Red Mexicana de Investigación Ecológica de Largo Plazo

(Mex-LTER)

Opportunities for international collaborations

Manuel Maass
Centro de Investigaciones en Ecosistemas

UNAM, Campus Morelia

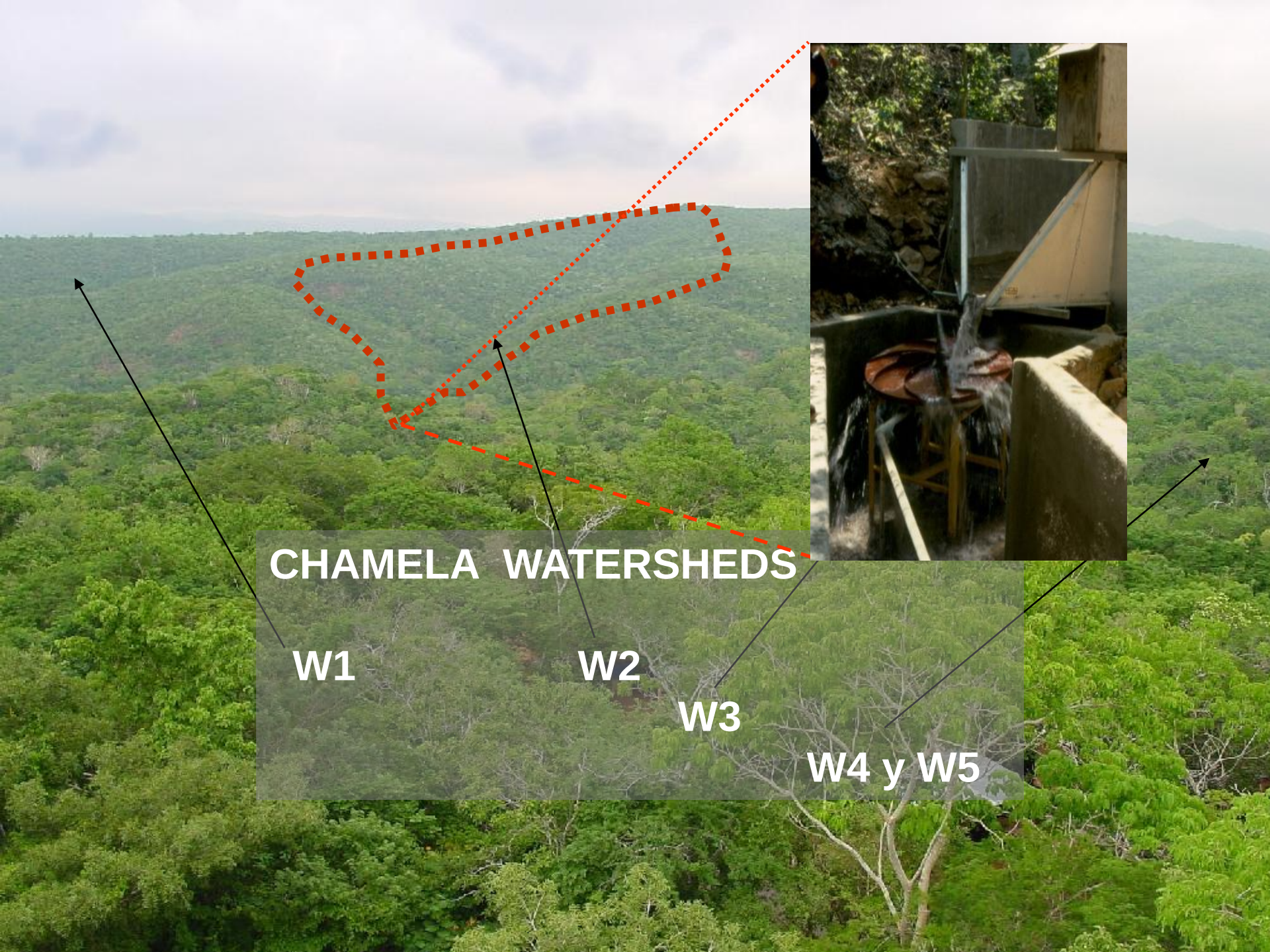
www.mexlter.org.mx

UGa	Coweeta	UNAM
(Institute of Ecology)	(USDA-FS)	(Instituto of Ecología)

