indian and Chinese computer recycling industry. The contents of the photos provided dramatic evidence of the result of the uncontrolled and unregulated metal recovery as well as other recycling activities in those developing countries. Clear evidence was presented of people working under unacceptable environmental health conditions whilst by-products, and effluents, of the metal extraction processes are posing a serious threat to the surrounding environment (in particular water bodies).

Preliminary results revealed that the large majority of e-waste processed in Delhi is either sourced from the rest of India (50% of total) or Delhi itself (40%) whilst the balance is imported from other countries (predominantly the USA, United Emirates and Europe). Despite the often horrendously toxic and inhuman working conditions recovery and recycling of e-waste in Delhi provides about 25 000 jobs.

After an evaluation of the pros and cons of the current recycling methodology, suggested improvement scenarios were discussed highlighting the positive role formal recycling plants (financed and run by the major manufacturers of e-waste) could play to complement and enhance the current activities of the informal sector.

A similar case study was described for Beijing with fairly similar results and outcomes.

### **Presentation 3:** Synthesizing of the above findings and outlook on RSA situation

In the third and the final presentation RW established that the fact finding investigation in the above two countries had shown that e-waste recovery and recycling is mostly done in an informal environment. Key objectives and recommendations therefore included:-

- Reduce hazards in e-waste recycling without reducing financial /job potential
- Consider and/or adapt SWICO system components

In this regard an organogram including current, and future, projects with the various stakeholders was shown where SECO and EMPA, respectively, participate in an advisory board at the strategic level whilst acting as the Swiss subcontractors at the operational level. The need of proper capacity building among all project partners in each country has been found to be essential for the success of any e-waste project.

RW gave an overview of the anticipated project schedule for the Gauteng e-waste pilot project and stressed again that there is no plan to expand the Gauteng pilot project to Cape Town or Durban at



this stage. However, lessons learned could be compared at any stage with the Gauteng project in order providing a “blueprint” on how an e-waste information system (WIS) could be kick-started.

The nature of a future WIS was discussed together with the role that various GIS, GPS and other data pool components could play, if layered and positioned to facilitate the holistic study of the interactions of any impacts on similar systems that have been modeled.

## **2 Workshop Gauteng**

### **2.1 Workshop Data**

Workshop held 24.02.2004 from 14:00 to 17:00 at CSIR, Pretoria

Invitations by Ray Lombard & Associates and the CSIR

Workshop facilitator: Rolf Widmer, EMPA

Discussion moderator: Tinus Joubert

### **2.2 Discussion Notes (taken by Ray Lombard)**

#### **2.2.1 Problem Awareness and Extent**

- No one knows if there is a problem now, but there was consensus that there may well be a problem in the future and that this must be addressed now.
- Pikitup Waste Stream data derived from surveys carried out on two occasions agrees reasonably well. Some e-waste was identified in the waste stream. This data can be made accessible.
- ICT Industry Representatives indicate that hardware life cycles in South Africa are longer than they are in Europe or the USA (7 years at least to total redundancy). A similar situation is thought to apply in the case of cellphones.
- According to ICT industry representatives; in a population of 45 million people there are some 12.5 to 15 million computers in use in RSA. Of these 3.5 to 5.0 million are personal computers. The growth rate forecasted for 2004 was 1.2 to 1.5 million units.
- Large organisations establish tendering procedures for the sale of their redundant and obsolete equipment for which formal e-Waste Recyclers compete.
- In the case of the general public, people store obsolete and redundant machines because they do not know what to do with them. Eventually, these machines get dumped when the storage space is needed for other goods or the people move homes or offices. It was thought that these machines are scavenged by the informal sector.

#### **2.2.2 Recovery of useful materials from electronic waste**

- Recycling is taking place.
- Those who recycle occasionally will opportunistically collect and process e-waste.
- Those carrying out recycling in the ICT industry rebuild machines that can be rebuilt, recover components from machines that cannot be rebuilt, e.g. obsolete memory chips have a high market value.
- Those in the scrap metal industry recover precious metals but newer hardware has less precious metal, i.e. gold, silver, etc. This has not yet become a stable industry.

- Plastics containing flame retardants are a concern – what's happening to these?
- CRTs are a concern because the high lead concentration in the glass means that glass from this source is difficult to recycle.
- Not much is known about informal recycling activities. Care must be taken not to overlook the SMMEs.
- The viability of existing businesses, including informal operations, must not be impaired but “good work” opportunities must be provided. “Good work” is defined as work that does not impair the health of the individual whilst being safe and not causing harm to the environment.

