



TIC 21 Low-Cost ICT Infrastructure

Club of Rome Statements

⇒ WSSD in Johannesburg 2002

No Limits to Knowledge, but Limits to Poverty

⇒ WSIS in Geneva 2003

*Towards a New Age of
Information and Knowledge for All*



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Governance & Recommendations :

- 1. Protecting the Commons.** Knowledge is a *common good*, generalized access and creation. *Open Source!*
- 2. Stability & Security.** Risk analyses in *complex systems* in networked societies & economies.
- 3. *Simultaneity* in the Implementation of Infrastructures.**
Bridging the Digital Divide: development of Infrastructures of ICT networks incl. electrical power, training of futures teachers.
- 4. Protecting Privacy.**
- 5. Participation of the Civil Society and NGOs in *Plans of Implementation*.**



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EDUCATION & LEARNING



POVERTY ERADICATION



SUSTAINABLE SOCIETIES



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MILLENNIUM DECLARATION GOALS (MDGs)

seven out of the eight have to do with “education”

- # Goal 1: Eradicate extreme poverty and hunger
- # Goal 2: Achieve universal primary education
- # Goal 3: Promote gender equality and empower women
- # Goal 4: Reduce child mortality
- # Goal 5: Improve maternal health
- # Goal 6: Combat HIV/AIDS, malaria and other diseases
- # Goal 7: Ensure environmental sustainability
- # Goal 8: Develop a Global Partnership for Development



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EDUCATION & LEARNING :

To address the school system :
the formal education system

- Primary schools
- Secondary schools
- Other



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Conditions of availability of :

1. Low-cost cell phone < \$25
2. Low-cost *Laptop - PC*
3. Content & Training: *didactical material and technical support*
4. Low-cost bandwidth : *wire / satellite*
5. Low-cost ground equipment : *triple play*
Internet - TV - Phone



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1. Low-cost cell phone

Cell phone show an enormous acceptance among all type populations in all places of the earth.

- Social contact
- Entrepreneurial activities
- Plays an important role in making technology acceptable



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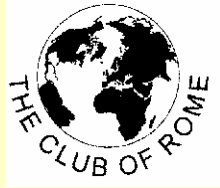
2. Low-cost *Laptop - PC*

- OLPC project of MIT-Media Lab : \$100 Laptop presented at WSIS in Tunis.
 - For children in primary + secondary classes
 - One per child !
 - Learning tool
 - Communication device among the children : meshed network



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Low-cost \$100 due to:

- New technologies
- Open software, Linux based but lean & middle-ware
- Design-Distribution on non-for-profit basis
- Not Commercially Available



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Other low-cost initiatives emerge in the range of \$200-300 :

Brazil : Brazilian Computador Popular

China : Menglan

India : Mobilis, Alphasmart

Larger companies : NEC, Apple, Intel have initiatives announced



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3. Content & Training

3.1 Didactical Material

- Content is a big challenge everywhere !!
- Local languages of didactical material
- Other ways of learning to be introduced resp. to be invented



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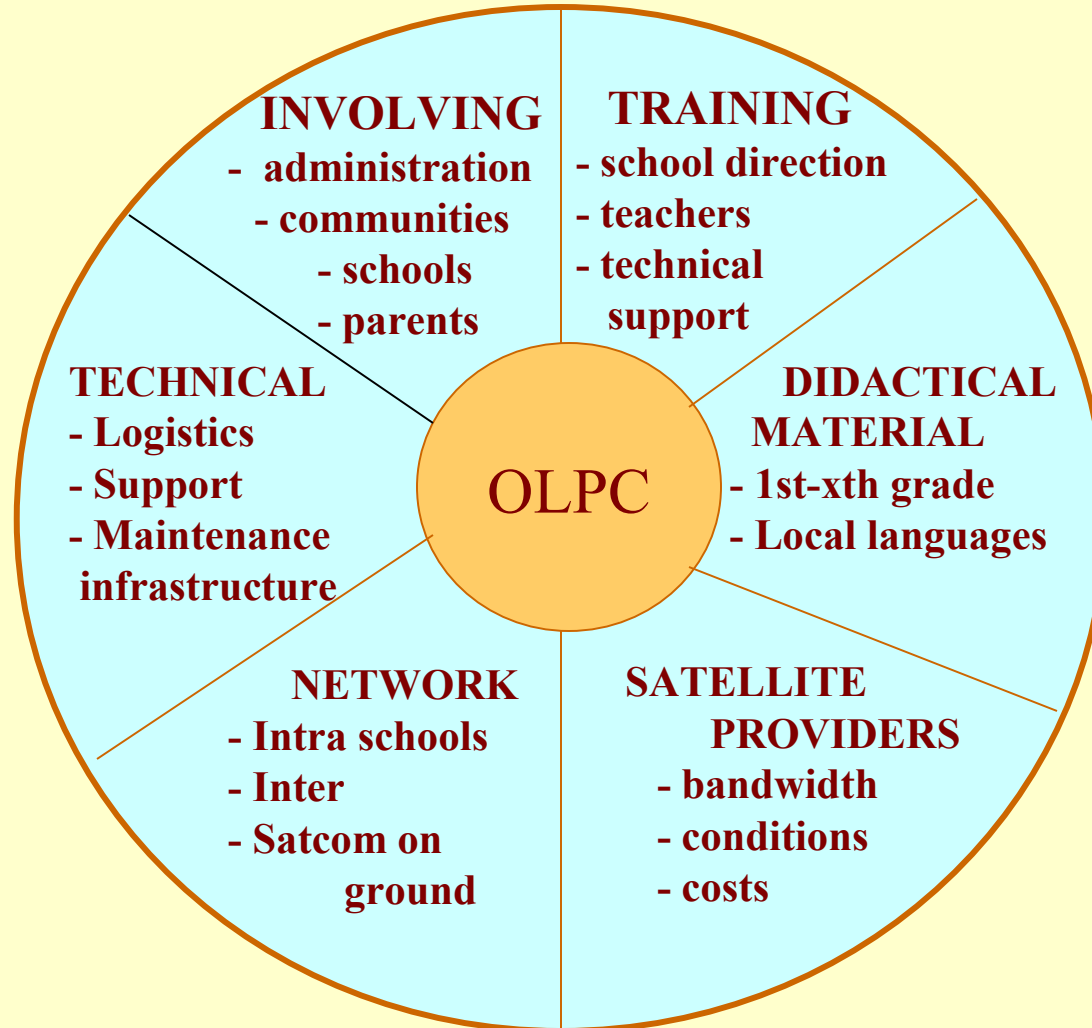
3.2 Training of trainers & teachers

