

The INTERNATIONAL LONG-TERM ECOLOGICAL RESEARCH NETWORK

Socio-ecological and natural scientific research & observation components of relevance for cooperation with Biosphere Reserves around the globe.

Michael Mirtl, ILTER Chair, Environment Agency Austria (EAA)
4th World Congress of Biosphere Reserves, March 2016, Lima, Peru



WHAT DOES ILTER STAND FOR?

Vision of the International Long-Term Ecological Research Network:

*„ILTER’s vision is a world in which **science helps** prevent and solve environmental and socio-ecological problems”*

Scientific knowledge as ONE ingredient

Mission:

*„ILTER consists of networks of scientists engaged in long-term, site-based ecosystem and socio-ecological research. Our mission is to **improve understanding** of global ecosystems and **inform** solutions to current and future environmental problems.”*

HELPFUL information and scenarios



INTEGRATING & COORDINATING KEY ELEMENTS OF ECOLOGICAL RESEARCH



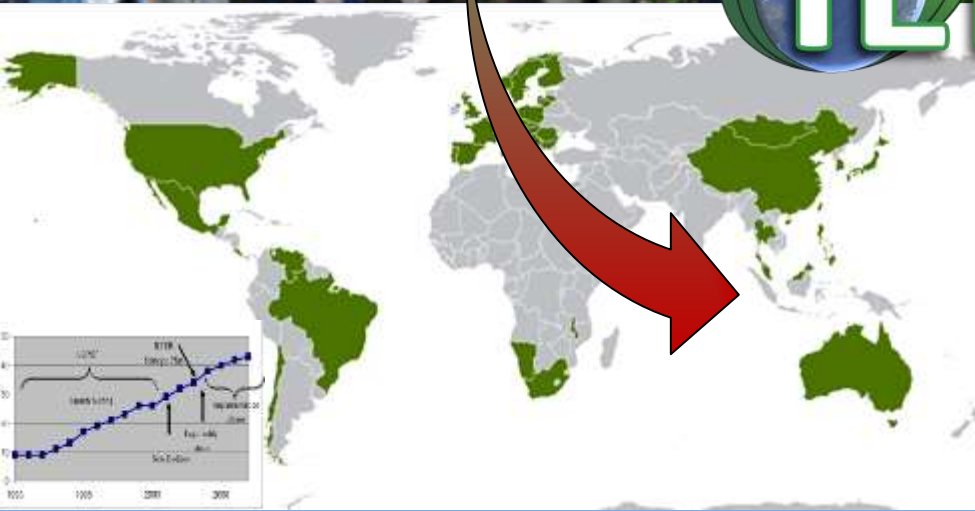
Consequence of altered nitrogen cycles in the coupled human and ecological system under changing climate: The need for long-term and site-based research

Hideaki Shikama, Cristina Branquinho, William H. McDowell, Myron J. Mitchell, Don T. Monteith, Jianwu Tang, Lauri Arvola, et al.

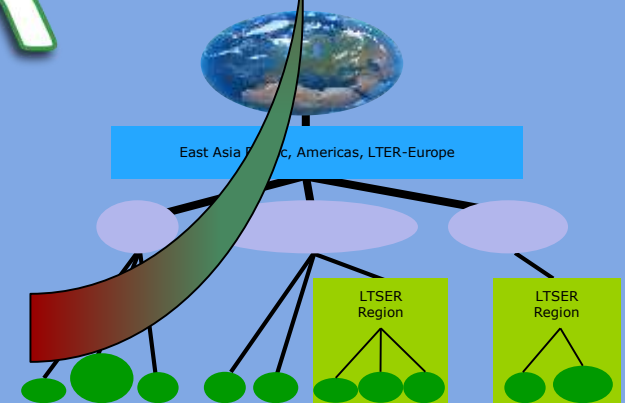
AMBIO
A JOURNAL OF THE HUMAN ENVIRONMENT



