



United Nations  
Educational, Scientific and  
Cultural Organization

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للثقافة والعلم والتربية

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# UNESCO Efforts for E-Waste

*“Basics for starting up a computer recycling  
business in emerging markets”*

**Tarek Shawki**

Director

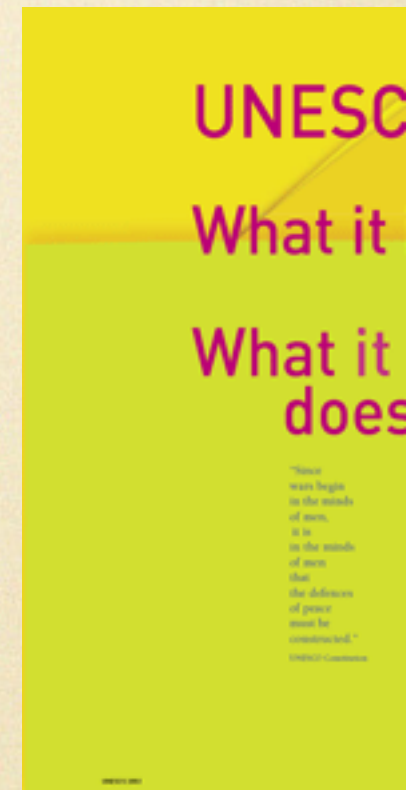
Regional Bureau for Science & Technology in Arab States

**UNESCO**

**E-Waste Management Forum: “Circulating Success”**

Intercontinental City Stars, Cairo, Egypt

- Today, UNESCO functions as a laboratory of ideas and a standard-setter to forge universal agreements on emerging ethical and development issues.
- The Organization also serves as a clearinghouse – for the dissemination and sharing of information and knowledge – while helping Member States to build their human and institutional capacities in diverse fields.



**“The ability to create and maintain knowledge infrastructure, develop knowledge workers and enhance their productivity will be the key factors in deciding the prosperity of the knowledge society.”**

