Mobile Information and Communication Systems in Crisis Situations

NCCR
MICS

ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Media *Action*
International

Indian Institute
of Science
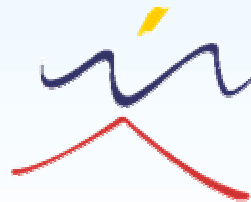
IISc

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Goal of the project

Assess the communication needs that arise in crisis situations, and find out how to meet them.

⌘ Develop a theoretical framework
⌘ Identify the needs of the affected populations
⌘ Technical specification of mobile communi-cation systems suited to fulfil the identified needs
⌘ Definition of deployment strategies

Information is a First Necessity Good

⌘ Security, health, sanitation can be sought only with proper information.

⌘ Most victims of war and other crises have no access to independent, reliable information at a time when they need it most.

⌘ Information can be a question of life and death (e.g. AIDS in Africa).

⌘ Other kind of information: Sensor networks monitoring critical systems can prevent or mitigate catastrophes.

Mobile Communication Systems

Communication systems are necessary to convey information on a large scale.

Mobile (Wireless) Communication Systems don't need the same infrastructure as fixed ones to be deployed. Thus, they are :

- ⌘ Cheaper to put in place
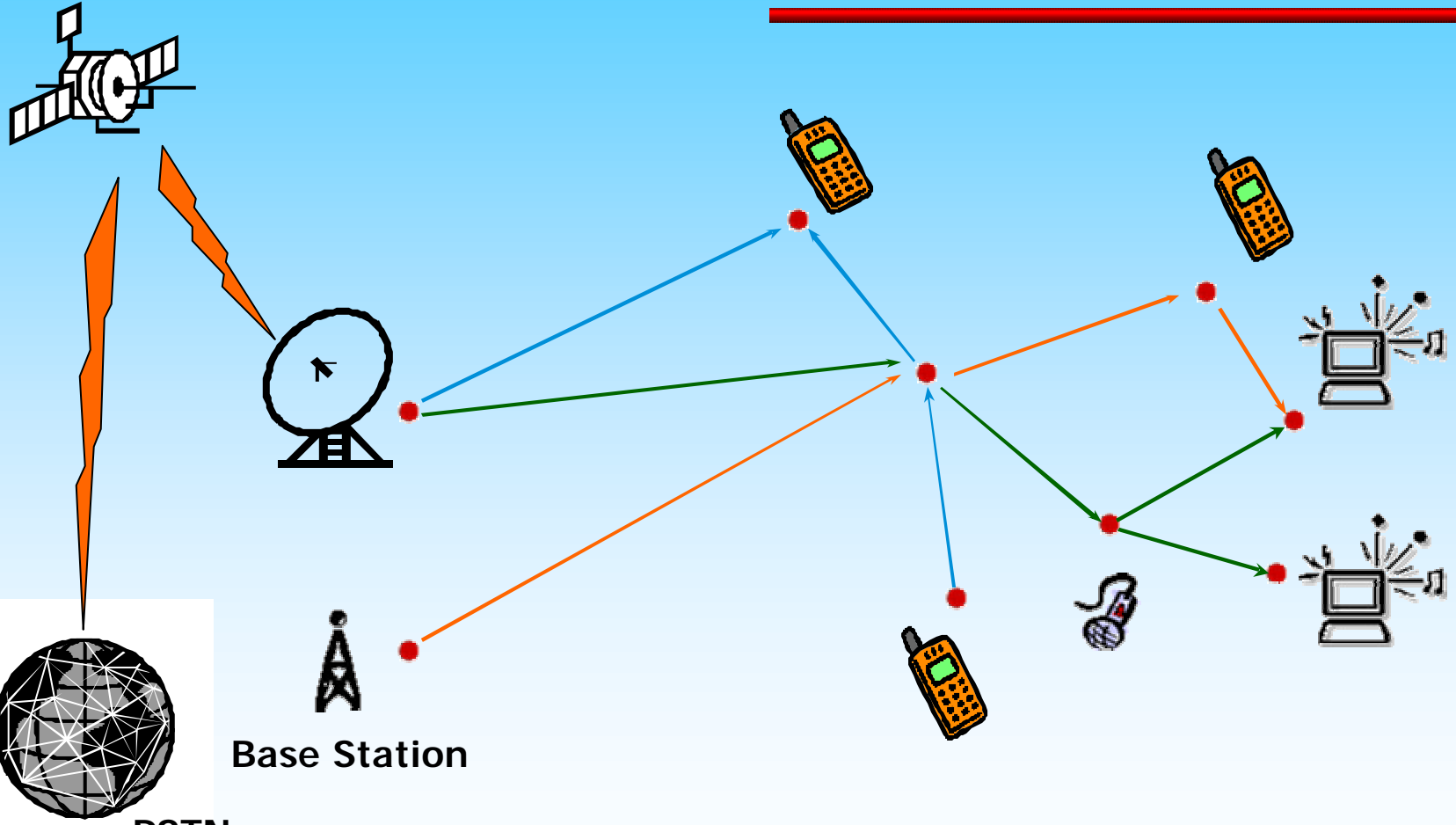- ⌘ Faster to deploy
- ⌘ More flexible to use