- Training for providing local technical support: first help
- Training of the teachers

UNDP in the OLPC project.



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3.3 Experiences

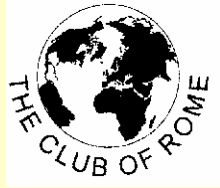
- Costa Rica 1987 in Seymour Papert's book *Logo Philosophy and Implementation* (1999) *The Computer in Costa Rica: A New Door to Educational and Social Opportunities*. Clotilde Fonseca
- In Maine, US. Laptops in Public Schools; Maine Learning Technology Initiative (MLTI)
- Illinois, Massachusetts, South Dakota similar recent experiments.



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4. Low-cost bandwidth : *wire / satellite*

- Satellite for remote & rural areas
- One (Satellite) Dish Per Village ODPV
- Low-cost of bandwidth is a challenge



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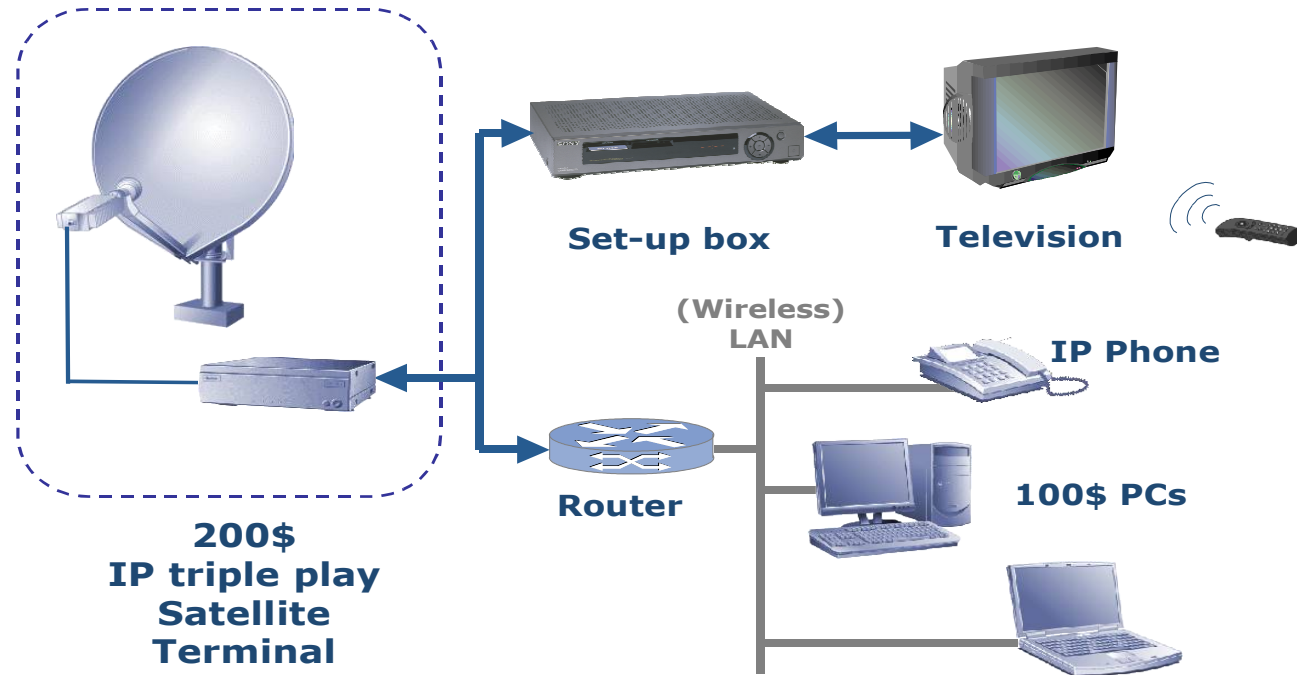
5. Low-cost ground equipment : *triple play* Internet - TV - Phone

