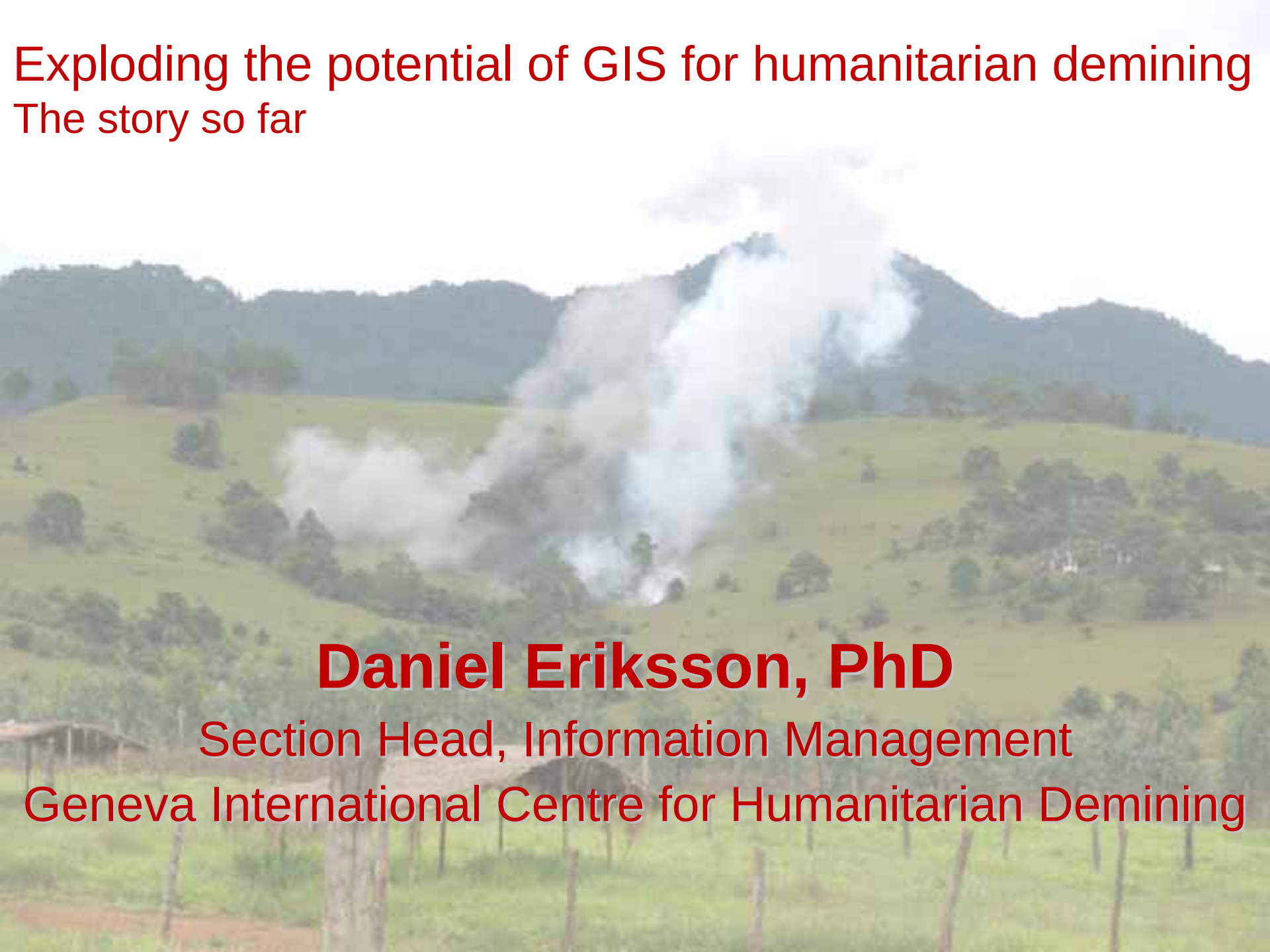
Exploding the potential of GIS for humanitarian demining