Abdul Kalam, President of India

## Knowledge Societies

**Knowledge  
Creation**

**Knowledge  
Preservation**

**Knowledge  
Dissemination**

**Knowledge  
Utilization**

**Pluralism and Inclusion**

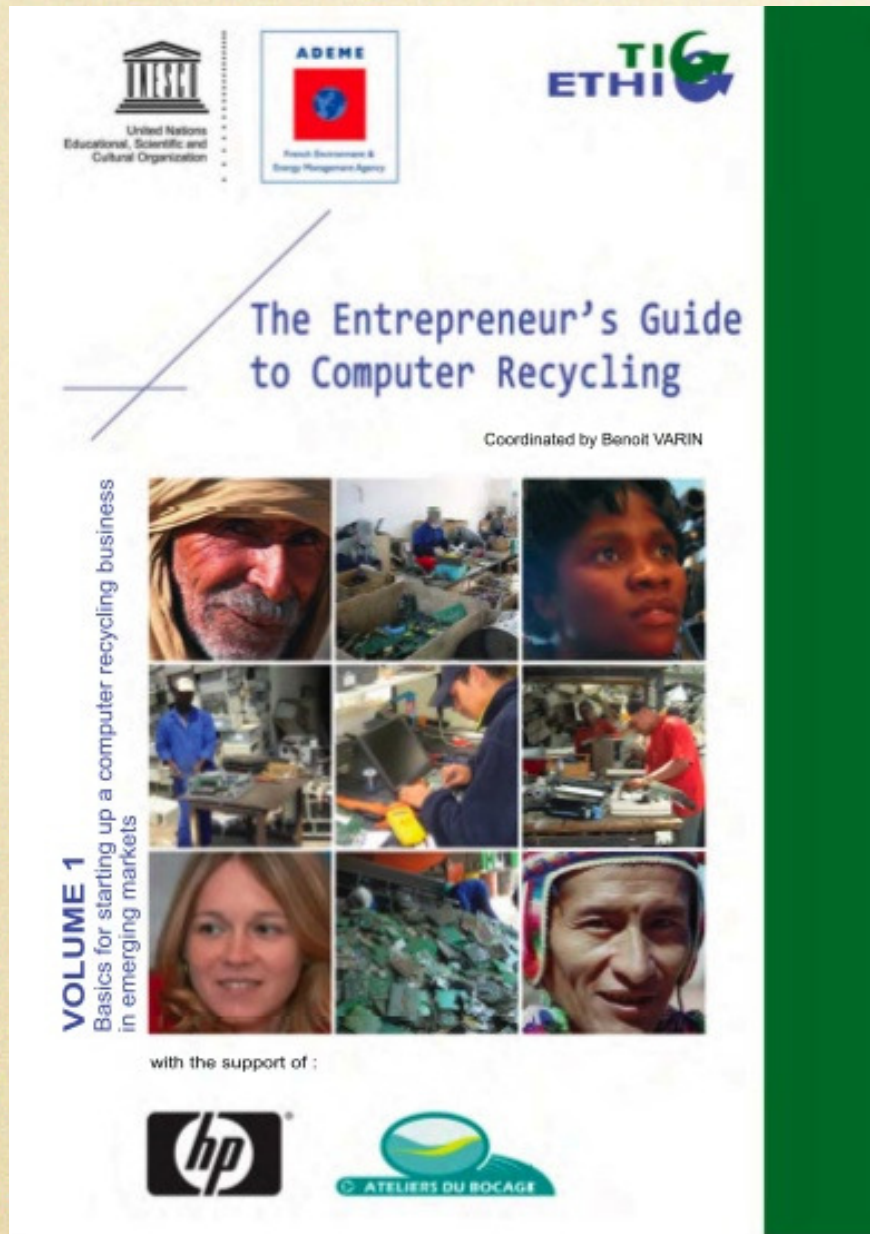
**Human Needs and Rights**

- The development of Information and Communication Technologies (**ICTs**) as major pillars of the emerging knowledge societies has led to a significant increase in demand for computer equipment worldwide.
- As a result, countries - including those in developing regions - are facing *an increasing volume of computer equipment waste from both new computers and second-hand equipment.*

- While the increase in computer equipment significantly contributes to the reduction of the digital divide and supports economic growth, it will also have ***detrimental consequences for both the environment and public health and safety if it is not handled in the most professional way.***
- **Developing local capacities** to manage end-of-life equipment in an environmental manner is therefore paramount.
- Not only should computer recycling be complementary to computer delivery but it should also help to ***provide business opportunities for small and medium enterprises, particularly in emerging markets.***

- **Capacity building** is a major concern for UNESCO, as it plays a strong part in the sustainable development of *inclusive global knowledge societies*.
- That is why UNESCO and ADEME have called upon experienced partners, such as HP, to join forces in the development of **a blueprint guide which will provide local entrepreneurs with the knowledge and capability to collect, refurbish and recycle computer equipment**.
- The guide provides a pragmatic answer to this ever increasing environmental challenge and helps *to generate opportunities for small businesses and entrepreneurs at a local level*.

# Computer Recycling



- **ENTREPRENEUR'S GUIDE TO COMPUTER RECYCLING**
- Volume 1: *Basics for starting up a computer recycling business in emerging markets*
- October 2008 - First version
- Additional copies are available from:

TIC ETHIC - E-mail: [guide@ticethic.com](mailto:guide@ticethic.com)

