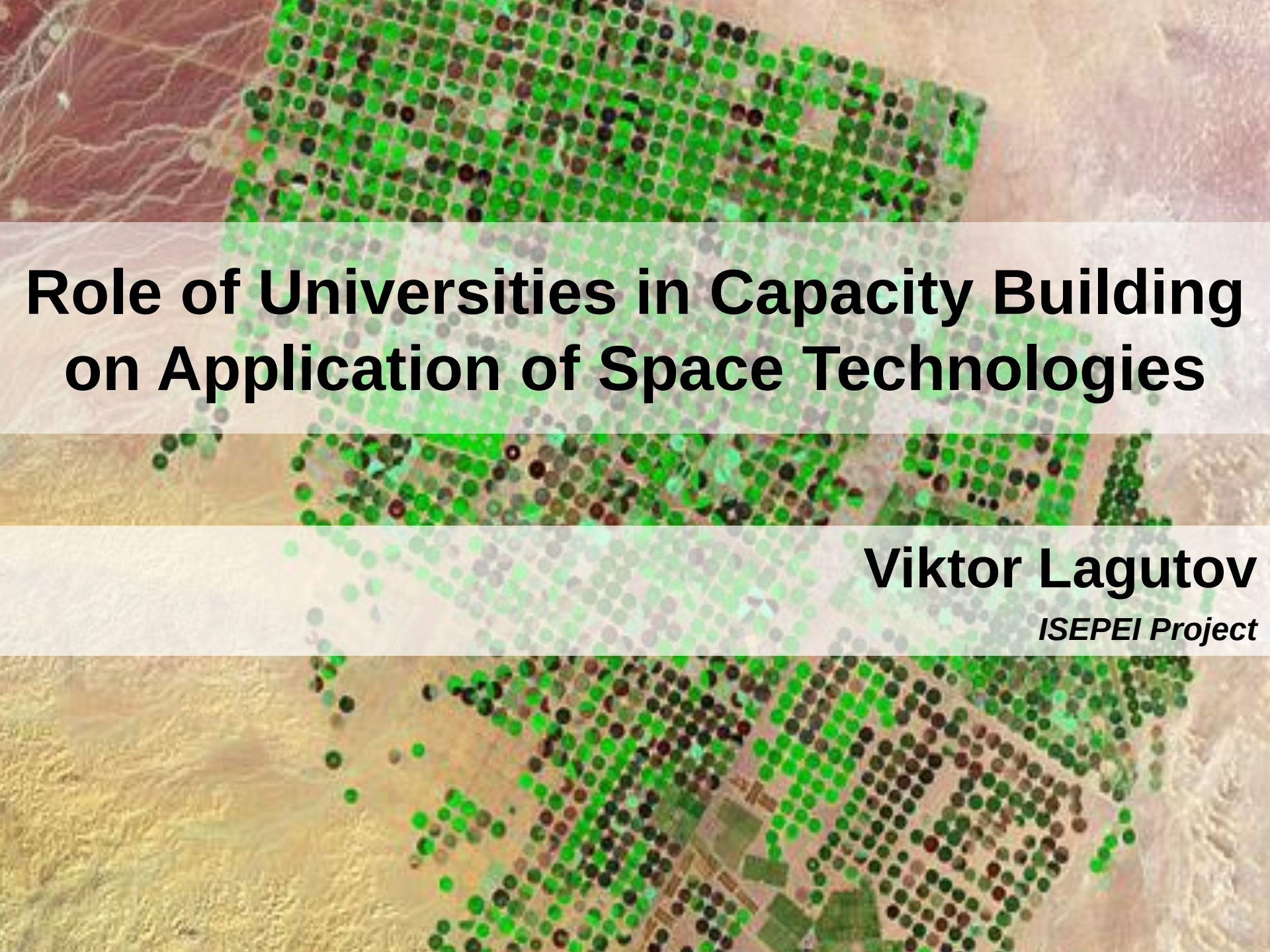


Role of Universities in Capacity Building on Application of Space Technologies

Viktor Lagutov

ISEPEI Project

UNEP's Global Universities Partnership on Environment for Sustainability

eye on earth

ISEPEI

“provocative”

constructive

practical

The role is well recognized…

UNIVERSITY OF MARYLAND 18 56 DIVISION OF RESEARCH

HOME ABOUT CAPABILITIES RESEARCH DEVELOPMENT RESEARCH ADMINISTRATION PARTNERSHIPS INNOVATION NEWS/EVENTS INTERNATIONAL

Home » Partnerships » Government

view: UMD and NASA

ve established a close research relationship, much in part thanks to
ace Flight Center in Greenbelt, Md., to the College Park campus.
a memorandum of understanding that created a strong and
anizations. The agreement provided greater reciprocal access to
anization and allow easier identification, development, and
nt, collaborative research activities have included space-based
pment; bio-sciences; earth sciences, and education. The
SA-Goddard attract and retain scientific and engineering talent,
research associates as well as full-time scientists and engineers.
mployee recruits of any university in the country for NASA.

ns:

pace Science & Technology (CRESST)

Ray Energetics and Mass (CREAM)

tent of Temperate Forests Overestimated

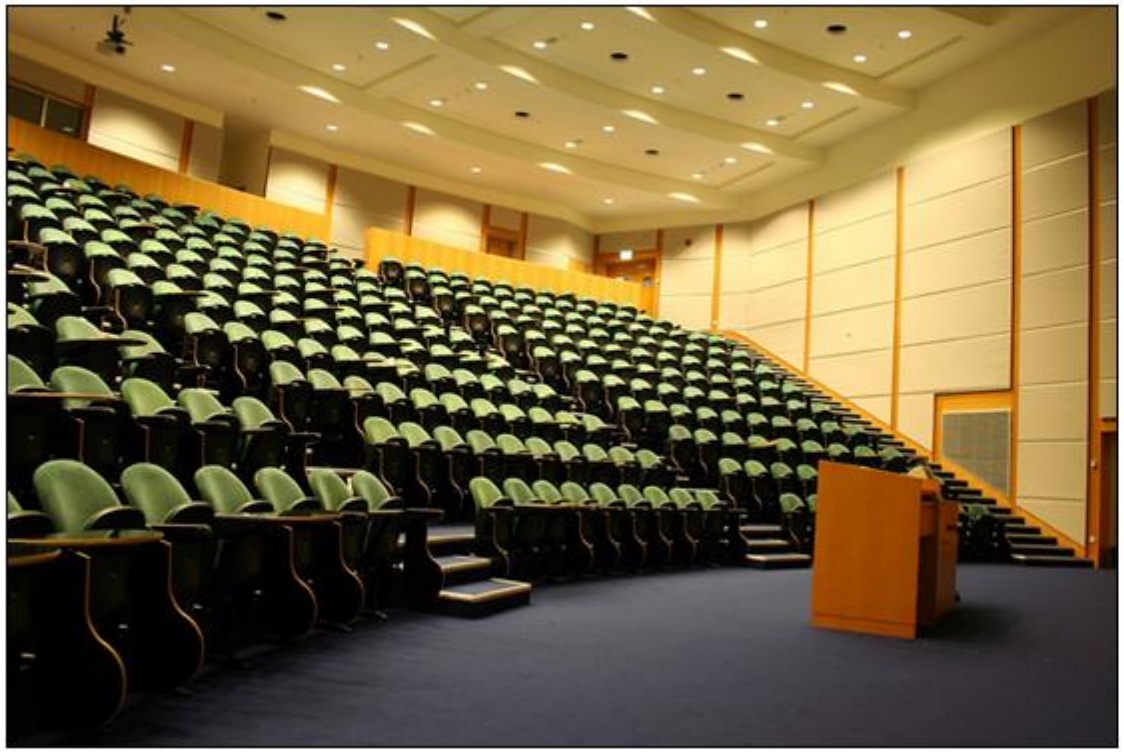
ISEPEI

End of universities?