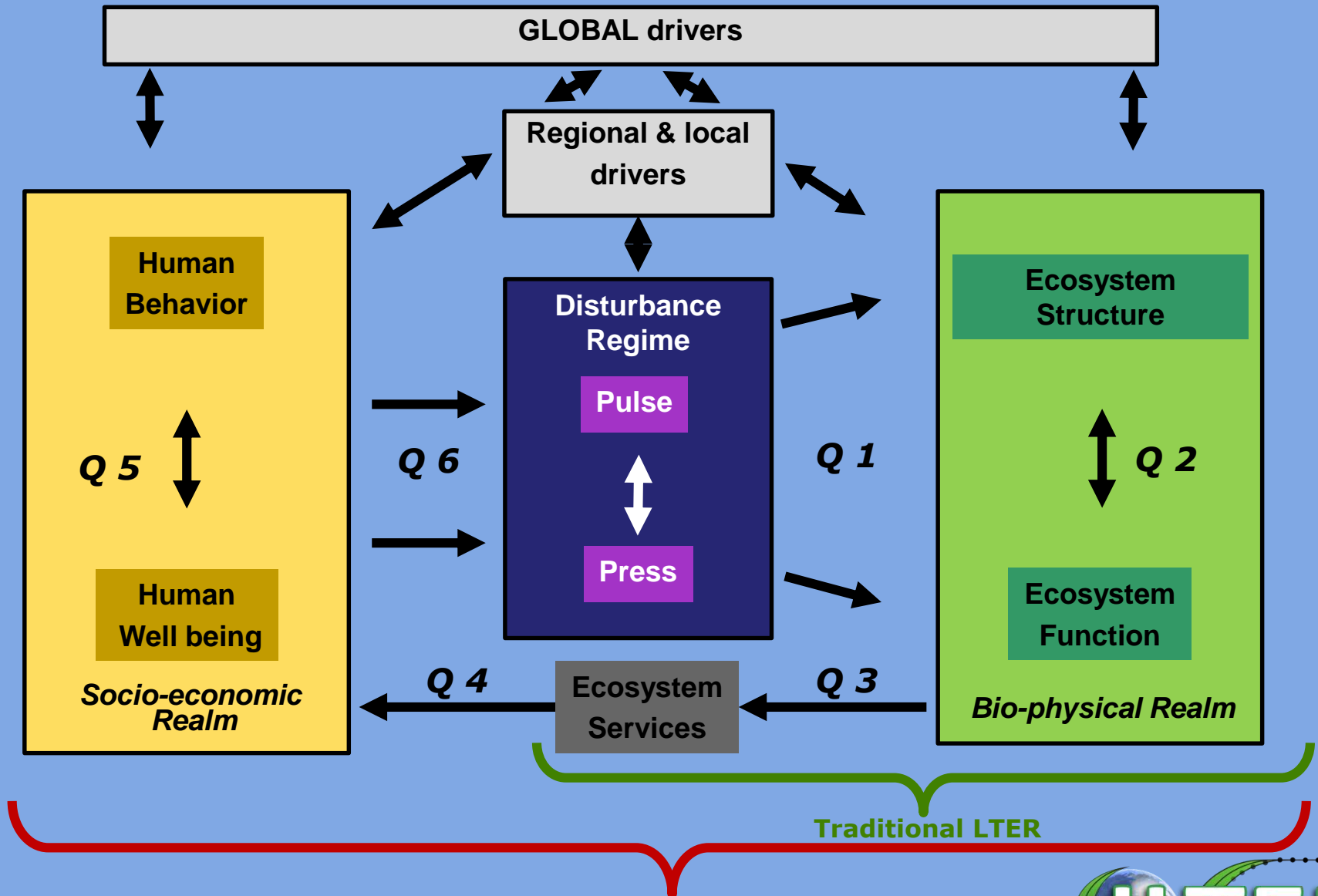
ILTER



- Global LTER
- Regional Groups
- National Networks
- Level of PLATFORMS
- Level of SITES



Integrated Science for Society and the Environment



Long-term socio-ecological research LTSEER



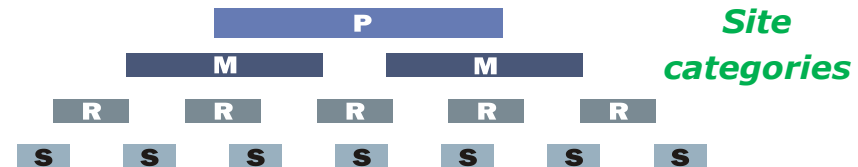
A global fleet for long-term ecosystem and biodiversity research

- **Generic research infrastructure** offering **basic services** and baseline activities
- **Harmonized action** of formerly less coordinated elements, enabling new research qualities (services and products)
- **Central steering PLUS adaptive manouvers** of individual elements
- **Mid- and long-term planning** in close interactions with strategic processes & other RIs