Carl Jordan

Wayne Swank

José Sarukhán


CHAMELA WATERSHEDS
W1
W2
W3
W4 y W5

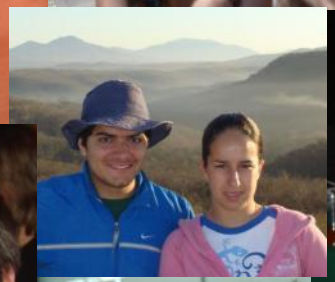
Runoff in 5 Small Watersheds in Chamela

Year	Ws-1	Ws-2	Ws-3	Ws-4	Ws-5	Avg.Runoff
1985						0

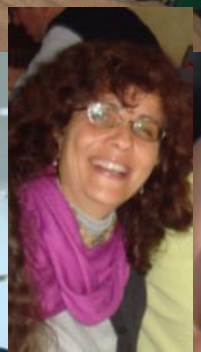




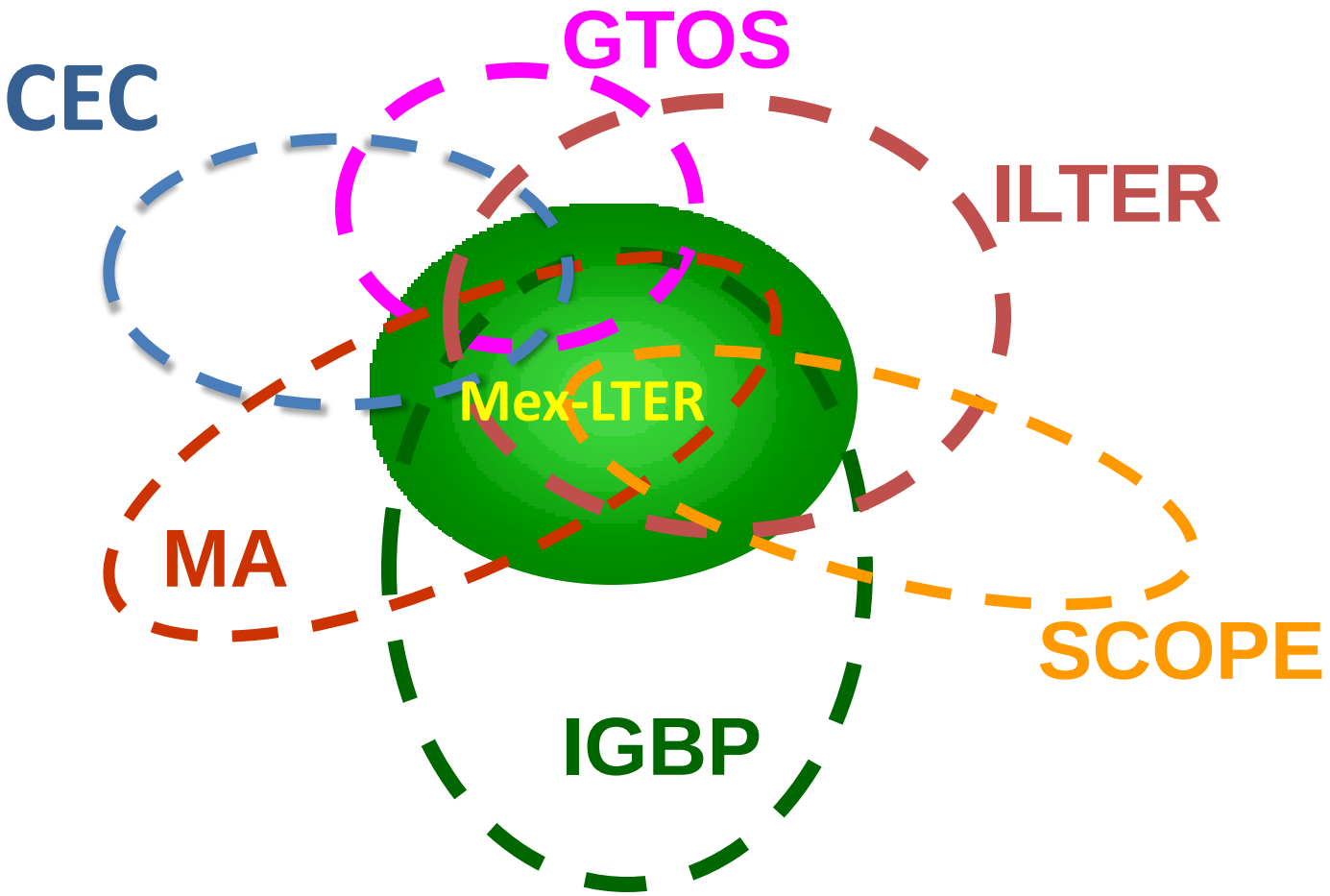






International Environmental Agenda



History of the initiative...