Will Coursera and Udacity Kill Non-Top Universities?

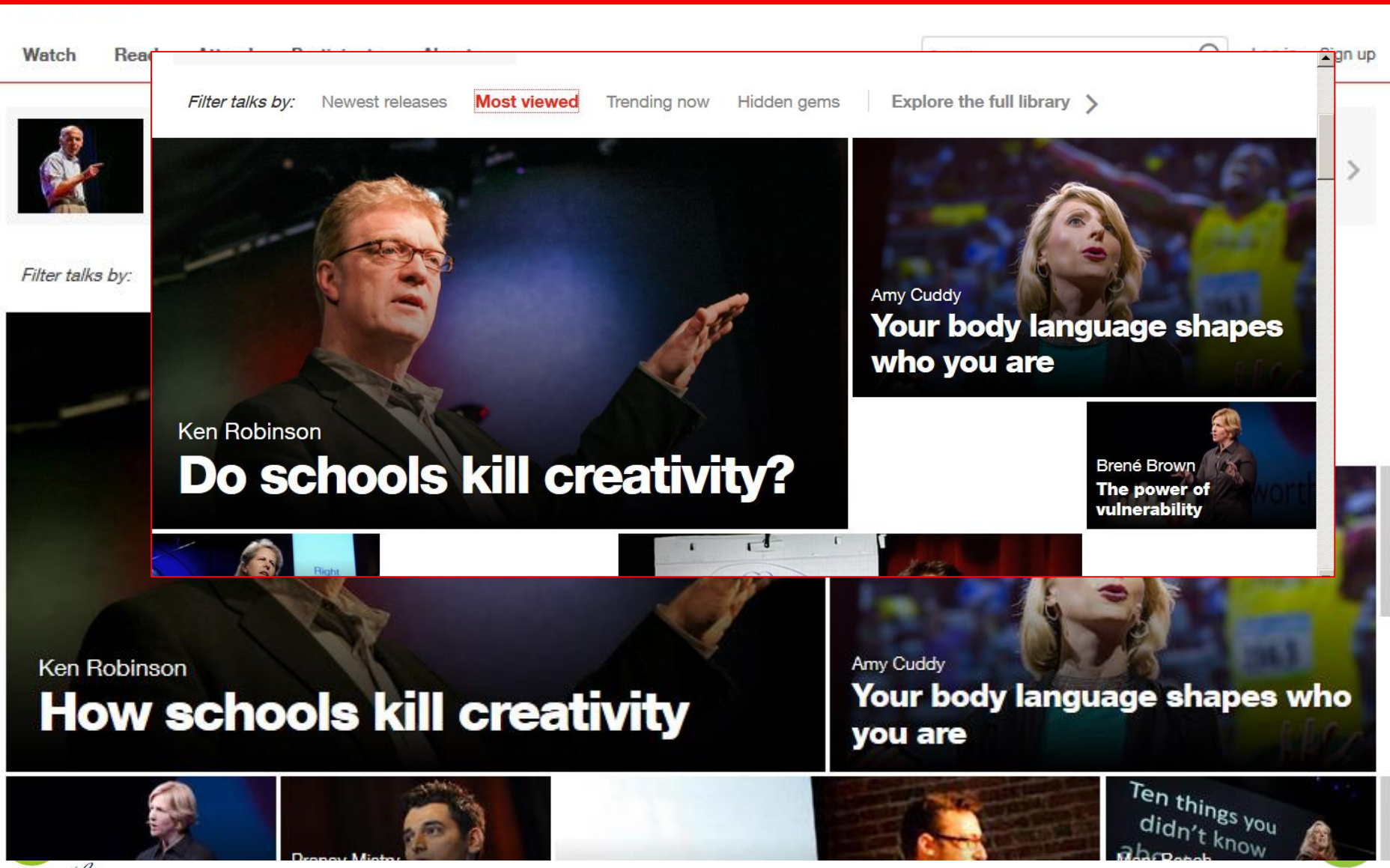
By Shamima Khan MOOC

Tweet 2 Like



Traditional college experience has its own appeal, but how many students can top schools accommodate?

TED #1 (49 mln views)