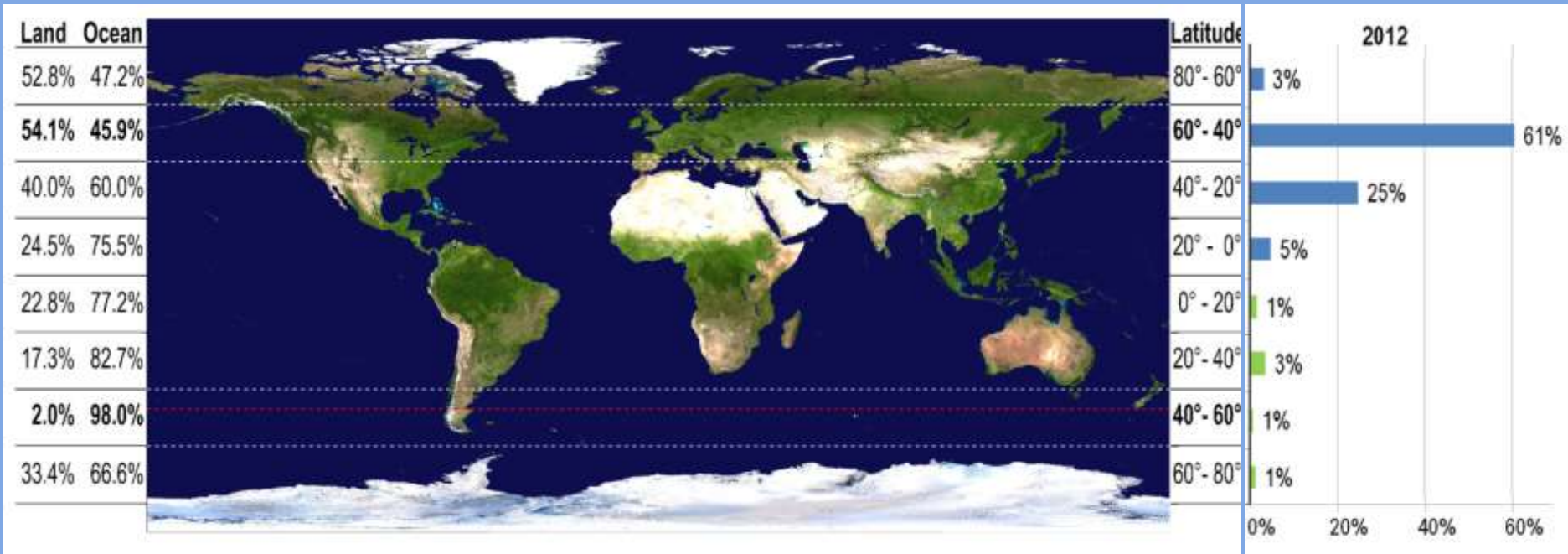


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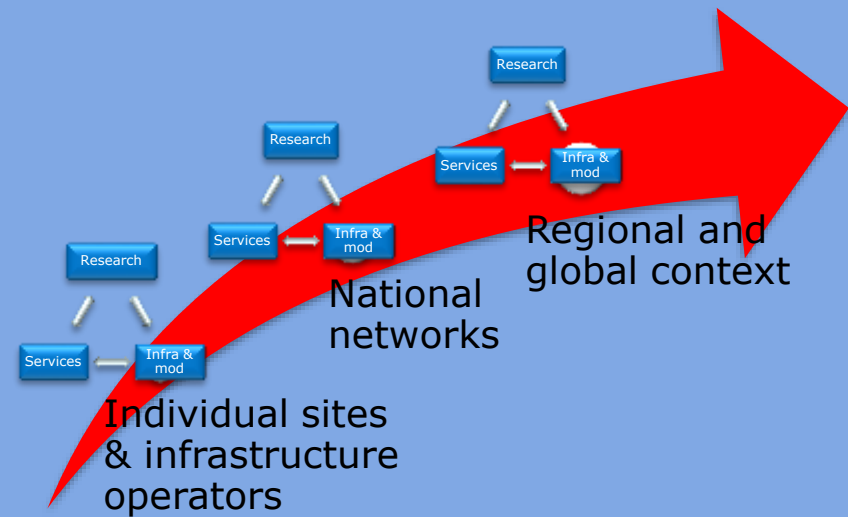
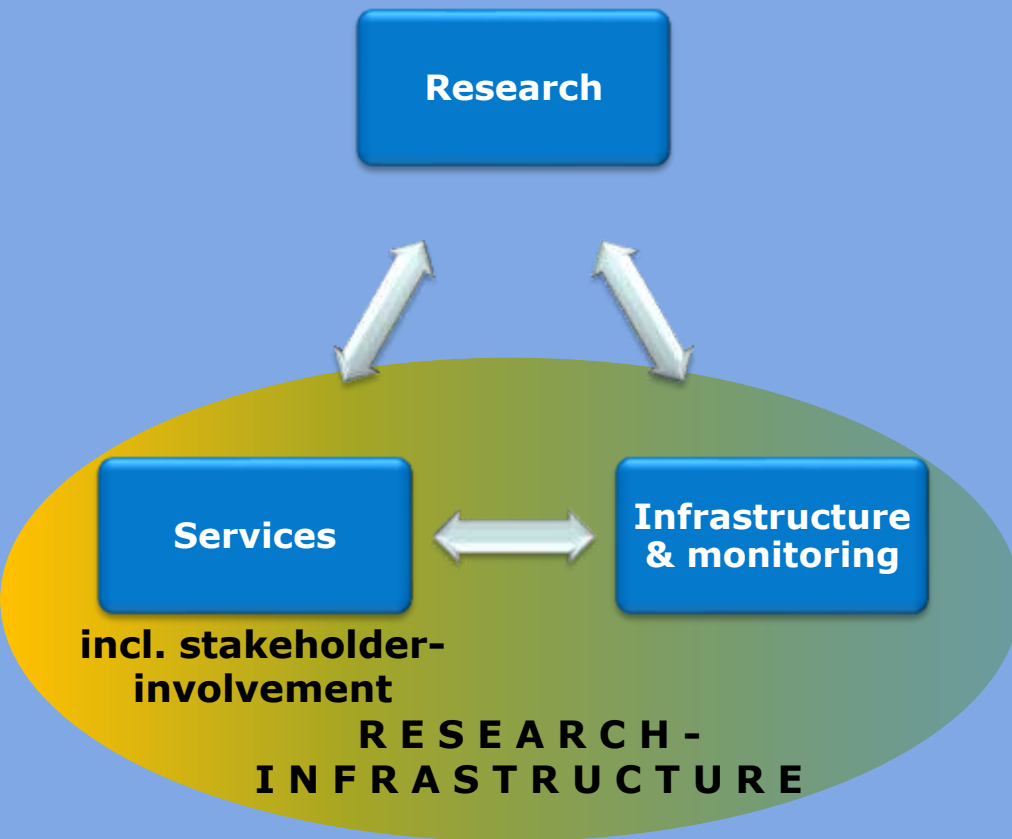


