



## « Ecology of the digital infrastructure »

ACIDD, european association communication and information for sustainable development  
Institut national des télécommunications

TIC21

November 2005

Gilbert Berthet - +33 6 73 60 49 54  
gilbert.berthet@orange.fr

## Ecology of digital infrastructure

- I. INTRODUCTION
- II. LIFE CYCLE
- III. ICTs ECOLOGICAL INFRASTRUCTURE
- IV. MANAGEMENT OF THE NEGATIVE EFFECTS
- V. CONCLUSION

2

### I. Introduction

- Between 1993 and 2000, the number of PCs per capita in the world has increased by 181%.
- The number of mobile phone subscriptions should exceed 2 billion during the year 2006.

3

### II. Life cycle

- In April 2002, 1 billion PCs were delivered.
- In 2003: 471 million mobile phones were sold in the world and 630 million were sold in 2004.
- Each year, between 50 million tons of electrical and electronic waste is produced in the world. Each EU citizen produces 25 kg.
- Volume increase of between 3 and 5% per year.
- Between 500 and 1000 components: mercury, lead, cadmium, chromium, the PBBs (polybrominated biphenyls) and the PBDEs (polybrominated diphenyl ethers).
- On average, people change their computer every two to four years. Mobile phones, life span: two years in industrialized countries.

4

### III. ICTs ecological infrastructure

- The electronic industry, is one of the most polluting in the world as it uses a great deal of very pure water and numerous toxic products, which are difficult to eliminate.
- To make a PC (24 kg): 240 kg of fossil fuels, 22 kg of chemical products and 1 500 litres of water.
- Components from throughout the world, as a general rule, transported by airplane.
- Out of the 20 million personal computers which became obsolete in 1998 in USA, only 13% were reused or recycled.
- In Guiyu, 100 000 Chinese people, men, women and children sort through waste, burning cables to recover the copper, for 1.5 dollars per day...

5

### IV. Management of negative effects

- The WEEE provides for a minimum collection of 4 kg of WEEE to be obtained per year and per inhabitant by 31st December 2006.
- The directive on the Restriction of Hazardous Substances, on the other hand, introduced a ban on the use of certain substances in electrical and electronic equipment.
- The amendment of Basle Convention has been ratified by 59 countries. The United States have not ratified it. Exports to China or to India may be considered as a violation of the aforementioned international convention's rules

6

## V. Conclusion

---

- The ecology of digital infrastructures is still not widely known.
- The information society is an obvious progress for sustainable development, if for no other reason than it contributes to democracy and human development and to the success of the millennium development objectives: access to culture, education, health...
- Invitation to contribute to the first international economic forum ICT21/TIC21.
  - The contribution of ICT to sustainable development
  - 27th and 28th March in Valenciennes (France)
  - [www.tic21.com](http://www.tic21.com) • [tic21@acidd.com](mailto:tic21@acidd.com)