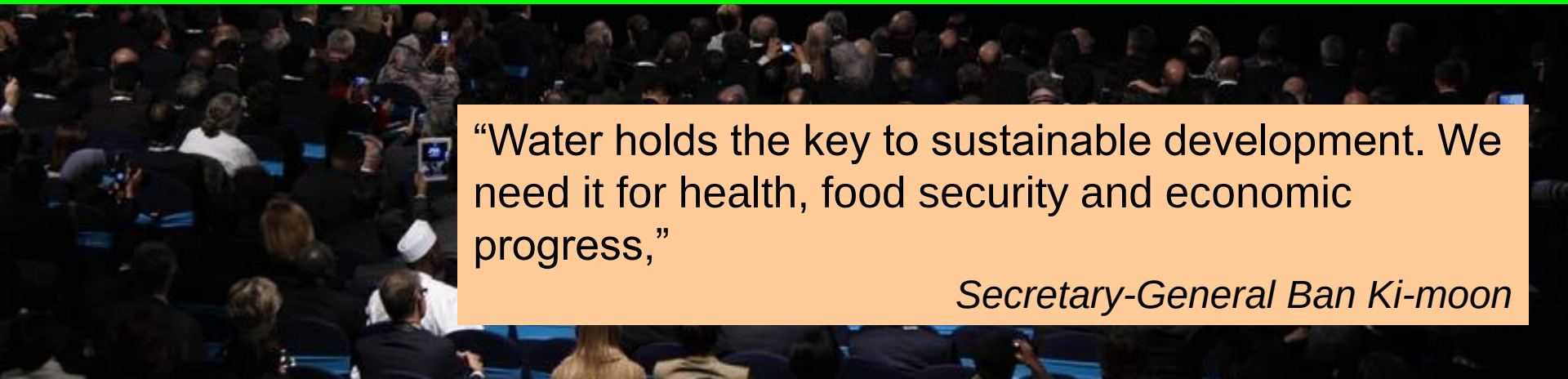
iRevolution in collecting data

iRevolution in storing data

iRevolution in distributing data

Budapest Water Summit 2013

NO ICT related booths / presentations



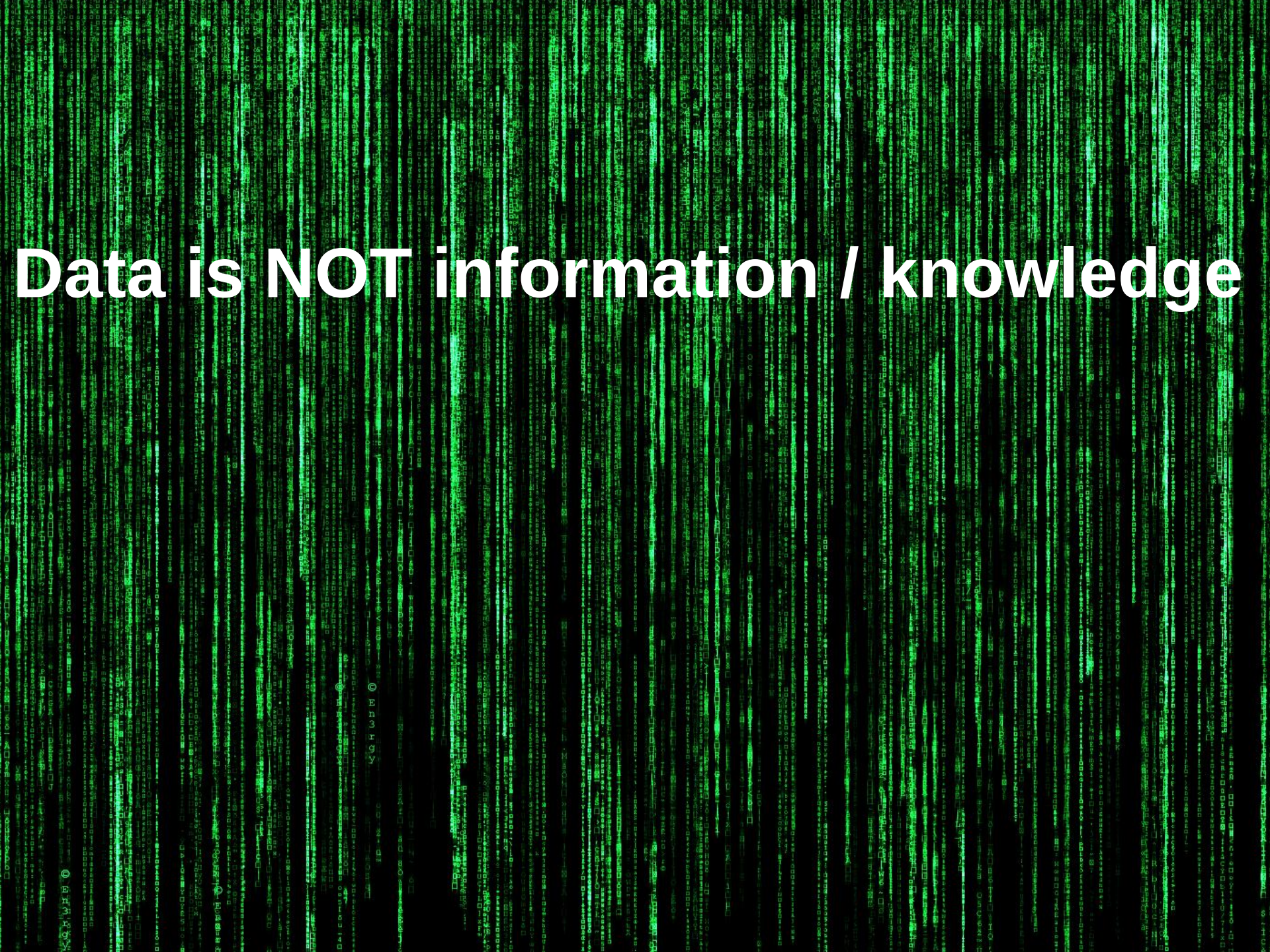
"Water holds the key to sustainable development. We need it for health, food security and economic progress,"

Secretary-General Ban Ki-moon

There is a gap…

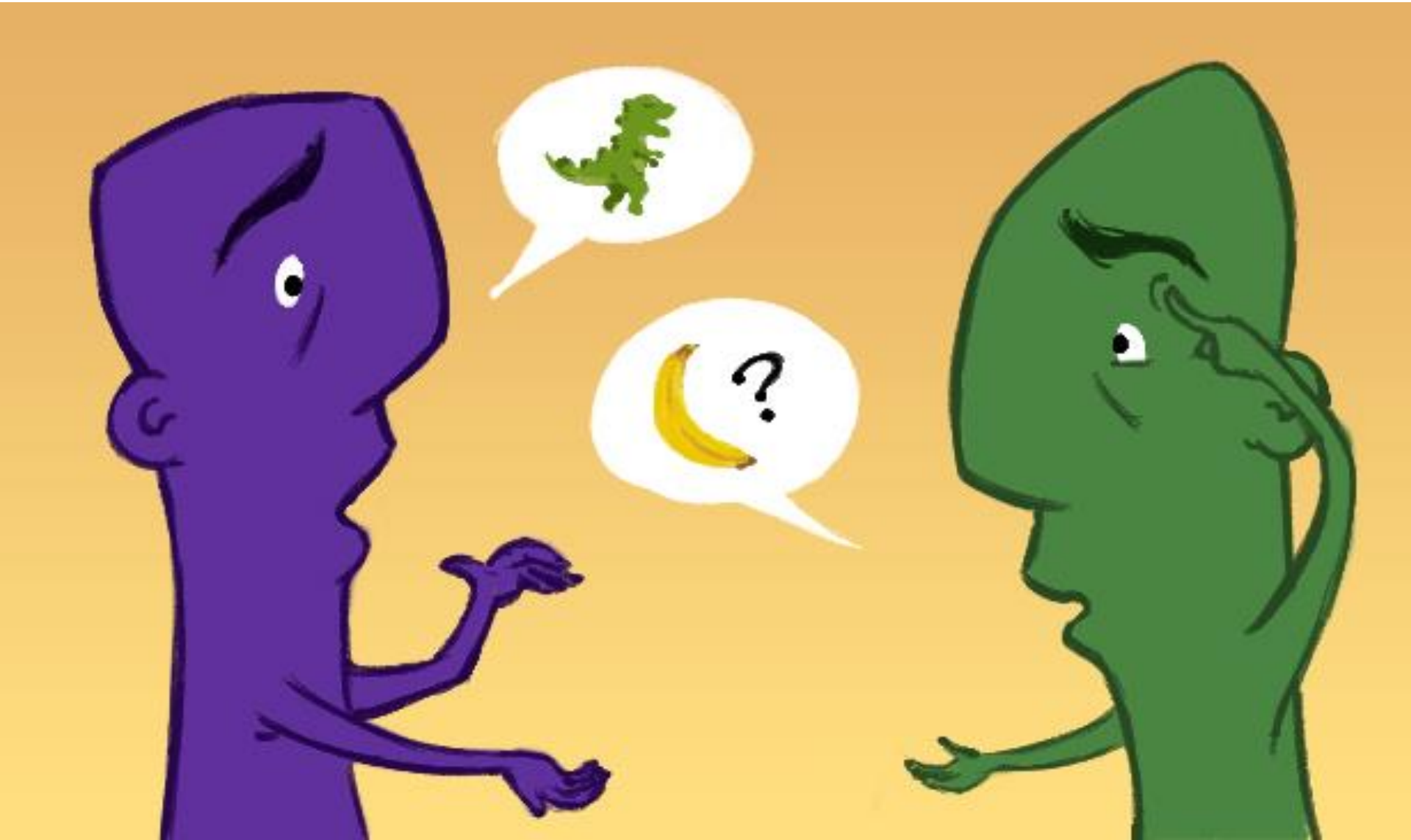
Many environmental, social, economic, technical disciplines are essential for sustainability, but they are “siloed”

