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System design perspective of healthcare provision in humanitarian aid
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System Design Perspective of Healthcare Provision in Humanitarian Aid

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Humanitarian crises

Developing countries most vulnerable.

Emergency relief temporarily reinforces ongoing basic services.

Healthcare in emergency relief

Local service overload.

Immediate, limited, complex, extensive, diverse.

Source: Médecins Sans Frontières in Haiti [www.msf.org]
One-side transfer of medical devices results in a mismatch between medical devices and their context.

Source: Tsunami Indonesia. Nelson Olim, general surgeon from Portuguese military
STS approach – theoretical background

The systemic mismatch

Source: Santos, A.L.R. et al., In Press ‘Medical emergency dynamics in disaster-prone countries – implications for medical device design. Int. J. Human Factors and Ergonomics
The systemic mismatch

Source: Ted Talk “Scraps of men do not exist”; HFE issues captured in Haiti (2012) and Indonesia (2012)
The systemic medical device

User-centred (Re)design
- Product focus
- Materials
- Reduced complexity
- Reduced functions
- Reduced components
- Reduced price

Systems design
- + Product-Service-Management focus
- + Facilities
- + Complementary and supportive services
- + Decentralize purchasing
- + Feedback from consumer
- + Integrated/iterative re- and co-design
Humanitarian Organizations as change actors

“Good afternoon..
May I offer you a case full of money?”

“I miss the magic word”

“May I please offer you a case full of money?”

Source: Detox Plan for the Aid Industry by Thierry Sanders and Henk van Stokkom (Financieel Dagblad 2009)
Summarizing thoughts

Role of international organizations
Complex coordination and definition of work boundaries
Carry out additional tasks/services
Use medical devices, inadequately sold, donated and/or serviced
Relevant coping mechanisms

Medical devices
Play a relevant role but depend on numerous factors for proper functioning
Throughout lifecycle: from purchase to disposal
Conservative and expertise based industry

Design as part of STS analysis and opportunities for humanitarian innovation
Implications for design at product and process level
The required indepth knowledge lies with users and stakeholder network
Shaping humanitarian innovation

How HFE knowledge should be used to support systems design?
- Should innovation role be given to organizations?
- What conditions can organizations offer to designers?
- What practicalities does this imply for design practice?

How can systemic design make a difference over past experiences in developing countries?
- How can local beneficiaries most effectively be involved?
- Can this transfer be designed to influence the recipient context by offering opportunities for innovation and healthcare improvement?
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Thank you.
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Extras
One-side transfer of medical devices

- **Procurement**
  - Selection criteria
  - Purchase
  - Kits

- **Transport**
  - Logistics
  - Packaging
  - Set up locally

- **Use and servicing**
  - Maintenance
  - Training
  - Supply
  - Disposal

- **Donation**
  - Lottery
  - Hand-over
Technology perspective of medical device transfer in humanitarian aid.

Source: Joore, P., 2010. New to Improve, PhD dissertation, Delft University of Technology