1981 UNAM-UGA-Coweeta Hydrologic Lab.

1985 Zoquiapan/Andrews.

1993 First ILTER Meeting, Estes Park, CO.

1995 Comparative LTER between Sevilleta (UNM), La Jornada del Muerto (NMSU) and Mapimí (Instituto de Ecología, A.C.).

1998 "US/MEXICO Workshop on International Long Term Ecology and Biodiversity Research Across North America Biomes" at the Chamela/Cuixmala Biosphere Reserve. And in Sevilleta LTER site in New Mexico.

1999 Establishment of the MEX-LTER "Creation" Committee.

2001 Official Recognition by CONACYT.

2002 Official Recognition by ILTER .

October 2004 Official launch of Mex-LTER

CHAMELA Mex-LTER

3 Academic groups

Grupo "Cuencas"

1985: 1 Inv.

1995: 10 Inv. + 2

2000: 3 more + 2

2013:
A total of
28 Inv.

Red Mex-LTER

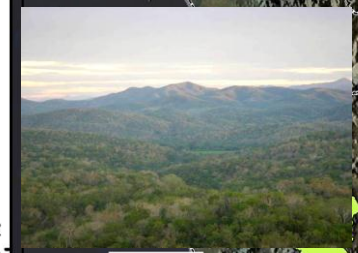
Mapimí

Gracilis

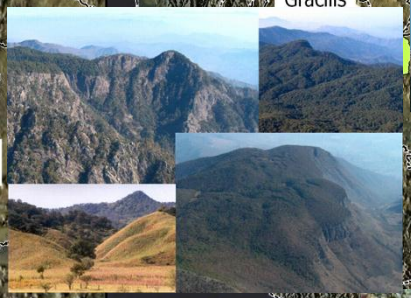
Alchichica

La Mancha

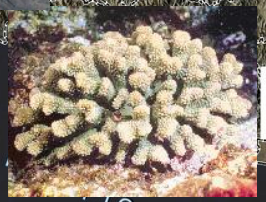
Tuxtlas



Manantlán



Chamela



Arrecifes del Pacífico

Ecosistemas Costeros

OLFO DE MEXICO

ÉANO

ICO

116°W 112°W 108°W 104°W 100°W 96°W 92°W 88°W

30°N 26°N 22°N 18°N

Mex-LTER groups in 2004

		Research core areas							Monitoring					
	# Inv.	PP	Bgq	DB	Per	CC	Int	Man	Cl	S/A	Fl	Div	PP	Uso
1	14	x	x	x	x	x			1	B	B		B	
2	1													
3	1													
4	2													
5	28		x	x	x			x	B	1	1	3	2	2
6	27	x	x	x	x	x	x	x	2	2	2	2	3	2
7	7			x	x	x		x	1		2	3	B	
8	13	x		x	x	x			B	1	B	2	B	1
9	9		x	x	x		x		2		2	1		B
10	5	x	x	x		x			B	B	B	3	1	1

There are 150 researchers from more than 20 institutions invlved in the Mexican LTER Network

Monitoring....