Website: <http://www.ticethic.com/guide>

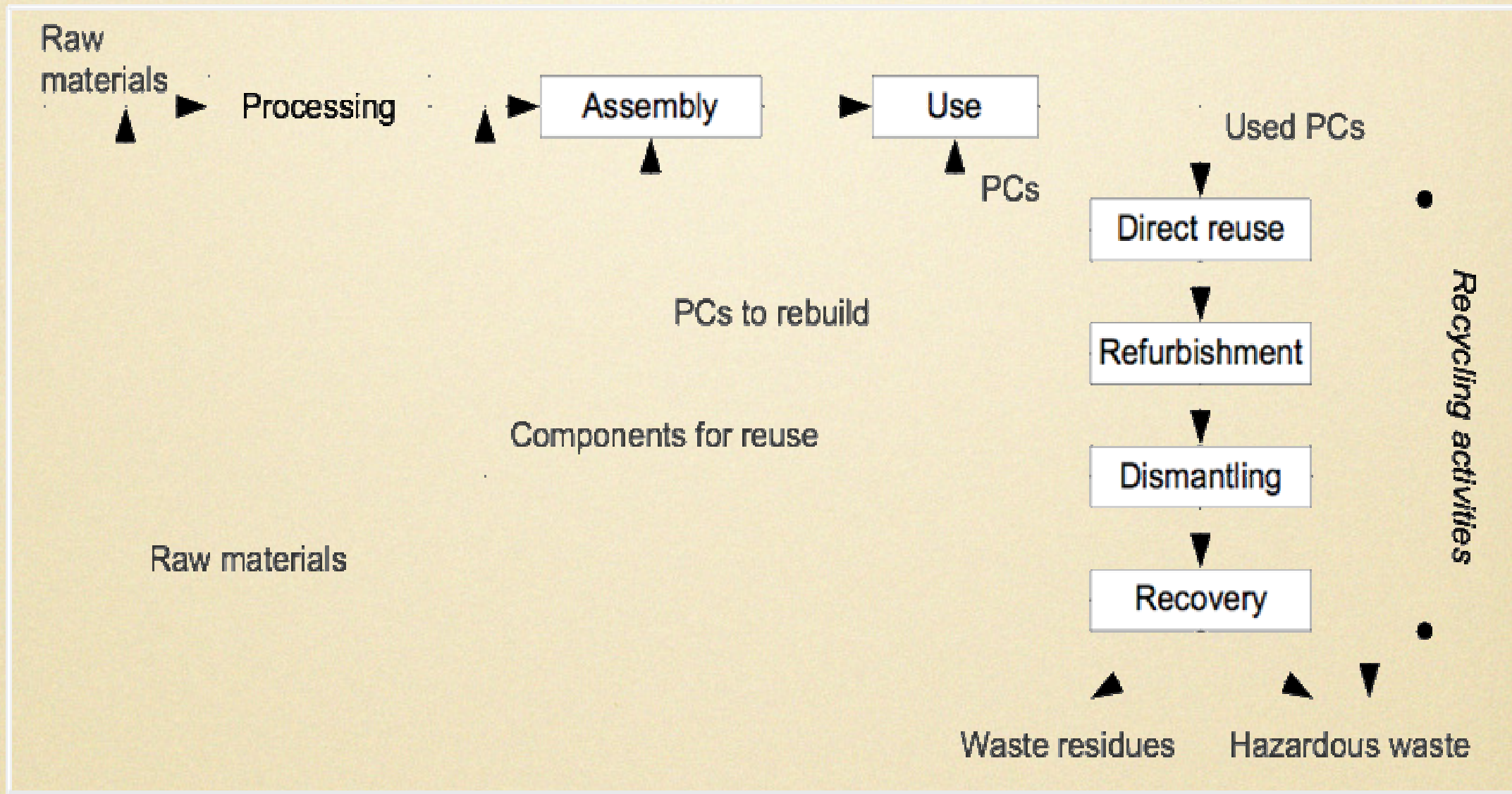
- Chapter A:  
**Important Issues for Consideration in Recycling**
- Chapter B:  
**Building the Project**
- Chapter C:  
**Operational Stages**

- Chapter A:  
**Important Issues for Consideration in Recycling**
  - *Introduction*
  - *International Regulations*
  - *Social and Environmental Challenges*
  - *Economic Opportunities*

- **Chapter B:**
  - Building the Project
    - *Legal Structures*
    - *Human Resources Management*
    - *Facilities and Utilities*
    - *Cost Analysis*
    - *Supply Management*
    - *Commercial Strategy*
    - *Inventory Management and Traceability*
    - *Human and Environmental Risk Assessment*

- **Chapter C:**  
Operational Stages
  - *Collection*
  - *Refurbishment*
  - *Dismantling*

# The Life Cycle of a PC ...



Life cycle of a PC (adapted from OECD and King et al. 2004)

In terms of capacity building, UNESCO is supporting the following initiatives:

- **On-line (and CD-ROM) training on computer refurbishment, which is part of the [ItrainOnline Multimedia Training Kit](#)**

*This Kit has been developed with six expert organizations in the **ItrainOnline** initiative, an online service that helps Internet and computer users sharpen their individual skills and play a key role in bridging the knowledge gap.*



<http://www.itrainonline.org/>

## Sharing Internet Knowledge

### ▶ [RESOURCES FOR TRAINERS](#)

[Effective Training](#)

[Multimedia Training Kit](#)

[Topic-Specific Resources](#)

### Learn about ...

▶ [BASIC SKILLS](#)

▶ [STRATEGIC USE](#)

▶ [WEB DEVELOPMENT](#)

▶ [MULTIMEDIA](#)

▶ [TECHNICAL](#)

▶ [RESOURCES FOR WOMEN](#)

[SEARCH ITRAINONLINE](#)

[SITEMAP](#)

[CALENDAR](#)

[Home](#) > Resources for Trainers > MMTK

## ItrainOnline Multimedia Training Kit

The ItrainOnline MMTK is a growing collection of "workshop kits" for face-to-face training. The materials use a standard set of templates, and offer building blocks for trainers to build their own courses.