Global distribution of ILTER sites

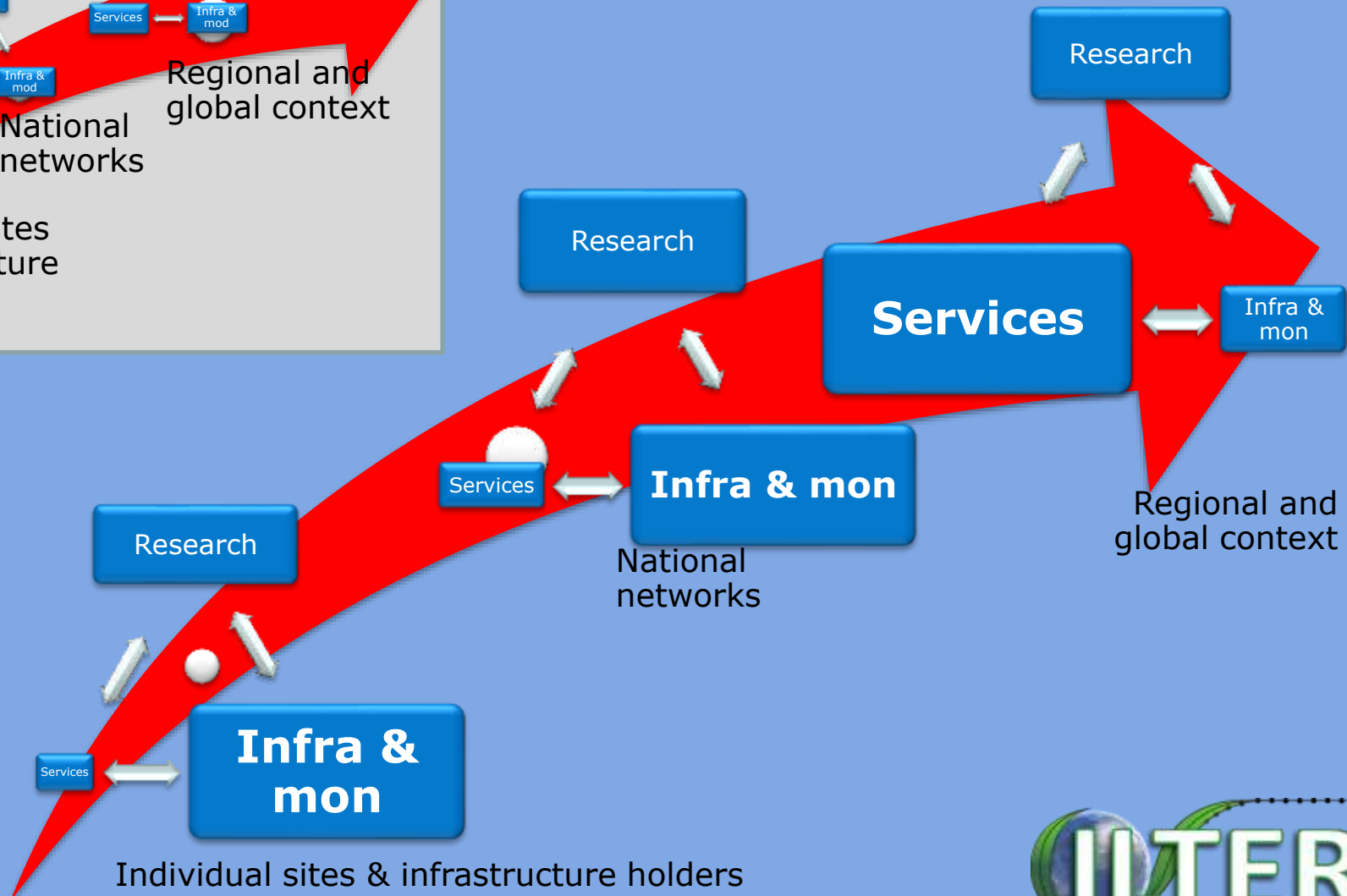
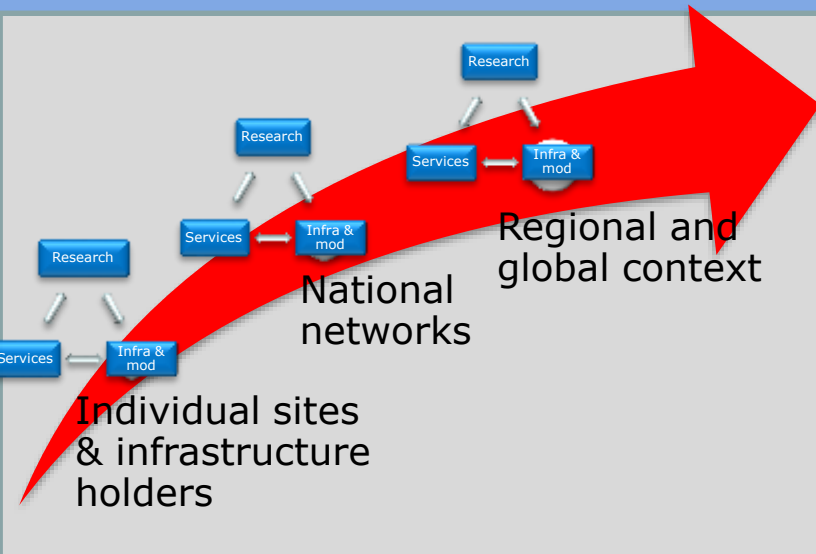