### **2.2.3 Potential ways of approaching the issue in RSA**

- The ARF (advanced recycling fee) approach was discussed. Industry representatives are clearly against government intervention of any description as they hold the view that recycling that is financially viable proceeds naturally and is therefore sustainable.
- Government sector representatives believe in an incentives and regulations approach (stick and carrot).
- There was general consensus on the need to create awareness and educate the public. The example of the ROSE Foundation (oil recycling) was cited on several occasions but it was noted that this mechanism had not entirely solved the problem.
- There were suggestion from participants to establish an E-Waste Forum, where the ICT industry and the recyclers could meet to solve mutual problems. Perhaps this could be affiliated to the already established National Recycling Forum.

### **2.2.4 Suggestions for the EMPA status quo investigation**

- Would the study focus on computers or general e-waste (old and irreparable electrical goods, cell phones, games machines and all other electronic goods)? The investigation will mainly follow the life cycles of computers because these can be considered as useful “tracer” for the entire e-waste stream.
- It was suggested that the NRF could use its members to investigate the fate of the components of the e-waste stream, i.e. glass from CRT units, precious metals from motherboards, plastic from the covers, keyboards and computer mice. The IWMSA could assist.
- The CSIR has a recycler dealing with their waste; this avenue could be followed up relative to e-waste.
- Scrap metal recovery and processing specialists attending the workshop offered to assist with contacts to the Non-Ferrous Metal Industry Association, the Metal Recyclers Association, Foundry Manufacturing Association and the South African Iron and Steel Institution.

**The workshop was officially closed at 17:00 with a vote of thanks proposed to Dr Sibbele Hietkamp and the CSIR for making the excellent venue available at the Pretoria Head Quarters of the CSIR.**

## **3 Workshop Cape Town**

### **3.1 Workshop data**

Workshop held Wednesday 25.02.2004 from 14:00 to 16:00 at ECL, Cape Town

Initiative and invitations by Susanne Dittke, Envirosense CC

Workshop facilitator: Rolf Widmer, EMPA

Discussion moderator: Jonathan Hecke, Skat

### **3.2 Discussion Notes (taken by Susanne Dittke)**

After the presentations discussions between RW and the participants started with an open discussion on e-waste and local issues and the following key observations emerged

- Cape Town definitely has a growing problem with e-waste.
- An increasing number of requests to treat and dispose of e-waste are being directed to Cape Town's local waste companies.
- Informal recycling activities, such as those in India and China, seem to be also present in Cape Town. Some participants suggested that there seems to be evidence of at least four companies that extract metals with methods similar to those shown on pictures from India and China.
- The establishment of a local and provincial WIS is crucial to achieve better control and an understanding of the current e-waste management situation.
- The provision and enforcement of local, provincial and national legislation related to responsible "cradle to grave" e-waste management is critical. Financial incentives, extended producer liability/responsibility and the application of the polluter pays principles are some of the possible financial and economic instruments to explore.
- There is a strong interest to stay in touch with the work that will be done in Gauteng by EMPA in order to be able to follow a similar approach.

**The workshop was officially finished at 16:30 by handing over an "e-waste watch" present to the Swiss facilitators and the ECL host (courtesy of Gerry Newson from Dateafix)**