ICTs can be very frustrating…


Data is NOT information / knowledge

Not affordable…

(Terminology) Language barrier



No trust…

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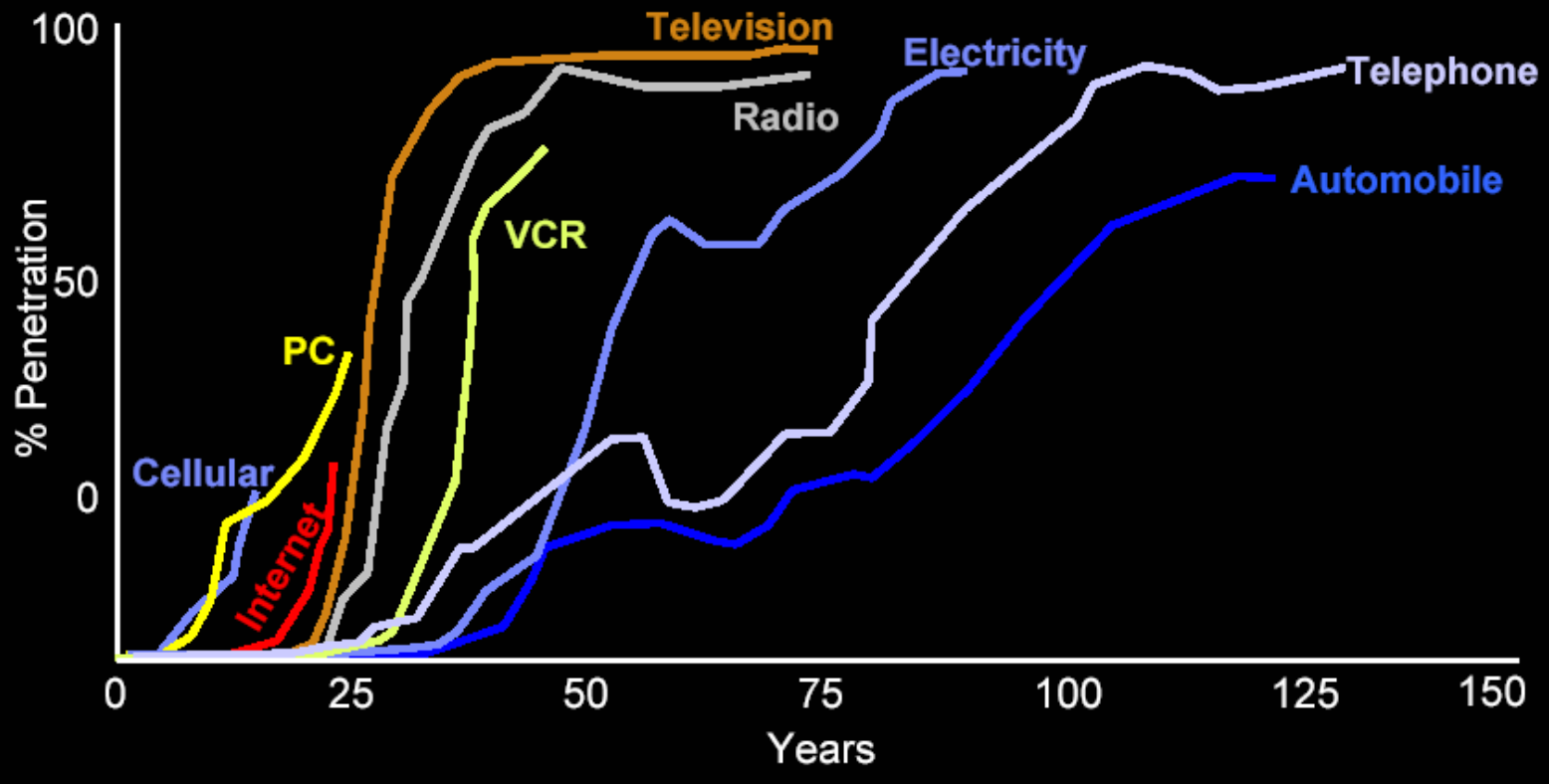
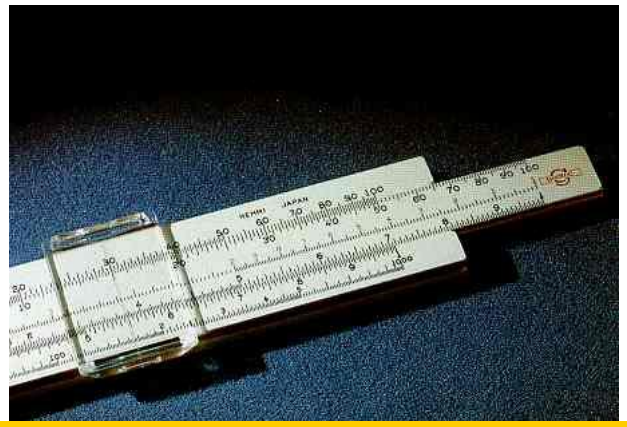
Innovation life span is shortening

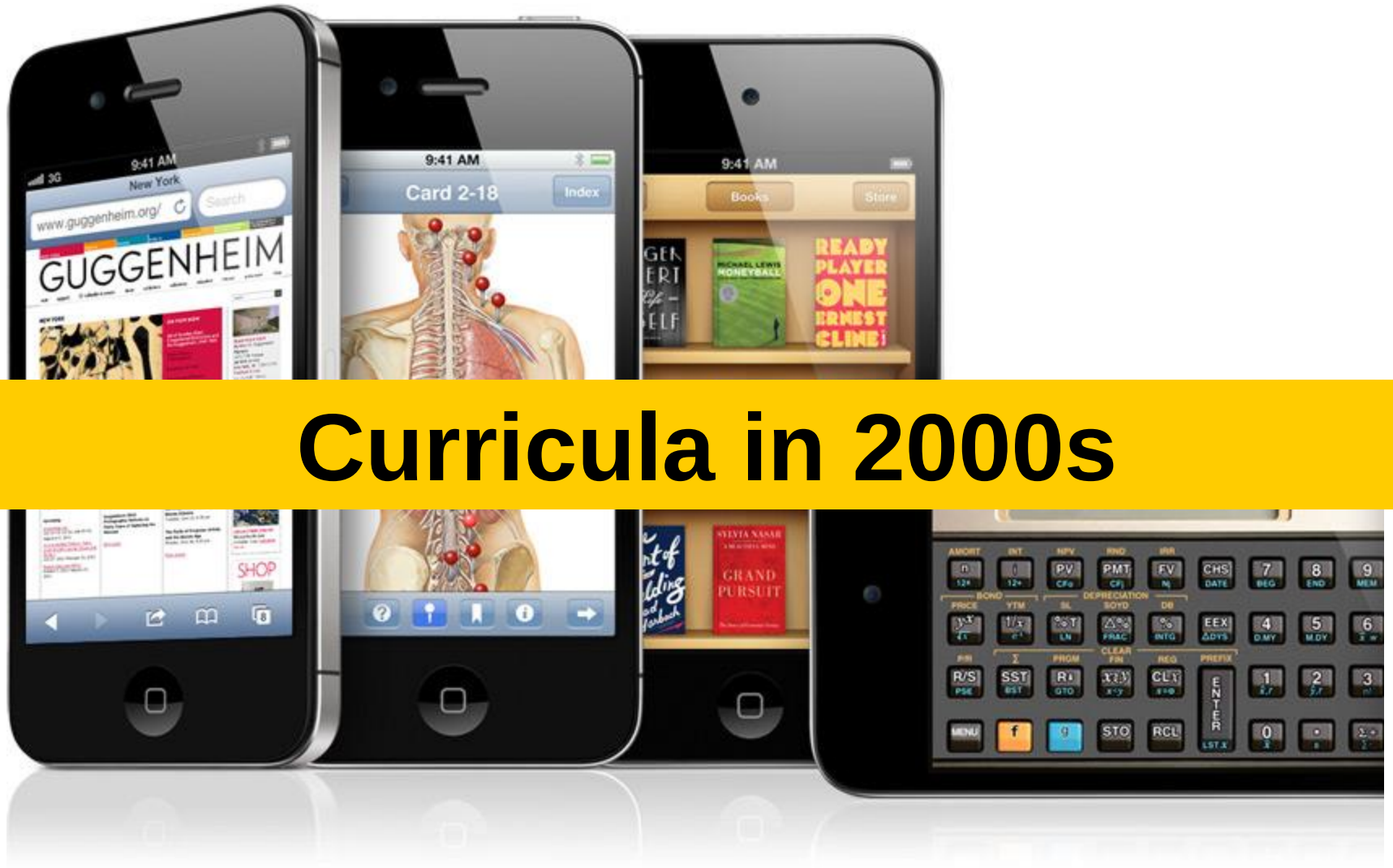
Pace of Innovation Accelerating

- Newer technologies taking hold at double or triple previous rates





Curricula in 1970s



Curricula in 2000s

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ISEPEI

Curricula in 2020s???