% World's ILTER

„Infrastructure“ and the added value of distributed RIs with central components



Division of tasks between different levels



ILTER: combined strategy towards consistent earth observation at the network level and high level contributions

BOTTOM UP: What is out there?



Site documentation & classification

- site metadata system
- classification of sites

Data documentation & mapping

- documentation of data sets and data including design and methodologies (EML...)
- semantic annotation/mapping (scientific context of data for natural, sociological and economic data; EnvThes)

TOP DOWN: Adapt, construct

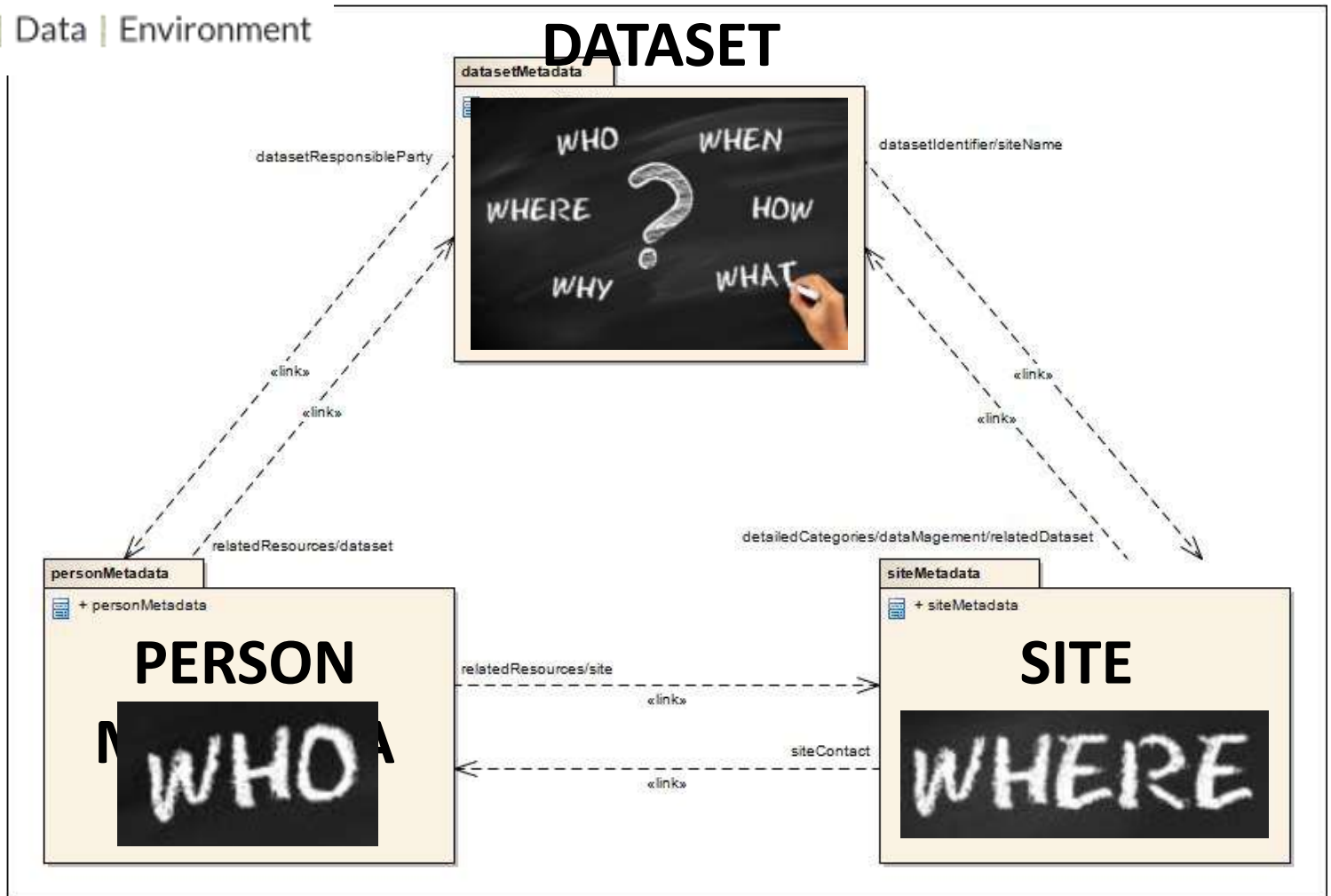


Increasing pressure towards standardization and harmonization

- joint development of standard parameters and methods across habitat types and domains
→ RECOMMENDATIONS
- multiple use of data and sites (research projects, multi-site experiments)
- co-operations at the network level; network integration (GEOBON/GSEO, ForestReplot, NASA/Copernicus, NutNet, ?WNBR)

Concerted infrastructure development