EPFL and MICS

- ⌘ **M**obile **I**nformation and **C**ommunication **S**ystems (alias terminode)

- ⌘ One of the 14 NCCRs

- ⌘ MICS focuses on **self-organized**, **ad hoc**, **infrastructure-less** networks

How do terminodes work?
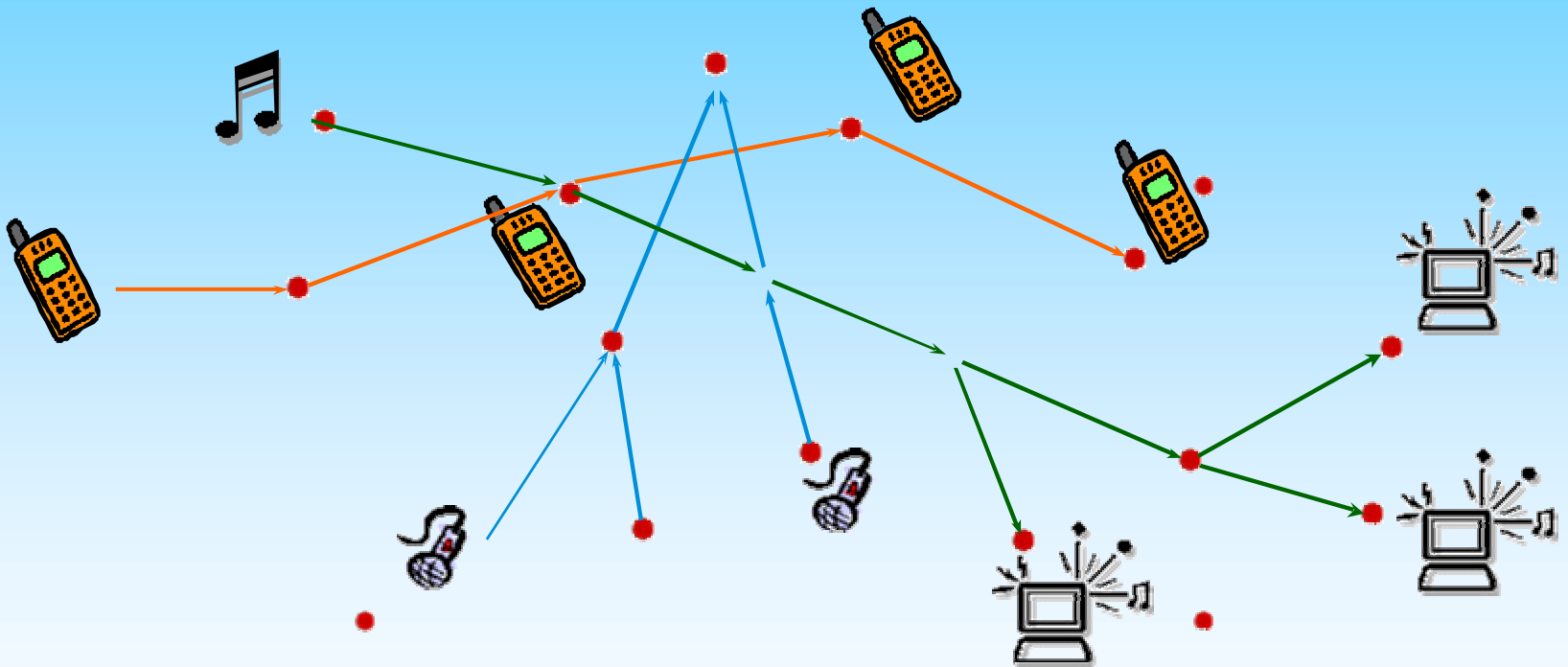
- **Terminal and relay merge : Terminode**
- **No more fixed infrastructure, self-organisation mandatory**