## ANNEX

### Programme / Schedule: 1<sup>st</sup> Mission RSA

Date	Time	Organisation and Activity	Subject Discussions and Outcome	location
Monday 23/02/04 (RW, JH, RL)	10h30	Arrival LX288, collect EMPA/SKAT Team at Airport		Airport > JHB
	11h00	Check in at Abigail's B&B		B&B
	12h00	Meet to discuss programme		B&B
	15h30	meeting with Mr. Leon Bredenhann, Director, Waste Mgt. Department, DWAF	Presentation of project, discussion of approach and ways of collaboration. DWAF unaware of e-Waste as an issue but thought that it is a concern for the future that should be addressed now.	DWAF, Pretoria
	21h00	Wrap up Meeting	Planning for the next day	B&B
Tuesday 24/02/04 (RW, JH, RL)	08h00	meeting with Mr. Darryll Kilian, Danish Embassy	Presentation of project, discussion of approach and ways of collaboration in this and later stages of project.	Danish Embassy, Pretoria
	10h00	meeting with Mr. Tinus Joubert (consultant), Mrs Dana Borg (consultant, Ramboll), Dr. Godfrey Mvuma (Dir. , Toxic waste, DEAT), Mr. Rantsadi Moetshe (Dir., Waste Mgt.) at DEAT	Presentation of project, discussion of approach and ways of collaboration. DEAT unaware of e-Waste as an issue but thought that it is a concern for the future that should be addressed now. Positioning of e-waste study in framework of NWMS and WIS. Suggestion to use HCM WIS format for presentation of results.	DEAT , Pretoria
	12h30 - 17h15	Workshop on eWaste at CSIR	See annexed Workshop Report	CSIR, Pretoria
	18h30	Comptia Breakaway Meeting at Kyalami Exhibition Centre	Meeting with the President of Comptia South Africa and his staffers established links in the ICT Training Industry.	Kyalami Exhibition Centre
	20h00	Wrap up Meeting	Planning for the next day	B&B
Wednesday 25.02.04 (RW + JH)	6:30-8:40	BA 6441 Flight JhB – Cape Town (RW and JH)		JhB – Cape Town
	9:30-11:30	Field visit to Athlone refuse transfer station, drop-off center and information center (Mr. Marc Lyons, Cape Town Municipal Council)	Introduction to Cape Town MSWM Forthcoming installation of MRF (material recovery facility) would allow separate collection / monitoring of e-waste.	Cape Town (Athlone)
	11:30-14:00	Briefing and lunch with Ms. Susan Dittke (EnviroSense CC)	Preparation of workshop Info on recycling activities and initiatives in Cape Town	Cape Town
	14:00-17:30	Workshop on e-waste with 21 participants	See annexed Workshop Report	Cape Town, premises of ECL Ltd. (Airport)

Date	Time	Organisation and Activity	Subject Discussions and Outcome	Location
	17.00-19:30	RW: BA 6426 Flight back to JhB JH: in Cape Town, informal meeting with Mr. Jan Palm (Jan Palm Consulting Engineers), Mr. Peter Novella (current president, Institution of WM of Southern Africa), Mr. Wouter Loots, Director of SWM, City of Cape Town, Mr. Richard Emery (BKS Waste Mgt. Services), and other SWM specialists	General attitude: surprise, "... never came to my mind ... "; e-waste investigation is highly welcomed. Mr. Jan Palm will organise separate collection and monitoring of e-waste @ Malmesbury MRF (rural, high-income, MSW 70t/d)	Cape Town
Wednesday 25.02.04 (RL)	8:30-17:01	Secure appointments for the balance of the Mission	See rest of time table	Johannesburg
Thursday 26/02/04 (RW + RL)	08h00	Meet at Abigail's B&B	Discuss Programme and share information	B&B
	09h00	Met Mervyn Frank and Stan Magid, Precious Metal Recoveries (PMR) and tour plant	recycling activity involving PC Boards is labour intensive and opportunistic related to their entrepreneurial operations. PMR sources material from tenders negotiated with large organisations, including parastatals and private companies. Also external sources of pressings and punchings and computer manufacturing scrap in the Far East. PMR have no ideas about informal sector involvement in e-Waste recycling. PMR have associates in Europe, Australia, USA, Singapore, Malaysia and Emirates. Internationalise philosophies. Setting up collection points. Don't know if the RSA market can meet the volumes that are required for a proper plant. 33 people employed.	Precious Metal Recoveries, ?
	11h00	Met Jan van Heerden and MD Wouter Vervey, Fry's Metals and tour plant	Informed of the level of organisation that has been achieved by the formal recycling sector: RASA – Recycling Association of South Africa. Joint South African Iron and Steel Industry (SAISI), Metal Recycling Association (MRA), Non Ferrous Metal Industries Association (NFMIA) & South African Iron Foundries (SAIF) Meeting. Non Ferrous anti-theft controlling committee led to a drop in cable theft of 60%. DTI applications are required for export permits and the joint associations can support or deny the applications. Mandatory inspection of material on site to avoid the procurement of stolen goods (All metal exports and imports). Also not aware of informal sector.	Fry's Metals, ?