- NSF, ESFRI, CAS
- ILTER regional groups & country networks



Advanced Site Search

ILTER National Network

Australia (TERN)
Austria (LTER-Austria)
Belgium (LTER-Belgium)
Brazil (LTER Program)
Bulgaria (LTER-Bulgaria)
Chile (LTER Chile)
China (CERN)
Costa Rica (CRLTER)

Other networks

ABC - UNEP atmospheric brown Cloud project
ACAP Agreement on the conservation of albatrosses and petrels
ALTER-Net
ALTER-Net
AMAP
ANAee-Services
AP-Bon
BDF Hesse

Site Type

LTSER Platform
Complex Site
Simple Site
Plot
Sub Site

Ecosystem Type

Boreal forests/taiga
Deserts and xeric shrublands
Flooded grasslands and savannas
Large lakes
Large river deltas
Large river headwaters
Large rivers
Mangroves

ILTER Biome

Agricultural
Alpine
Chaparral
Coastal
Deciduous Forest
Evergreen Forest
Mixed Forest
Desert

Declaration status: Site Manager

Formal LTER/LTSER
Potential LTER/LTSER
Candidate LTER/LTSER
N/A

Declaration status: LTER Europe

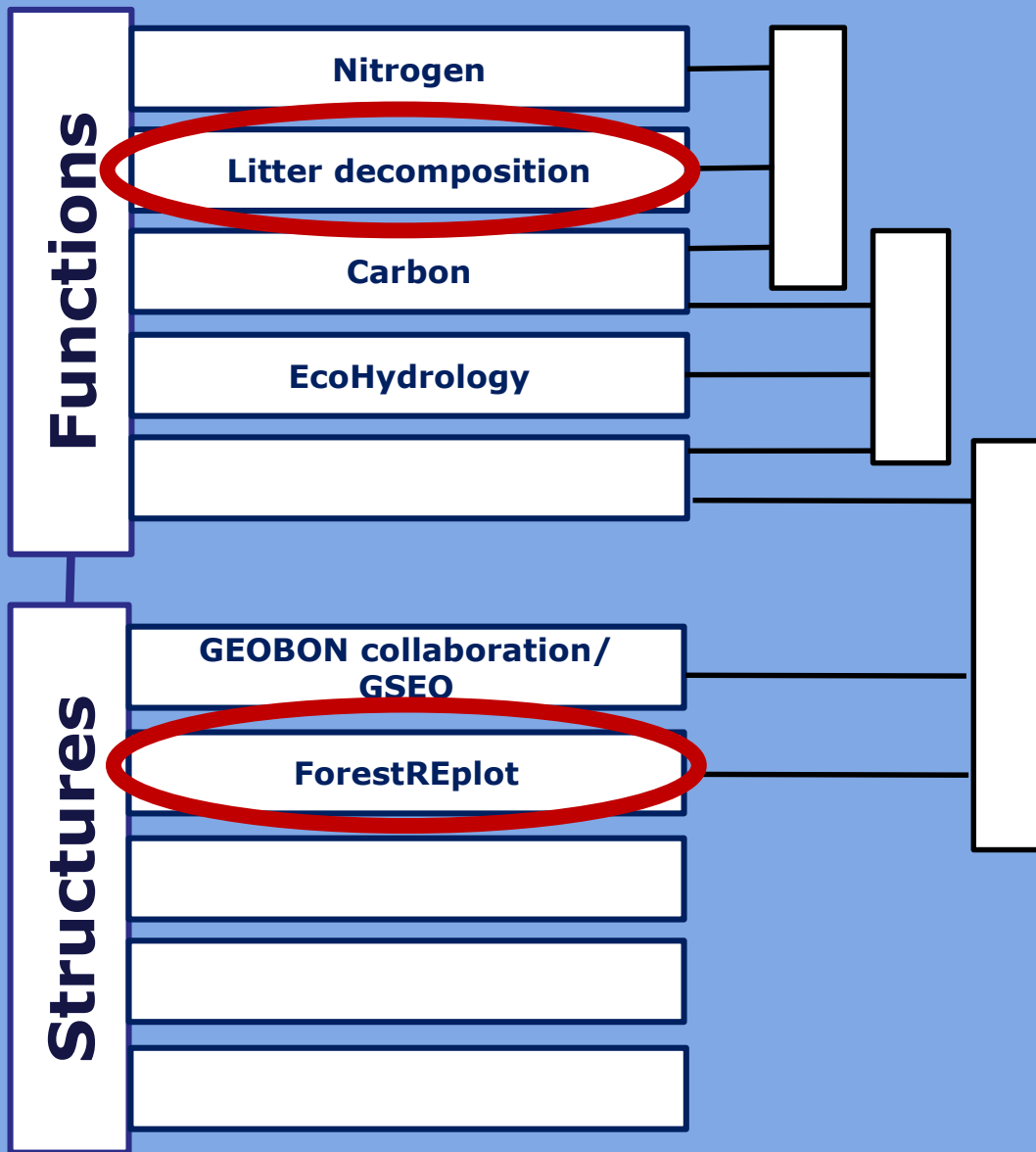
Accredited formal LTER Site/ LTSER Platform
Accredited potential LTER Site/ LTSER Platform
N/A