Many challenges

- Data ≠ information ≠ knowledge
- Accelerating pace of new technologies
- Data overload
- Isolated communities of techs and targeted groups (*e.g. different language/ interests / tasks*)
- “Right answers for wrong questions”
- Crisis in education (*we are not pioneers in ICTs,*)
- Lack of institutional memory (project based activities)
- …

Eye on Earth Process, 2010-…

Access and use of available Societal and Environmental Information

Eye on Education
Eye on Disaster management
Eye on Water Security

Global Process with many stakeholders

Implementing the Eye on Earth Vision
The Special Initiatives

- The SIs are a voluntary group of experts that meet regularly to advance the outcomes set for each SI through collaboration, networking and implementation of projects
- Multiple SI projects across 6 continents.
- 800 individuals from more than 150 organisations representing multiple sectors across society.

eye on earth

ISEPEI

Eye on Earth Summit, 2011

http://eoesummit.org

Endorsed by 48 countries

eye on earth
ABU DHABI 2011 SUMMIT
CONVENE | CONVERGE | COLLABORATE

EYE ON EARTH SUMMIT DECLARATION

We the Ministers, and high-level representatives of government, business, academia and civil society (The Eye on Earth Community) present at the first Eye on Earth Summit in Abu Dhabi from 12 to 15 December 2011,

Deeply concerned over the evidence of unprecedented environmental changes at all levels, including possible irreversible changes with potentially negative implications for economic and social development, especially for the poor and vulnerable groups in society,[1]

Conscious that cooperation on exchange of, and access to, timely, credible and relevant observations and information among a wide array of actors is a critical part of the science-policy interface needed for advancing the development and implementation of goals, targets and indicators for sustainable development,

Recalling Principle 10 of the Rio Declaration on Environment and Development, which amongst others recognises

EyeOnEarth Summit 2015: Data-Driven Decision Making

Bridging the gaps

Eye on Earth networks and builds capacity across diverse knowledge communities to improve decision-making for sustainable development

Eye On Earth Seed-Funded Projects

Below is a summary of each of the seed funded projects and their alignment to the Eye on Earth principles.

Projects were selected to ensure they were compelling, specific, achievable outcomes that translate the principles of the Eye on Earth Summit Declaration to "on the ground" commitments and actions through the Special Initiatives, with priority emphasis on projects that provide support to Abu Dhabi, the UAE and the Arab region.

- EcoCitizen World Map-Building Eco Cities
- GeoSUMR - GeoInformation for Sustainable Urban Management and Resilience
- The GeoSUR Program, a model regional geospatial network for the Arab region
- GUPES- Global Universities Partnership on Environment and Sustainability
- In Service ICT training for Environmental Professionals (ISEPEI)

eye on earth

ISEPEI

Need for resource Centers

- *University Network and capacity building*
- *Sustainable, self-sustaining (potential)*
- *ongoing partnerships development (state, private, academia, society, etc)*
- *Transferable*
- *…*

Universities as Resource Centers

CRITERIA

- Well-recognized higher education institution
- Excellence in public policy teaching
- Well-established links to ICT leaders
- Technologically-advanced infrastructure
- Convenient transport hub
- Attractive location
- Financially self-supporting

BENEFITS

- Economically efficient
- Self-sustaining
- Not project-based
- Curricula development
- Easy expansion into various thematic areas
- Funds attraction
- ……

eye on earth

ISEPEI

ISEPEI project

ISEPEI: In **S**ervice ICT Training for **E**nvironmental mid-career **P**rofessionals

Despite overwhelming availability of data, large gap between environmental / public policy professionals and ICT communities

- Technical capacity to use, understand, and apply these technologies

Decision-makers will greatly benefit from a periodic overview of emerging technologies

- ICTs constantly evolving, more data becoming available

ISEPEI project

- Universities are hubs in promoting ICTs and fostering their timely and efficient usage;
- Platform between ICT industries and professional communities;
- Experience in teaching at postgraduate level;
- Sustainability and continuity in activities through establishing university-based Resource Centres;
- Forms of ICT training
  - ICT **potential** for policy/decision makers
  - ICT **trainings** for environmental professionals

Central European University

International postgraduate institution located in the heart of Budapest, Hungary

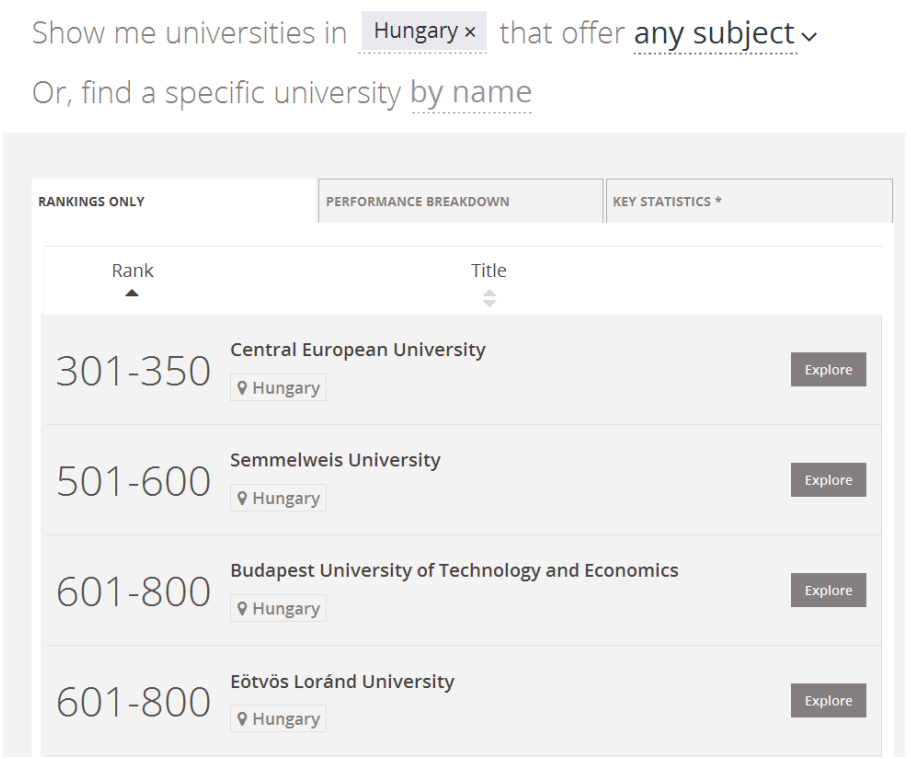
- Focused on Public Policy, involved in SGDs development
- Well-established links to int'l environmental/public policy organizations, government agencies
- Global coverage
- accreditations / partnerships with leading Universities and research institutions
- Developed infrastructure and support