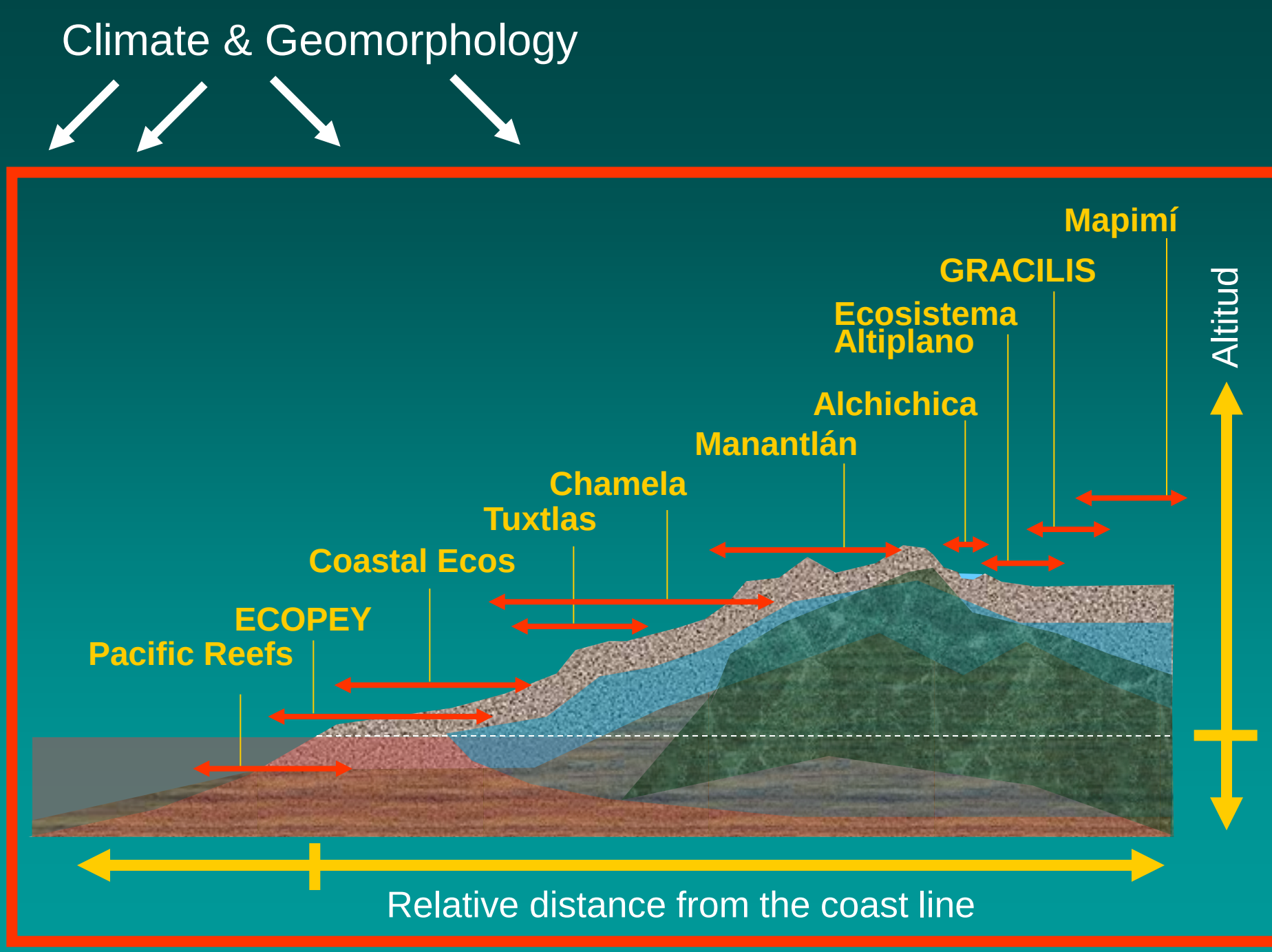
- **Background information.- The absolute minimum information required.**
- **Level 1 will be required within the first year of the study.**
- **Level 2 will be required within the first 5 years;**
- **Level 3 is the desirable monitoring to be implement progressively according to the specific conditions and characteristics of the sites.**