Interconnectivity

Base Station

PSTN
Internet, …

MICS Facts and Figures

- Started November 2001
- 10 years research program
- Budget : 8 million Swiss Francs per year
- 30 faculty members and 80 PhD students
- Director: Prof. M. Vetterli (EPFL)
- Deputy Director: Prof. Th. Gross (EPFL)

Media Action International (MAI)

- http://www.mediaaction.org
- Media Action International was founded in 1998 by professional journalists.
- Media Action International bridges the gap between **journalism** and **humanitarian, post-conflict** and **development** activities.
- Develop strategies to make the best use of the mass media.
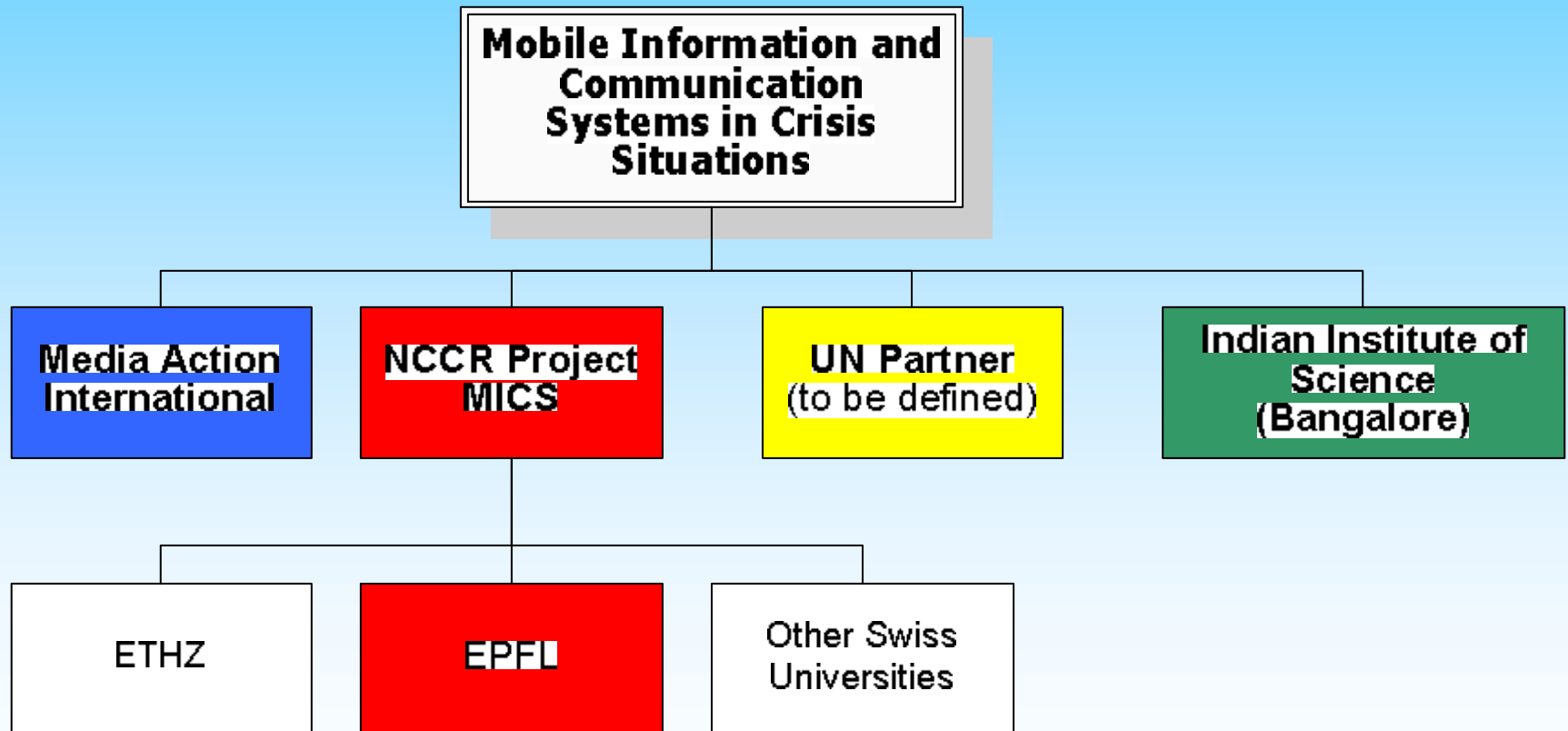- Fight against illiteracy, poverty and disease.