The story so far



Daniel Eriksson, PhD

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>1997

- >Landmines
- >“A deadly legacy for generations to come”
- >Unknown future and immense costs to clear

> The threat - Landmines

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> The mine action toolbox

> Manual

> Animal

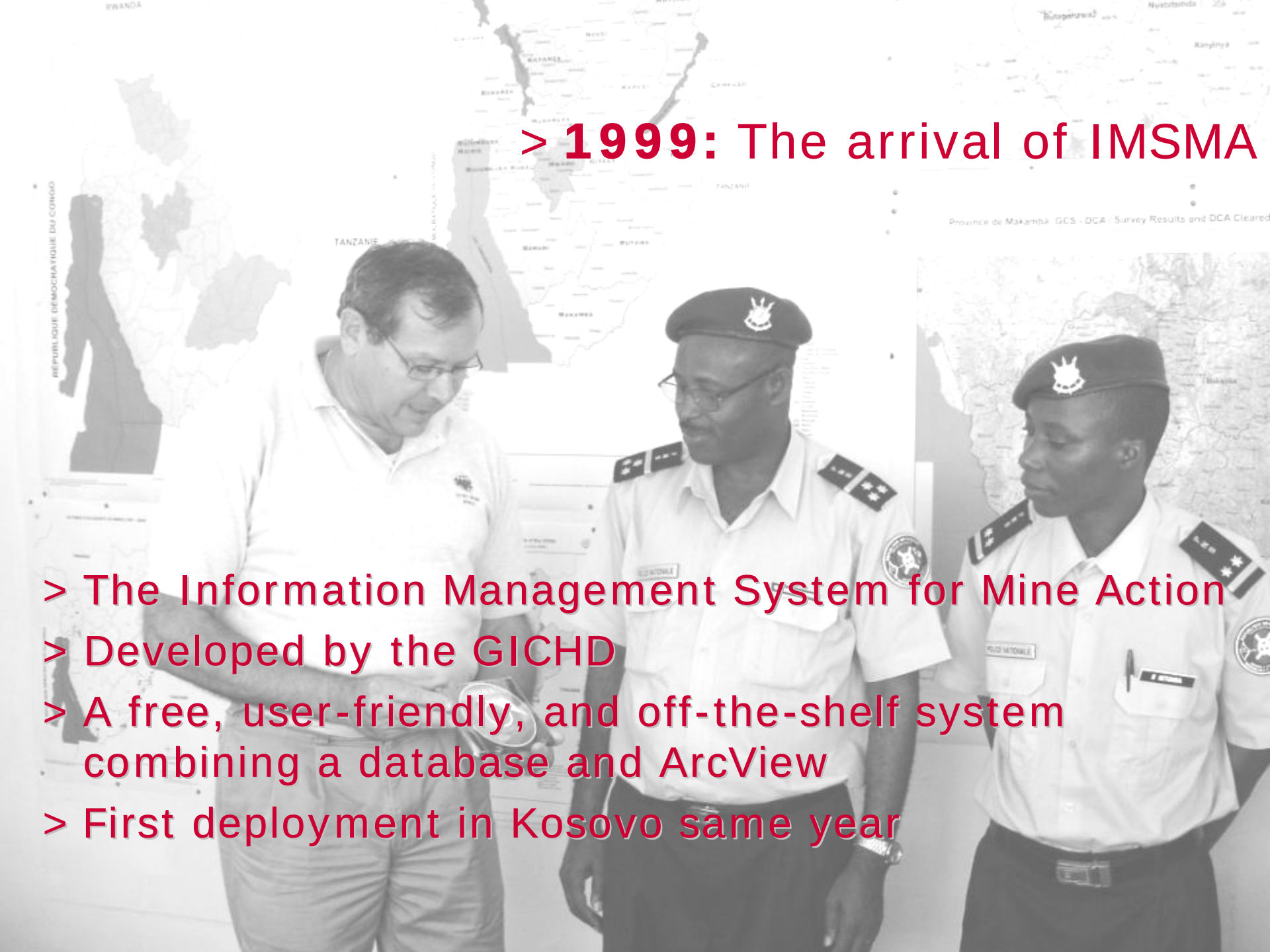
> Mechanical

> **1998:** The information challenge

- > **Landmines:** Spatially complicated and fuzzy
  - > Survey process
  - > Prioritisation
- > Challenges of developing country context:
  - > Limited computer literacy
  - > Limited map literacy
  - > Lacking coordination

> 1999: Mine action

- > A set of spatial activities with elements of:
  - > resource management,
  - > process management, and
  - > quality management
- > Parallel processes for:
  - > Identifying the hazard
  - > Measuring the impact
  - > Reducing the hazard
  - > Behavioural change of the public
  - > Quality assurance