Date	Time	Organisation and Activity	Subject Discussions and Outcome	Location
	12h15	Met Ms. Debi van Rensburg, Universal Recycling Company	Largest e-Waste recycler in SA. Process Gestetner, Apple, Telkom, Post Office e-Waste. Materials derived through tender process. Processing plant highly sophisticated, in line with anything that can be found in developed countries. Unable to supply statistics / information because entire computer LAN stolen the day before our appointment despite the stringent security measures. E-mail presentation on plant process available from MD David Lowenthal (He was overseas at time of visit). Export PC Boards to Far East. Main opposition is RECLAM. Material exported ± 98% purity in copper. Iron and Steel Recycling Industry (ISRI) website. The International Association of Electronic Recyclers (IAER) not importing e-waste, storing plastic. Glass from CRTs goes to Pikitup landfill – probably Goudkoppies. Two major operations - van der Bijl Operation dealing with Ferrous metals - Industria Operation dealing with Ferrous and Non Ferrous (including e-Waste). Depend on tenders for e-Waste. London Metal Exchange (LME) prices dictate whether recovered metals are exported or processed at local smelters.	Universal Recycling Company, Industria
	14h00	Met Les Venter, Neville Smith, Roelf de Beer, Pikitup	Ask Chris Liebenberg for copy of the Pikitup Survey presented to the National Recycling Forum (NRF). Les Venter will ask salvagers at sites about e-Waste. Pikitup will survey for e-Waste at garden refuse transfer sites. Suggestion from Roelf de Beer to go to suppliers about extended product responsibility i.e. take back their old products. Visit this website <a href="http://www.pikitup.co.za">www.pikitup.co.za</a> about Buy-Back Centres.	Pikitup, Joburg
	17h00	Met with Dee Fischer and Liz Warren, DACEL	there is a database for Buy-Back Centres in the Free State. The Waste Information System (WIS) that has been developed for Healthcare Risk Waste (HCRW) in Gauteng, under the auspices of GDACEL, will be extended to include landfill sites and even e-Waste. The controls over HCRW will be formally launched on 1 May 2004. Bryan McCord responsible for the management of the GDACEL MIS/GIS. Ekurhuleni Metro has excellent drop-off centre facilities at it's Weltevreden and Cimaron Jack landfills. Request the director for cleansing to include a container for e-Waste in order to facilitate the collection of this information. Hazardous waste recycling operates voluntarily.	DACEL, Pretoria
	20h00	Wrap up Meeting	Prepare for next day	B&B
Thu 26.02.04 (JH)	9:00-12:00	Follow-up / contact with workshop participants, recycling companies (yellow pages), Cape Town Integrated Waste Exchange ( <a href="http://www.capetown.gov.za/iwex">www.capetown.gov.za/iwex</a> ), Africa Recycle ( <a href="http://www.africa.recycle.net">www.africa.recycle.net</a> ) Meeting with Mr. Mark Dittke, environmental lawyer	Working plan for 26. and 27.02. Overview on national, provincial and municipal policy and legislation development.	Cape Town, office of EnviroSense CC (Zeeko-ewlei)
	13:00-14:30	Field visit with Mr Peter Sweeney, Panasonic, television manufacturing / assembly plant	In-plant management, recycling, transfer of wastes from production, servicing and packaging. E-waste is bought by DESCO.	Cape Town, Athlone