Indian Institute of Science

- Centre for Electronics Design and Technology (CEDT)
- CEDT was established at the Indian Institute of Science in 1974.
- Areas of work in CEDT are Communication Networking, Electronics Packaging, Industrial Design, Instrumentation etc.

Why do the EPFL, IISc and MAI team up on that project?

- ⌘ MAI focuses on **content**.
- ⌘ IISc and the EPFL focus on **technology**.
- ⌘ Pluri-disciplinary project aiming at empowering people in crisis situations by bringing them **relevant content** by an **efficient use of technology**.
- ⌘ Possibility to bridge a gap between the **technical** world and **social** and **political** sciences

Project Consortium

Mobile Information and Communication Systems in Crisis Situations

- Media Action International
- NCCR Project MICS
  - ETHZ
  - EPFL
  - Other Swiss Universities
- UN Partner (to be defined)
- Indian Institute of Science (Bangalore)

Project Deliverables

1. Compilation and analysis of resources and existing studies addressing the subject
2. Definition of a framework for the term "crisis situation"
3. Identification of information needs and information-sharing practices in different communities
4. Analysis of the field data and translation into a theoretical framework
5. Recommended action for the future

D1 : Compilation and Analysis

1. Existing studies on the subject
2. Current regulatory process
3. Identification of the current key players in the relief operations, aid-to-development and humanitarian fields
4. Interview of those players
5. Compilation of success stories

D2 : Definition Phase

⌘ Build up a model for crises

⌘ Identify phases in crises

⌘ Propose indicators to identify and assess the gravity of crises

D3 : Field Study

Two major themes:

1. What is the most important information to be conveyed in the considered situations.

2. What communication-path information follows to reach its target.

⌘ Iterative process with loop-back.

D4 : Theoretical Framework

⌘ Technical specification of mobile and communication systems suited to fulfill the needs identified in D3.

⌘ Definition of a communication-sharing strategy

D5: Recommended Action

⌘ Review and distribution of the document

⌘ Feedback from the partners of the consortium

⌘ Further action for the future: Realisation of a concrete project

Bibliography

- http://www.terminodes.org
- http://www.mediaaction.org
- http://www.iisc.ernet.in

- Loretta Hieber, **Lifeline Media: Reaching populations in crisis**, Media Action International, 2001

- Jacques Panchard, Jean-Pierre Hubaux, **Mobile Information and Communication Systems in Crisis Situations**, December 2002

Conclusion

Goals

⌘　Prove that mobile communication systems are ideally suited to tackle humanitarian crises at their root.

⌘　Find technical requirements for optimal use of those systems. Emphasize the MICS solution

⌘　Draw strategies of deployment and isolate test-cases for subsequent applications in the field.

1st Milestone: 31st December 2003