CEU is among the world's top 100 universities in social sciences

THE TIMES HIGHER EDUCATION WORLD UNIVERSITY RANKINGS

2nd in the world

in terms of international outlook



eye on earth

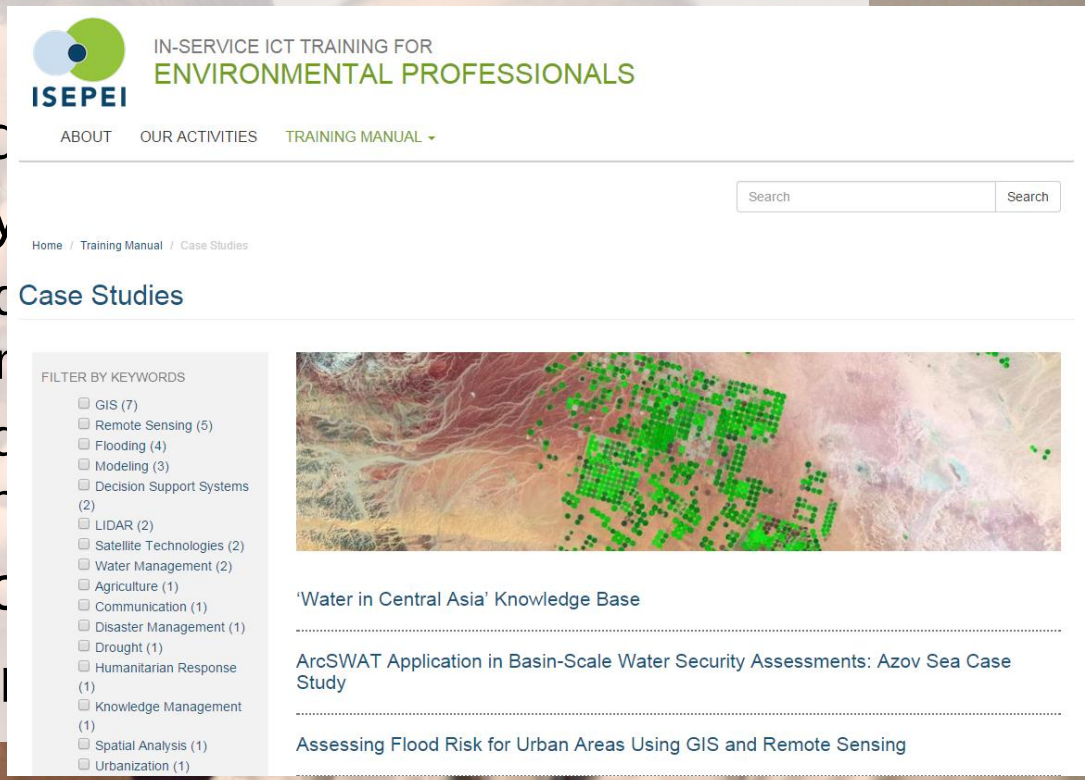
ISEPEI

EoE Partnership in practice

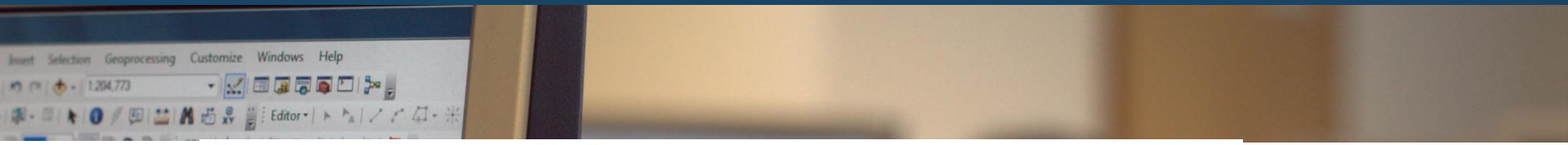
Training Manual: *ICTs for Water Security*

http://isepei.org/training-manual

- Repository available online for decision-makers to access
- Examples of real-world
  covering a wide variety
  - GIS, remote sensing, d
    modeling, knowledge r
  - Flooding, agriculture, d
    response, urbanization
- Description of each tec
- Possibilities to add owr



Portal: *ICTs for Water Security*



Authors

AUTHORS

ORGANIZATIONS

IMPORTANCE OF DATA

TECHNOLOGIES

- DATA PORTALS
- GEOGRAPHIC INFORMA SYSTEMS (GIS)
- REMOTE SENSING
- DATA ANALYSIS: MODEL SIMULATION, AND OPTI
- SENSORS AND COMMU TECHNOLOGIES FOR SM WATER MANAGEMENT
- DISTANCE LEARNING
- DECISION SUPPORT SY
- MOBILE PLATFORMS / CROWDSOURCING

CASE STUDIES

- CASE STUDY MAP

Organizations

AUTHORS

ORGANIZATIONS

IMPORTANCE OF DATA ACCES

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- DISTANCE LEARNING
- DECISION SUPPORT SYSTEMS
- MOBILE PLATFORMS / CROWDSOURCING

CASE STUDIES

- CASE STUDY MAP

Case Studies

FILTER BY KEYWORDS

- [x] GIS
- [ ] Decision Support Systems (2)
- [ ] Agriculture (1)
- [ ] Communication (1)
- [ ] Drought (1)
- [ ] Flooding (1)
- [ ] LIDAR (1)
- [ ] Modeling (1)
- [ ] Remote Sensing (1)
- [ ] Water Management (1)
- [ ] Water Supply (1)

FILTER BY GEOGRAPHICAL SCOPE

- [x] Europe
- [ ] Basin (2)
- [ ] Transboundary (2)

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ORGANIZATIONS

IMPORTANCE OF DATA ACCESS

TECHNOLOGIES

CASE STUDIES

- CASE STUDY MAP

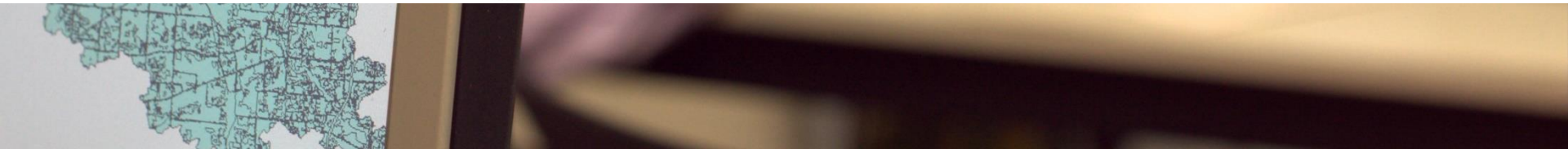
Airborne LIDAR Technology for Sustainable Watershed Management: Ecological Health of Riparian Zones

ArcSWAT Application in Basin-Scale Water Security Assessments: Azov Sea Case Study

GIS Based Communication Platform for the Sustainable Management of Transboundary Water Resources in Lithuania, Poland, Belarus and Kaliningrad Region (Russia)

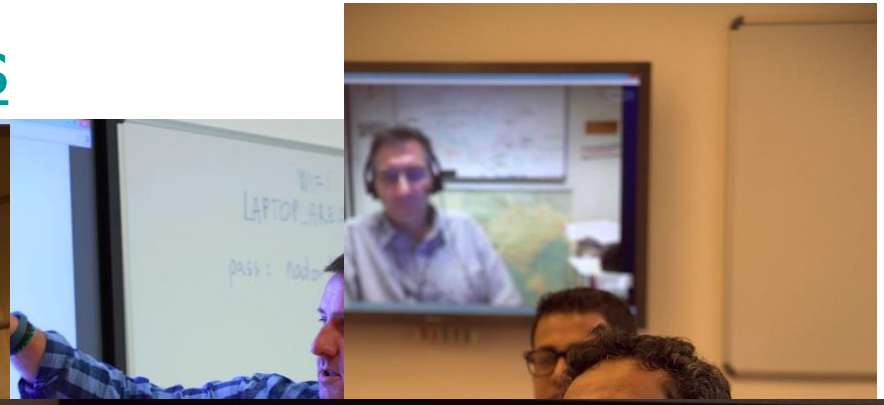
GIS Based Tool for the Landscape Retention Planning

Remote Sensing Based Agricultural Drought Monitoring and Yield Loss Prediction Method