Date	Time	Organisation and Activity	Subject Discussions and Outcome	location
	15:00-16:00	Field visit with Mr Dudley Bradford; DESCO e-waste collection and dismantling site	Medium-scale collection of e-waste (50-100 t/a), management and operation of dismantling and sorting plant (HR: 5). E-waste fractions go to DESCO HQ in JhB, glass and plastics to landfill. Info exchange about other similar operations, buyer markets, auctions and government tenders, small-scale material recovery operations in the area.	Cape Town, Kraaifontein
	16:00-18:30	Field visit: Vissershoeck MW landfill site and drop-off center (Cape Town Munic. ), with Mr. Salim Haider, SWM Directorate	General info on landfill site management, achievements and problems. Informal and formalized salvaging, business behind it. Security problems and costs. E-waste in drop-off area.	Cape Town
	18:30-21:00	Meeting and dinner with Mr. Hans-Jörg Gottschalk, ECL	ECL is a medium-size local SWM service provider occupying niches such as sewage sludge transport, restaurant waste collection, recycling. Prospecting into e-waste management.	Cape Town
Friday 27/02/04 (RW + RL)	09h00	Met with Dr John Mbogoma and Ms Lene Ecoignard, Basel Convention Regional Centre	potential contact FCC Recyclers in Benoni - Sherrill Johnstone. Basel Convention, Stockholm Convention and Rotterdam Convention to be administered by this body with a name change that has been suggested to be "Africa Institute of Environment". Awareness Creation is very important at this time. A good legal framework exists in SA. Concern about cell phones. Request to keep BCRC in the loop.	Basel Convention Regional Centre
	11h00	Met with Dr Sibbele Hietkamp, CSIR	Discussion about further co-operation possibilities between CSIR and EMPA. Check out if EMPA affiliated with GRA (Global Research Alliance <a href="http://www.research-alliance.net">www.research-alliance.net</a> ). Topics could include research in e-waste, spread and mix of certain e-waste fractions e.g. leaded CRT glass; but also other fields such as ceramics for fuel cells, other nano materials, energy related topics etc.	CSIR
	15h00	Met with Mr. Markus Leitner, Swiss Embassy	provide full support for this project. The Swiss Ambassador would made himself available to open further workshops etc. The Embassy can provide assistance with publicity and advertorial material which will help to create awareness for the project and the Swiss Government's involvement in the process.	ISETT SETA, Gallagher Estate, Midrand
	16h00	Met with Wynand van der Merwe and Jabu Sibeko, ISETT SETA	Skills development angle. DTI/ ISETT SETA - ICT skills needed in other sector. Skills Sector Programme (SSP) Manager – Sector Skills Development Plan every 2 years. Request to be kept informed of developments.	ISETT SETA, Gallagher Estate, Midrand
	20h00	Wrap up Meeting	Contact was made with Costa Airaga of DESCO, an e-waste recycler with operations in the Western Cape and Gauteng. The business is 12 years old. Material that has been recovered is sent to a local smelter / refinery for processing. CRTs are a big problem, 20 tonnes in storage. Telephones from Telkom. PC Boards are being recovered from landfill sites. Therefore salvagers are recovering e-Waste from landfill sites. Potential contact, 3Com in Cape Town.	B&B
Fri 27.02.04 (JH)	9:00-12:00	Office work		Cape Town, office of EnviroSense CC (Zeeko-evlei)

Date	Time	Organisation and Activity	Subject Discussions and Outcome	location
	12.00-15.00	Meeting and lunch with Mr. Sipiwe Buthelezi (chem. eng. student @UCT)	Discussion on ways to investigate e-waste streams in townships (follow the supermarket kart, use local student workforce)	Cape Town
	15:30- 18:00	Field visit: Coastal Park MW landfill site and drop-off center (Cape Town Munic.)	Interviews with salvagers. Mr. Bawa, a businessman licensed by Cape Town Munic. (license yearly tendered for nominal fee), brings in 40 laborers that salvage recyclables. Payment per day / person / weight / class of material. Daily income 40-200Rd. E-waste commands highest price: 60-120Rd/kg (? To be confirmed)	Cape Town
Sa 28.02.04 (RW, JH, RL)	8:30-10:30	JH: BA 6428 Flight Cape Town-JhB		Cape Town - JhB
	10:30-18:00	Team discussion, report writing and planning		project office (Abigail's)
So 29.02.04 (RW + JH)		sightseeing, Apartheid Museum <a href="http://www.apartheidmuseum.org">www.apartheidmuseum.org</a>		
	22:00	return flight LX 289		



## Participants- / Mailing List

	Stakeholder group	Company / Institution	Address	Name			Tel	Cell	Fax	e-mail
workshop Gauteng										
1	Government (municipal)	Pikitup Johannes-burg (Pty) Ltd	Pvt Bag X74, Braamfontein, 2017	Ms	Maserame	Matiwane	011-7125372	082-8559364	011-7125322	<a href="mailto:maseramematiwane@pikitup.co.za">maseramematiwane@pikitup.co.za</a>
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9		Enviroserve			Kogi	Sing	021 951 8420			<a href="mailto:info.ho@enviroserv.co.za">info.ho@enviroserv.co.za</a>
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16		ECL		Mr.	Hans-Joerg	Gottschalk	021 934 0303			<a href="mailto:info@eclean.co.za">info@eclean.co.za</a>
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