But don't think you need to be a trainer to use the ItrainOnline MMTK! The handouts are valuable information resources for anyone who wants to teach themselves about any of the wide range of topics covered.

Materials are distributed under one of the [Creative Commons](#) licenses for easy redistribution.

- [MMTK in English](#)
- [MMTK en français](#)
- [MMTK in Arabic](#)
- [MMTK en Español](#) *new*
- [MMTK in Russian](#)

### • Video introduction to the MMTK

- [xVid / avi format - resolution 320x240](#) (19.1M)
- [xVid / avi format - resolution 640x480](#) (27.1M)
- [xVid / avi format - resolution 720x756](#) (27.6M)
- [Windows Media / wmw format - resolution 320x240](#) (20.6M)

- French version of **SchoolNet Africa's Technical Service Centre Managers course**

*Training of 30 practitioners from Francophone African countries, with 30% female participation, on PC refurbishment services was completed by the end of March 2006 in collaboration with the Groupe pour l'Etude et l'Enseignement de la Population (GEEP).*

- **Production of an open source “plug and play” software of the FAIR computer recycling suite**

*This software application, which drastically facilitates automated computer recycling, includes the following features usable from Pentium II:*

- registration of hardware,
- hardware inventory detection,
- classification of computers,
- hardware reports,
- data Erasure (Gutmann-sub),
- sha1 HDD fingerprints,
- donor reports,
- boot image installation (HDD/ FDD)

## ● UNESCO Portal on PC Refurbishment

*UNESCO supports actions designed to empower people so that they can access and contribute to information and knowledge flows.*

*In each country now PC refurbishing initiatives are active, covering the whole range of tasks from mobilizing donors of second-hand PCs to procurement, refurbishment, transportation, distribution, installation, maintenance and training.*

***This portal is meant to be a clearinghouse of activities, resources, best practices, research and open content in the field of PC refurbishment.***



**WebWorld** / **Communication/Information Portals**

**Observatory Portal** Monitoring the Development of the Information Society towards Knowledge Societies

User options: [Login](#) | [Register](#)

WebWorld Portals : [Observatory Portal](#): [Information and Communication Infrastructure](#): [PC Refurbishment](#)

➤ **PC Refurbishment ( 187 )**

Show links of type  within this category and its subcategories

**Categories**

- [Low Cost Hardware Solutions \(10\)](#)
- [Open Content for Off-line PC \(83\)](#)
- [Programmes \(42\)](#)
- [Quality Requirements for Refurbished PC \(16\)](#)
- [Research \(8\)](#)
- [Training \(3\)](#)
- [Volonteer Services \(19\)](#)

**Links ( 6 )**

• **Computer Redistribution "Share the Wealth, Share the Power"**

Main language(s): English  
 Type of information: Portal/Directory  
 Thematic categories: [PC Refurbishment](#) |  
 Geographic categories:

**Directory To**

- Add link
- Modify link
- Newsletter
- New links add
- Discussion Fo

**Directory Se**

**By Keyword**

**Advanced Search**

- the entire C
- only this ca

**By Region**



<http://www.digitalpipeline.org/>

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**Digital Pipeline (DP)** is a British registered charity founded by Microsoft, launched on 23 July 2007, aiming to foster digital inclusion for disadvantaged communities.

With over 31 million\* PCs per year ending up in landfill, DP is calling for UK organizations to donate computers they are no longer able to use, so they can be refurbished and redeployed to underprivileged schools and community groups across Africa.

- *"Former UN Secretary-General Kofi Annan stated that ICT must figure prominently in achieving the U.N. Millennium Development Goal of halving the number of people in extreme poverty by 2015,"* says Mark East, Chairman of the Board of Trustees, Digital Pipeline.
- *"DP's goal is to help UK companies contribute by donating PCs to African schools. We're trying to show UK businesses that they can make a real difference to the lives of people living in poverty by simply making better decisions when it comes to IT equipment that is being replaced."*
- UNESCO is represented in the DP's Board of Trustees.

# Closing Thoughts ....

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*“I really like the idea of returning used equipment or obsolete equipment to the manufacturer. That presumably will give an incentive to design things that are easier to recycle and contain less toxic materials.”*

*Elizabeth Grossman  
An Environmental Journalist*

2006

## The Entrepreneur's Guide to Computer Recycling

Coordinated by Benoit VARIN

VOLUME 1  
Basics for starting up a computer recycling business  
in emerging markets



with the support of :



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# Thank you ....

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