- Low-cost material is under development
- NEWTEC



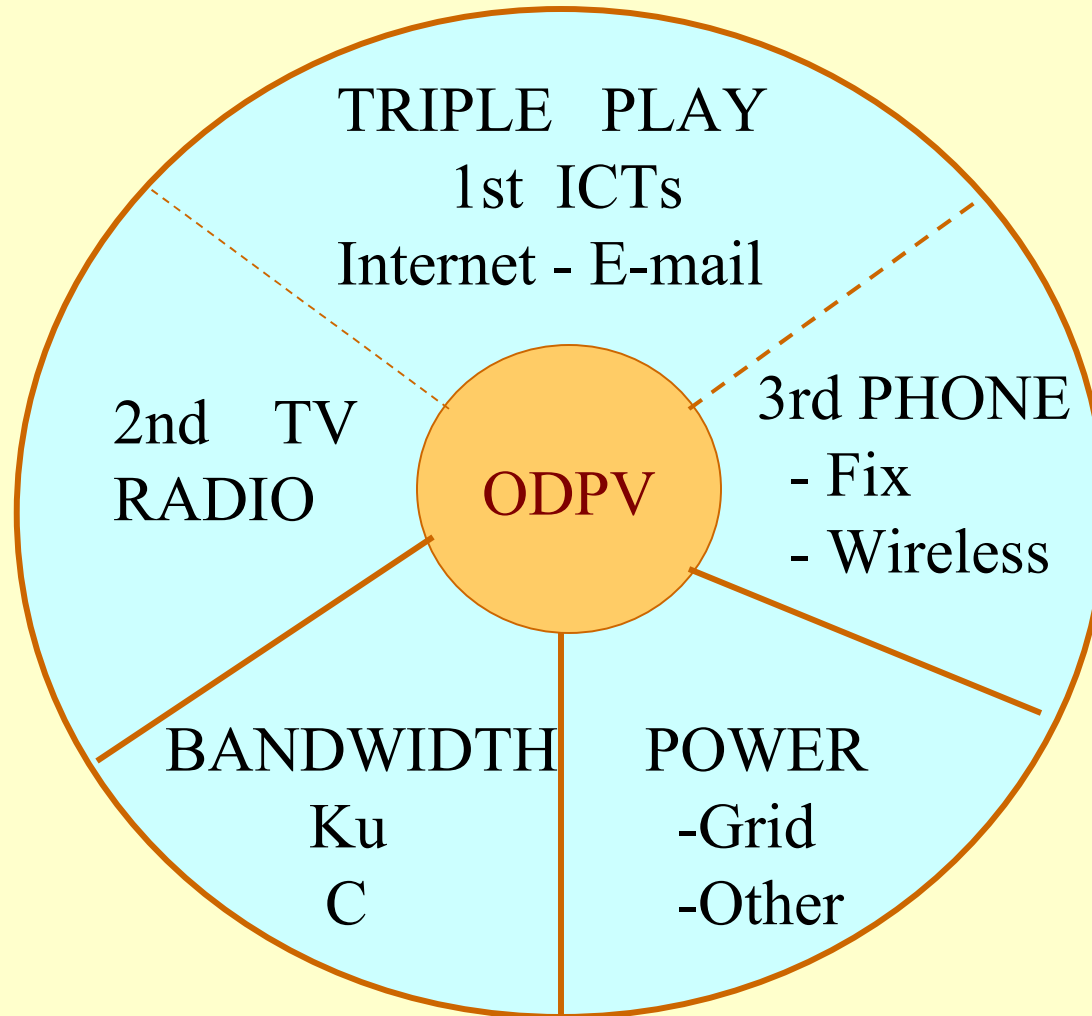
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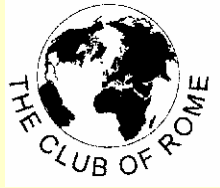
Remote Tele-centre





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OLPC : One Laptop Per Child

ODPV : One (Satellite) Dish Per Village

Power without Grid : ?

Bandwidth : ?

Low-cost Cell Phone: < \$25