Apply

Number of Research Sites returned: **828**

No.	Title ▲	Network Name	Declaration status (accredited by LTER Europe)	Site type	Dominant ecosystem type	Site Latitude	Site Longitude
1	20 Lake Mikolajskie: LTER_EU_PL_023	Poland (LTER-Poland)	Not provided	Simple Site	Not provided	53.7667	21.5833
2	Aamotsdalen: LTER_EU_NO_002	Norway (LTER Norway)	Not provided	Simple Site	Boreal forests/taiga	62.4667	9.41667
3	Abisko Scientific Research Station (LTER): LTER_EU_SE_010	Sweden (LTER Sweden)	Not provided	Simple Site	Tundra	68.3483	18.8167
4	Achenkirch-Mühleggerköpfl (ACH-Mue): LTER_EU_AT_024	Austria (LTER-Austria)	Not provided	Complex Site	Temperate coniferous forests	47.5806	11.6392
5	Acquatina: LTER_EU_IT_104	Italy (LTER-ITalia)	N/A	Simple Site	Mediterranean forests, woodlands, and scrub	40.44	18.24

Ecosystem

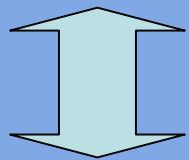


Category map of the ILTER Initiatives

Anchoring thoughts about cooperation in the Lima Action Plan... and multiple discussions

A1. Biosphere Reserves (BRs) recognized as models contributing to the implementation of Sustainable Development Goals (SDGs) and Multilateral Environmental Agreements (MEAs)

A1.4. Use BRs as priority sites/observatories for climate change research, monitoring, mitigation and adaptation, including in support of the UNFCCC COP21 Paris Agreement



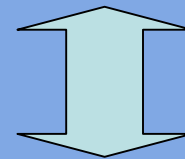
Transition research

- Disturbance ecology
- Carbon sequestration
- Altered N- & OM cycles
- Climate change research

A4 Research, practical learning and training opportunities that support the management of BRs and sustainable development in BRs

A4.1. Establish partnerships with universities/research institutions to undertake research

A4.3 Provide adequate research infrastructure in each BR



Standard parameters & baseline monitoring

- Contributions to GEO
- GSEO initiative

Research infrastructures/services planning and lobbying













Complementarity check

Aspect	WNBR	both	ILTER
Basic nature		in-situ / site-based	
Time scale		long-term	
Spatial scale	rather larger regions	mid sized case study areas	rather smaller sites
Permanent operation and infrastructure		yes	
Interdisciplinary		yes	
Applied research		yes	
Basic reserach	?partly		yes
Transdisciplinary	yes		partly
Environment/ ecosystems research characteristics	no "consistent" use for research		intense observation, research, partly experimental
Human-environment interactions research	analyze & shape towards sustainability		investigate major mechanisms as basis for decision making
Technical instrumentation	usually low		usually high to very high
Centralized/public site documentation	no		Webservice DEIMS
Observation data delivery	no		centralized
Governance structure		yes	
Global coverage	good		gaps
Globally centralized institutional framework and funding of headquarter	yes		no
Continentally -- " --	yes		some regions/continents