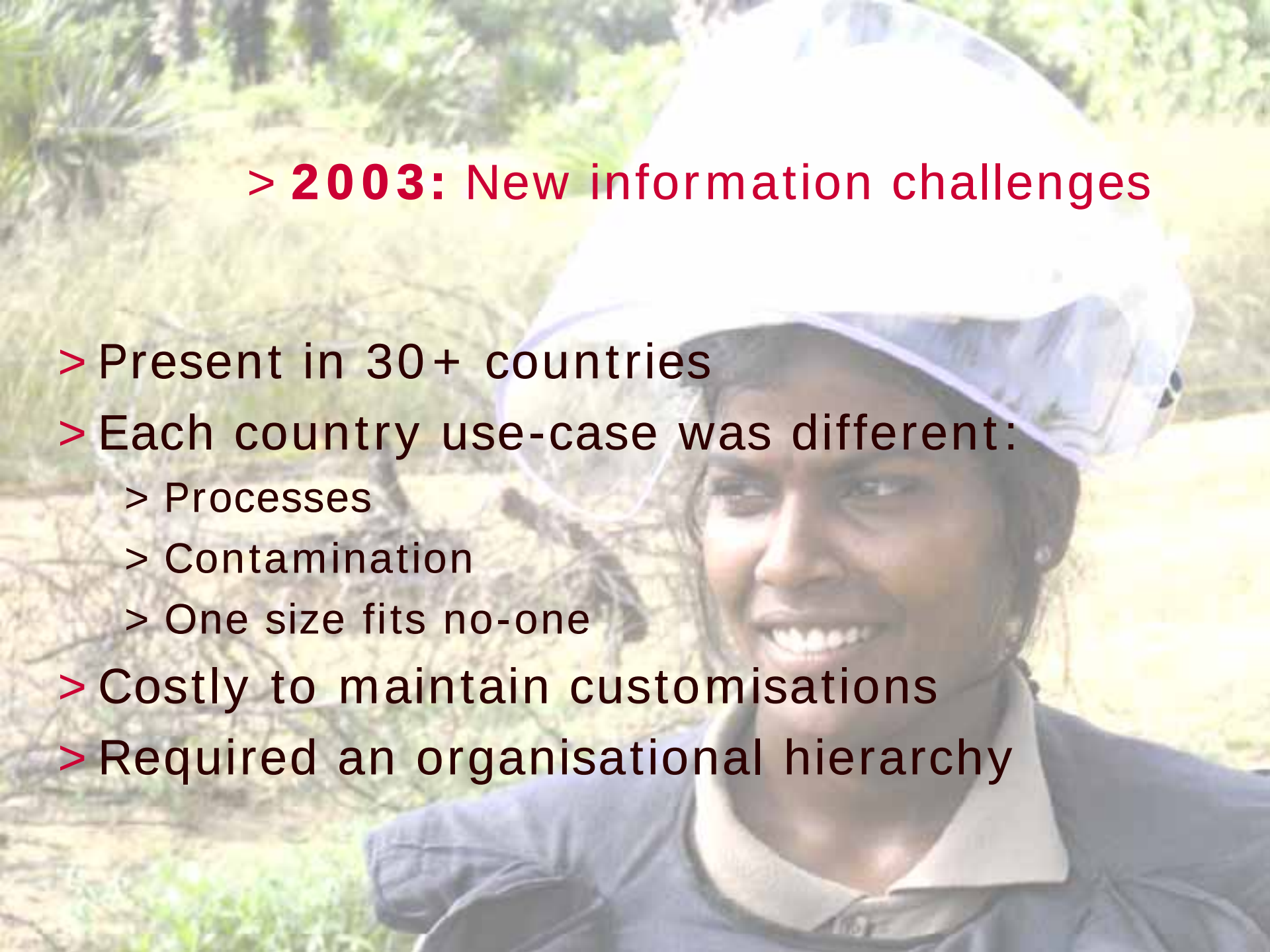
> **1999:** The arrival of IMSMA

> The Information Management System for Mine Action

> Developed by the GICHD

> A free, user-friendly, and off-the-shelf system combining a database and ArcView

> First deployment in Kosovo same year



> **2003:** New information challenges

- > Present in 30+ countries
- > Each country use-case was different:
  - > Processes
  - > Contamination
  - > One size fits no-one
- > Costly to maintain customisations
- > Required an organisational hierarchy

> **2007**: IMSMA NG, a new approach

> A system that enables administrators to build systems

> Increased user friendliness

> Integrated GIS (ArcGIS Engine)

> OpenSource elements

> Handheld data collection (ArcPad)

  > maXML

  > ISO

> www.imsma.org

> A decade of development

> Support from

- > ESRI
- > Swiss government
- > Swedish government
- > US government

Sida

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Office of Weapons Removal & Abatement

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Norwegian People's Aid
Mine Action Programme
Jordan

NORTH BORDER PROJECT

Sabha 3

> **2010:** Clear understanding

> Used in 50+ countries

> More than 1’000 installations

> Clear understanding of the spatial contamination

> Enabling more efficient clearance

> Giving the world a more realistic view on the landmine problem

> From information management for landmines to cluster bombs, to the wider humanitarian arena