ISEPEI Trainings

http://isepei.org/workshops



Target Group: decision-makers and public

Speakers from leading institutions

Speakers: UNESCO

Speakers: EC Joint Research Center

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Space
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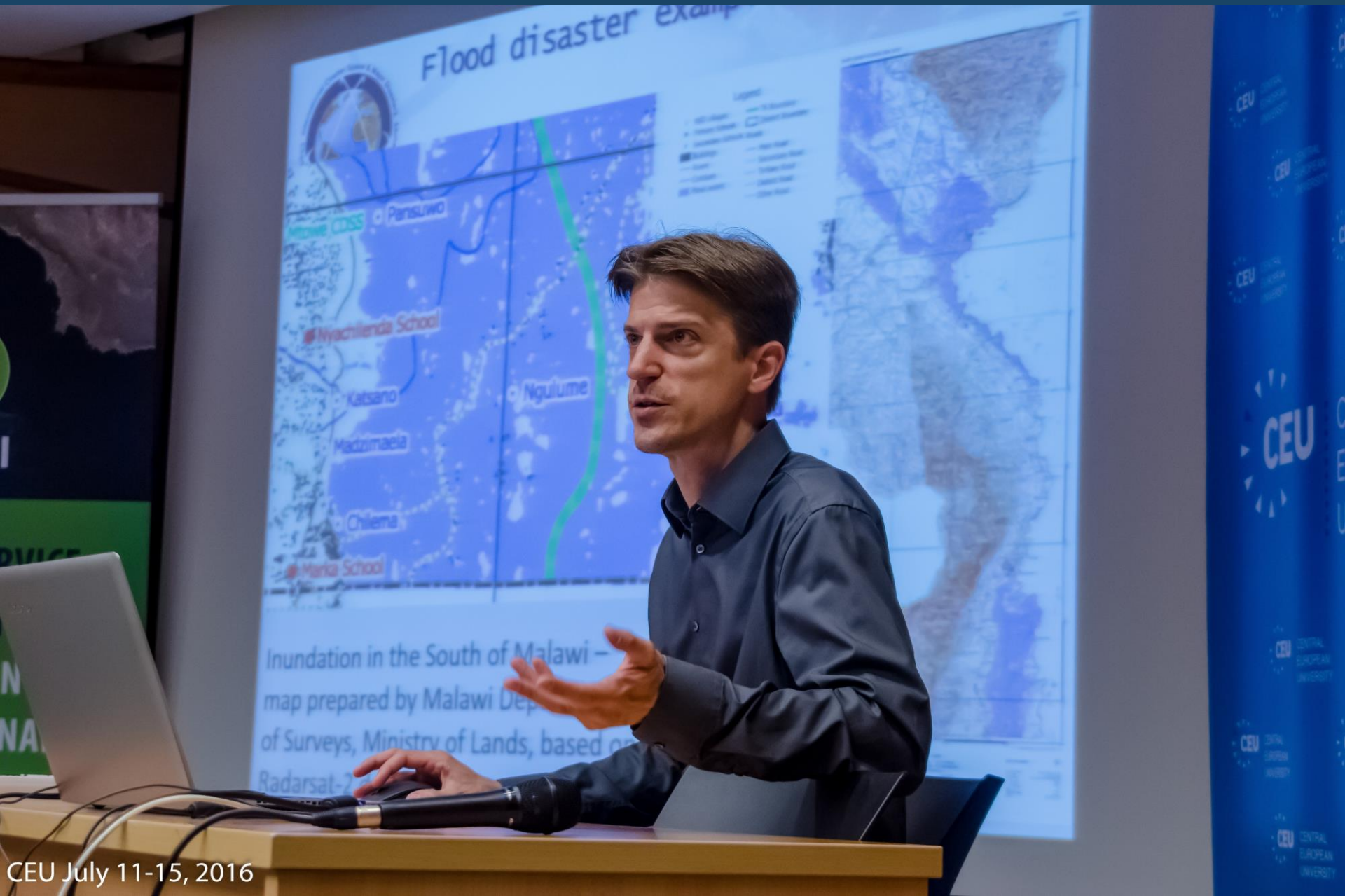
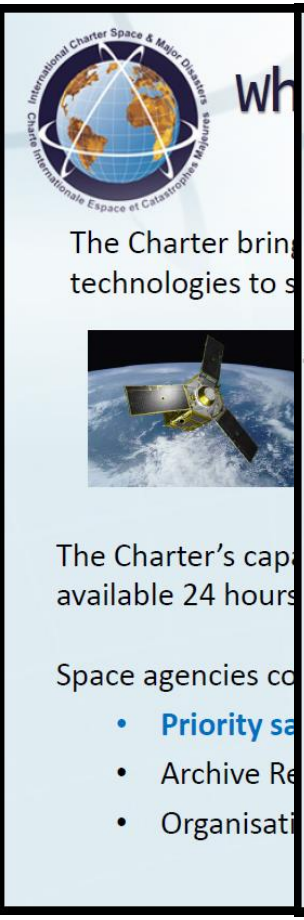
Europe's eyes on Earth
eye on earth