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Short-term next steps

- Document BRs in DEIMS
 - Specifically those with a strong research component or potential and/or interested in research activities
- Facilitating strategic contacts at the regional/continental and national level
 - Exchange of contacts lists
 - Information letters
- Mutual attendance of meetings (→ OSM)
- Consideration of joint strategic targets

Mid- and long-term action

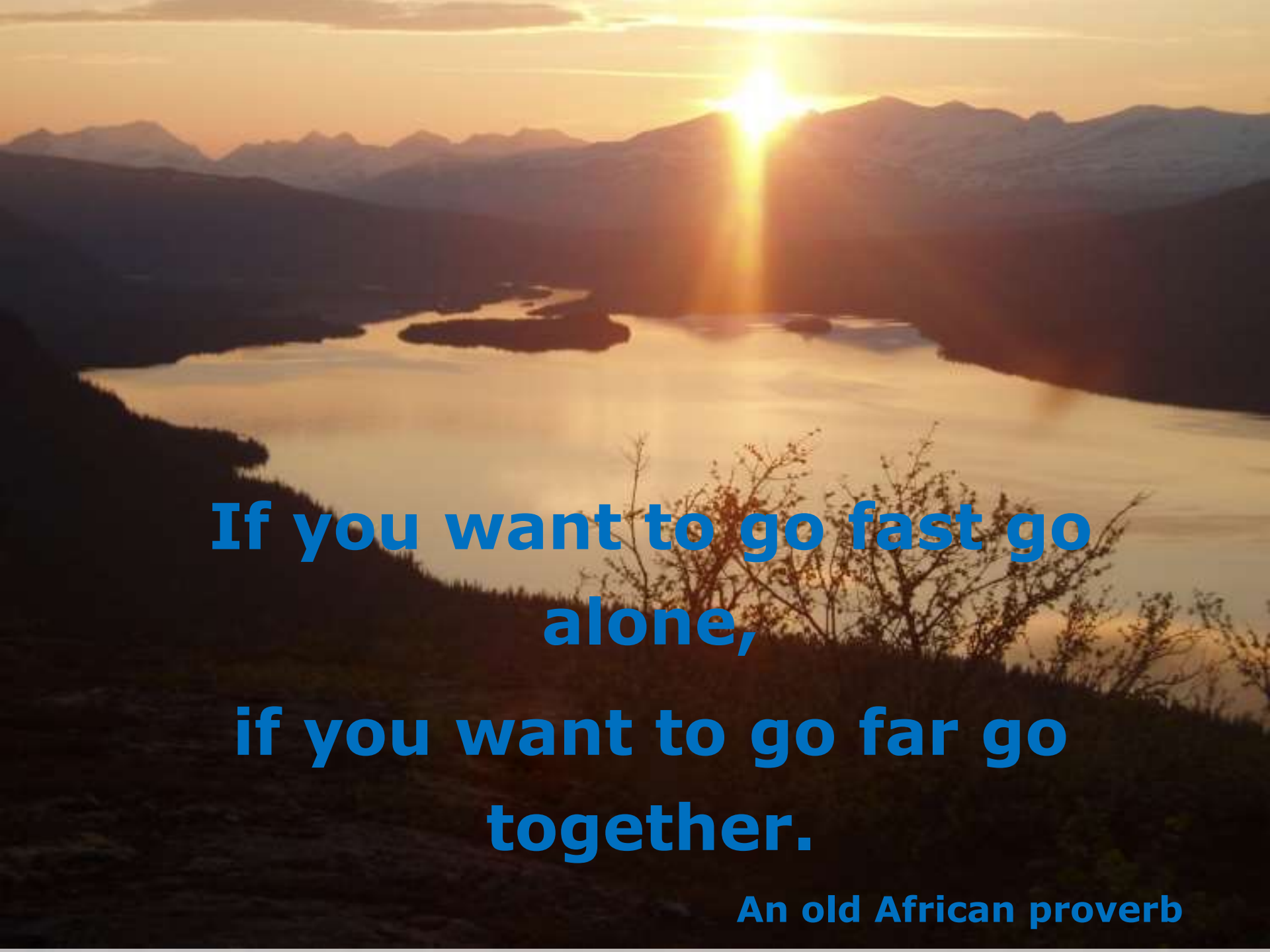
- Site network analysis based on site metadata (→ DEIMS)
 - geographical complementarity
 - joint identification of high potential sites for long-term ecosystem research
- Offer to use LTER services for valuable long-term data series curation
- Technical cooperation on standard parameters and methods for baseline monitoring
- MoU/ MoC



ILTER Open Science Meeting (OSM), S.A.

- Host: SAEON
- 9-13 October 2016
- Kruger National Park, South Africa
- www.saeon.ac.za/ilterosm2016





**If you want to go fast go
alone,
if you want to go far go
together.**

An old African proverb