1 centimeter equals 15 meters

0 20 40 80 120 160 200 240 Meters

> The threat – Cluster munitions

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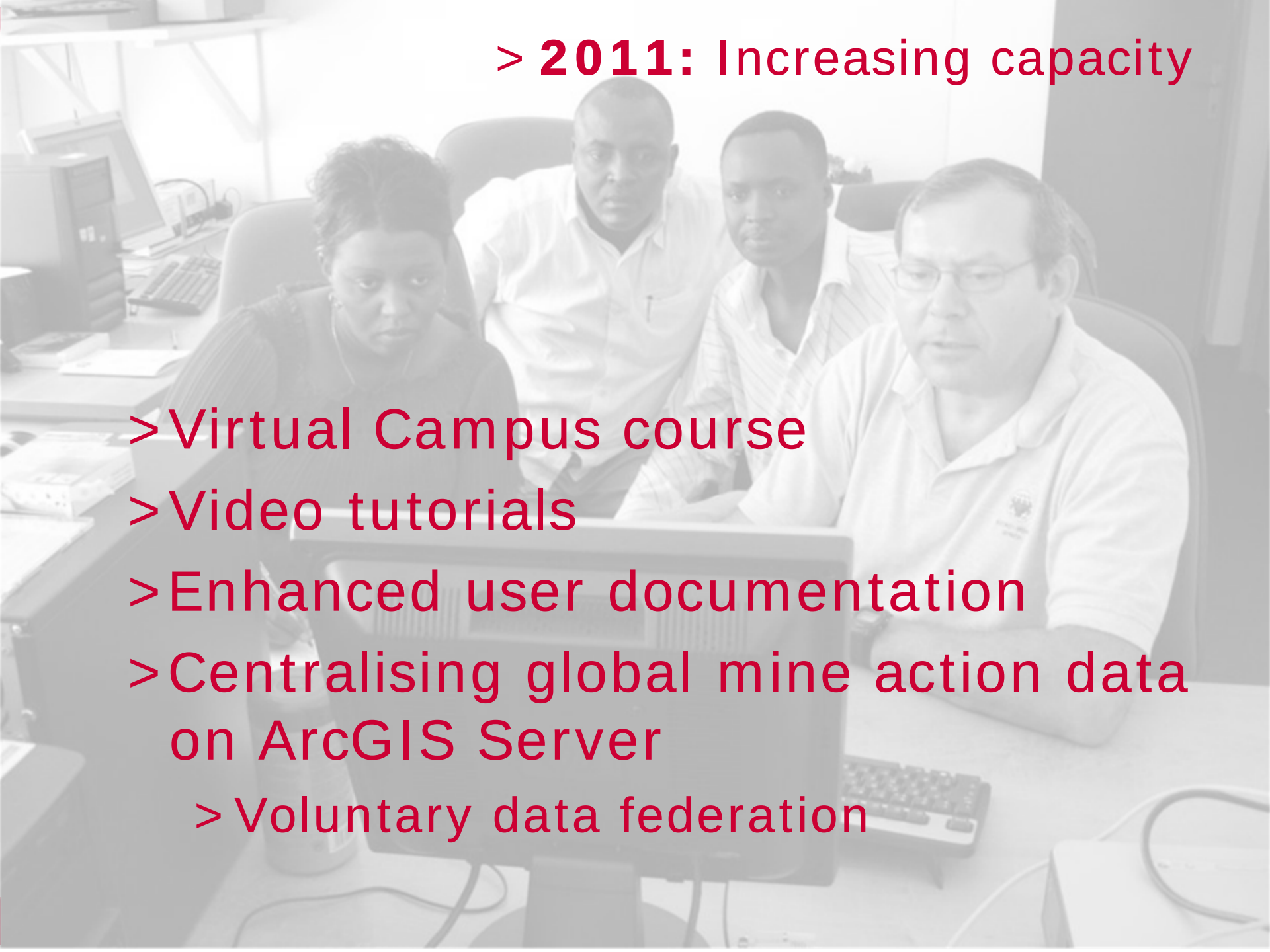

> **2011:** Increasing capacity

- > Virtual Campus course
- > Video tutorials
- > Enhanced user documentation
- > Centralising global mine action data on ArcGIS Server
  - > Voluntary data federation

> The Future

- > Use of IMSMA in other non-profit sectors
  - > Armed Violence
  - > Small Arms/Light Weapons (SALW)
  - > Weapons of mass destruction (WMD)
  - > Stockpile destruction
  - > Treaty monitoring, e.g. Convention on Certain Conventional Weapons

> Future uses?

- > Applicable to any sector with similar cyclical processes
  - > **Survey**: Identify spatial problem
  - > **Monitor**: The impact of the problem
  - > **Action**: Remove the problem
  - > **Inform**: Change the behaviour of the public
  - > **Control**: The quality of the above processes

> What happened?

- A **solution** to overcome a chain of challenges
  - A customised tool **lowered the threshold** for developing countries to adopt GIS
  - A tool that can be **adapted to each organisation**, but still centrally managed
  - A tool that allowed for organisations to **leverage** their work through **coordination** – without a hierarchy

> What happened?

- A comprehensive approach to **capacity development**
- As users gained capacity they can use ArcGIS desktop
  - Most - for free!
- Result:
  - Increased Transparency and Accountability

> The GICHD

> A **non-profit** foundation
> Based in Geneva
> 50 staff
  > 7 for IMSMA + interns and partners
> Created in 1998
> Provide research and capacity development support to governments and NGOs

> Talk to us if you are interested in

> using IMSMA

> an internship

> supporting our work

> Please attend our presentations!

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