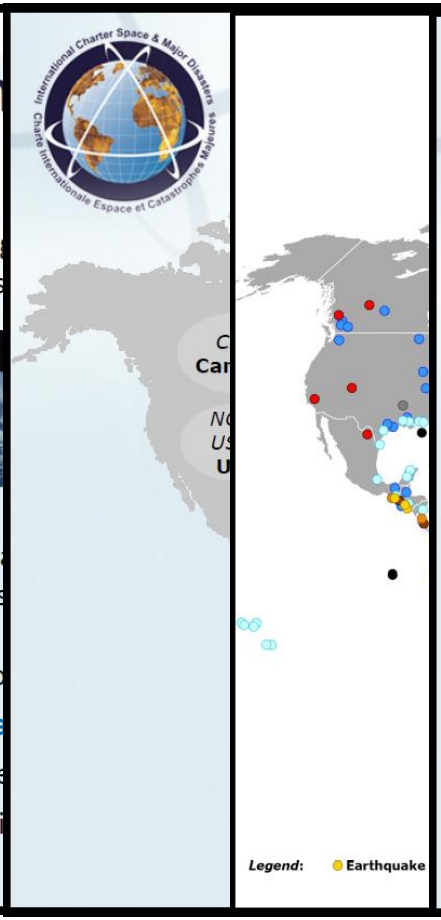
Speakers: German AeroSpace Center

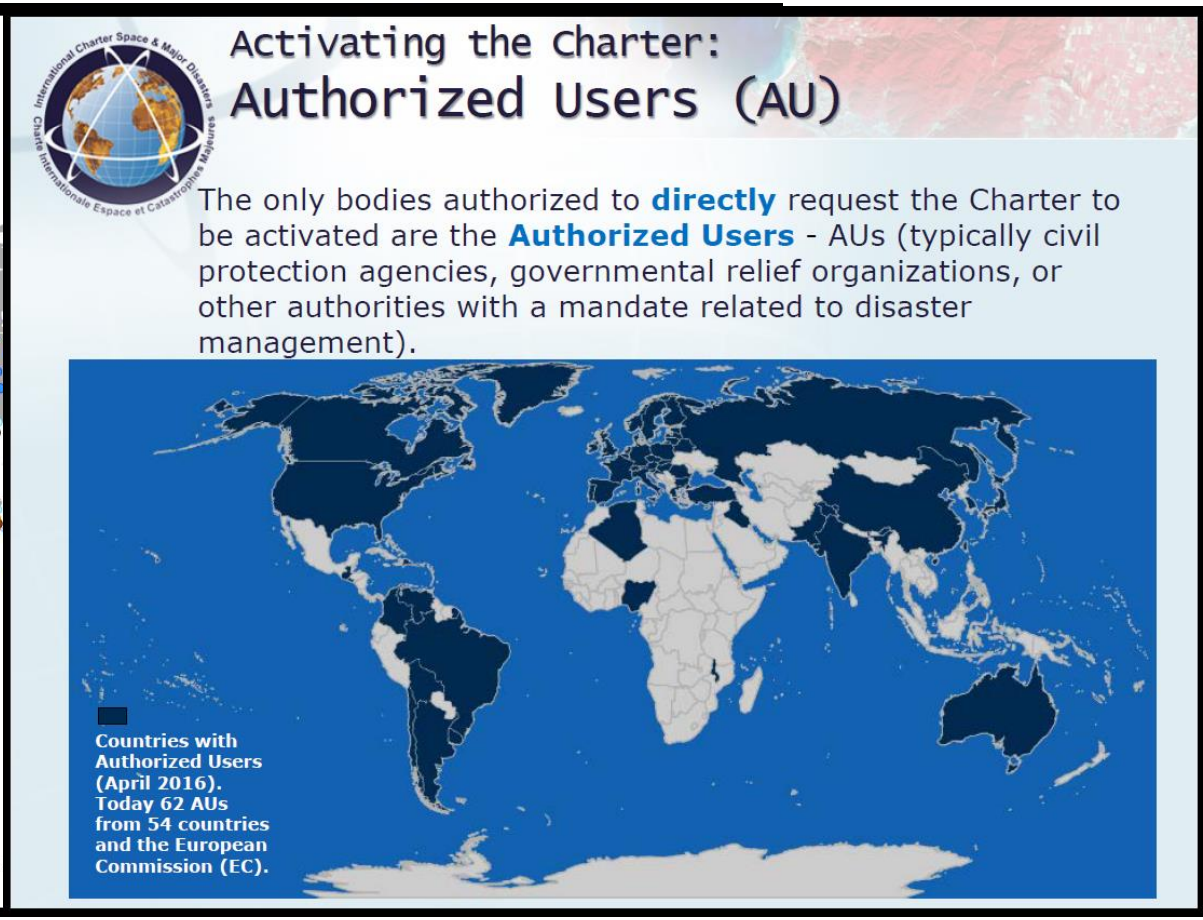


CEU July 11-15, 2016

Speakers: German AeroSpace Center







Speakers: Google

Speakers from private sector

Hands-on sessions

Improving university syllabi

Geospatial Solutions for Sustainable Water Management, 2-6 July 2018

- joint CEU / UNOOSA workshop

- Aimed at various sectors
- UNECE, EU JRC, Airbus ESRI, Google, etc
- http://isepei.org/geospatial-2018

Invitation to cooperate

CEU Summer University | CENTRAL EUROPEAN UNIVERSITY

ISEPEI

Bridging ICTs and the Environment

GEOSPATIAL SOLUTIONS FOR SUSTAINABLE WATER MANAGEMENT

2 - 6 July 2018
Budapest, Hungary

COURSE DIRECTORS:

Viktor Lagutov
Central European University

Lorant Czaran
UN Office for Outer Space Affairs

SELECTED COURSE FACULTY:

Anupam Anand
Global Environment Facility, World Bank Group

Armen Grigoryan
UNDP Regional Centre for Europe and CIS

Ed Parsons
Google

András Szöllősi-Nagy
International Hydrological Programme of UNESCO

isepei.org
info@isepei.org
facebook.com/groups/isepei

Geospatial technologies and remote sensing offer a crucial location element to the monitoring of Sustainable Development Goals and their corresponding targets and indicators.
The unprecedented "power of where" allows for unbiased observation and analysis across borders, administrative boundaries, and nations.

The workshop, run in cooperation with the United Nations Office for Outer Space Affairs (UNOOSA), provides an opportunity for water professionals to get updated on the latest advances in geospatial technologies and remote sensing, and their application to the monitoring of water related SDGs.

The workshop target group includes: National Focal Points of international organizations, environmental practitioners, and researchers involved in water and SDG-related issues. No prior experience in geospatial technologies is required.

For further information on the workshop and application, please visit http://isepei.org/workshops or contact us at info@isepei.org.

ISEPEI began as a flagship project of the Eye on Earth Global Initiative, aiming to bridge the gap between information and communication technologies (ICTs) and the environment (http://eye-on-earth.net). The ISEPEI workshops focus on potential use of ICTs (e.g. remote sensing, geospatial technologies, crowdsourcing) in various environmental and public policy themes.

eye on earth

Innovations in Disaster Risk Reduction, 25-29 June 2018

- Joint CEU / UNDP workshop

- Aimed at UNDP country offices and affiliated agencies/projects
- UNOOSA, UNESCO, GEO, EU JRC, ESRI, etc
- http://isepei.org/innovations-drr-2018

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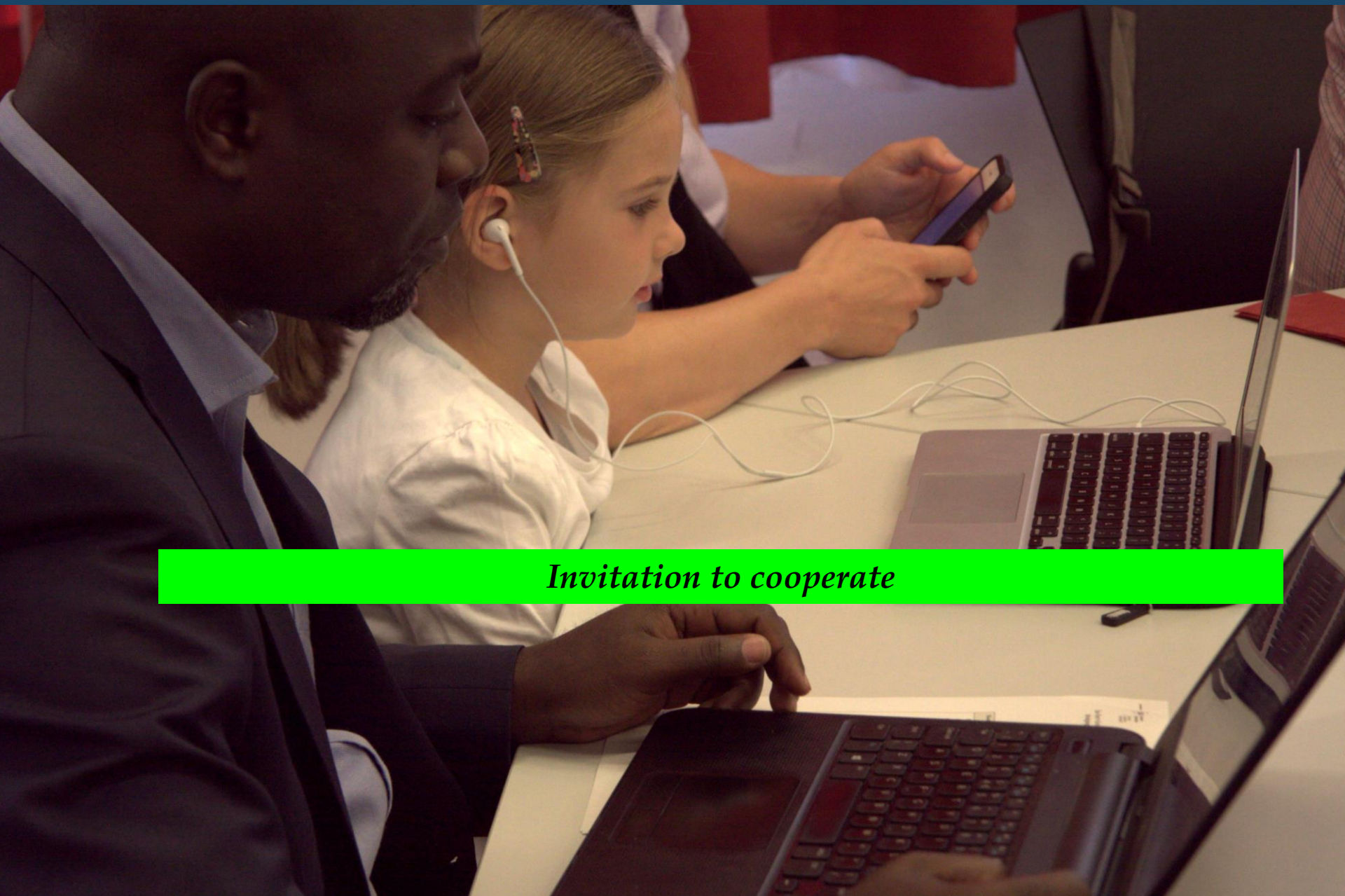
Developing future curricula (MSc/PhD)



Invitation to cooperate

See you in Budapest next time?

THANK YOU

http://isepei.org

CEU July 4-8, 2016

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ISEPEI