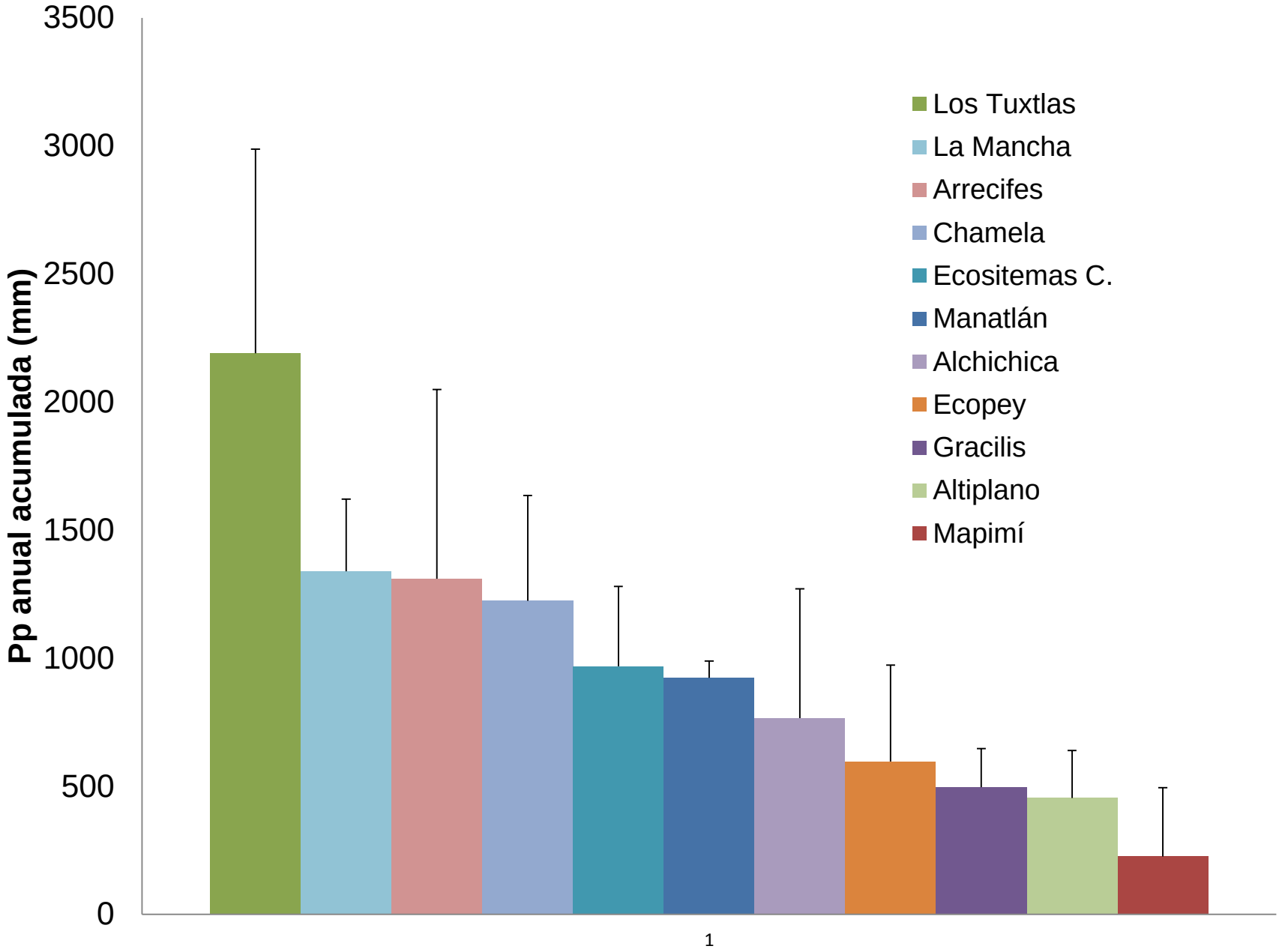
Workshops will be carried out to discuss and determine the specific variables, periodicity and methods of the survey of monitoring schemes.

Comisión Dictaminadora de la Red MexLTER

- Arturo Gómez-Pompa. (UC Riverside, U. Veracruzana).
- Daniel LLuch (CICIMAR).
- Don E. Wilson (OTS).
- Elva Escobar (I de Ciencias del Mar y Limnología, UNAM).
- Exequiel Ezcurra (University of California) .
- José Sarukhán (Instituto de Ecología, UNAM).
- Robert Waide (US-LTER).


Mex-LTER Executive Committee
(2004)


Climate & Geomorphology
Mapimí
GRACILIS
Ecosistema Altiplano
Alchichica
Manantlán
Chamela
Tuxtlas
Coastal Ecos
ECOPEY
Pacific Reefs
Altitud
Relative distance from the coast line



Gráfica 4: precipitación promedia en los 11 sitios

Core Areas of Research

What a are the patterns and controls of ecosystem primary productivity?

What are the patterns and control of water, carbon and nutrients dynamics in ecosystems?

What is the role of biodiversity in the structure and functioning of ecosystem?

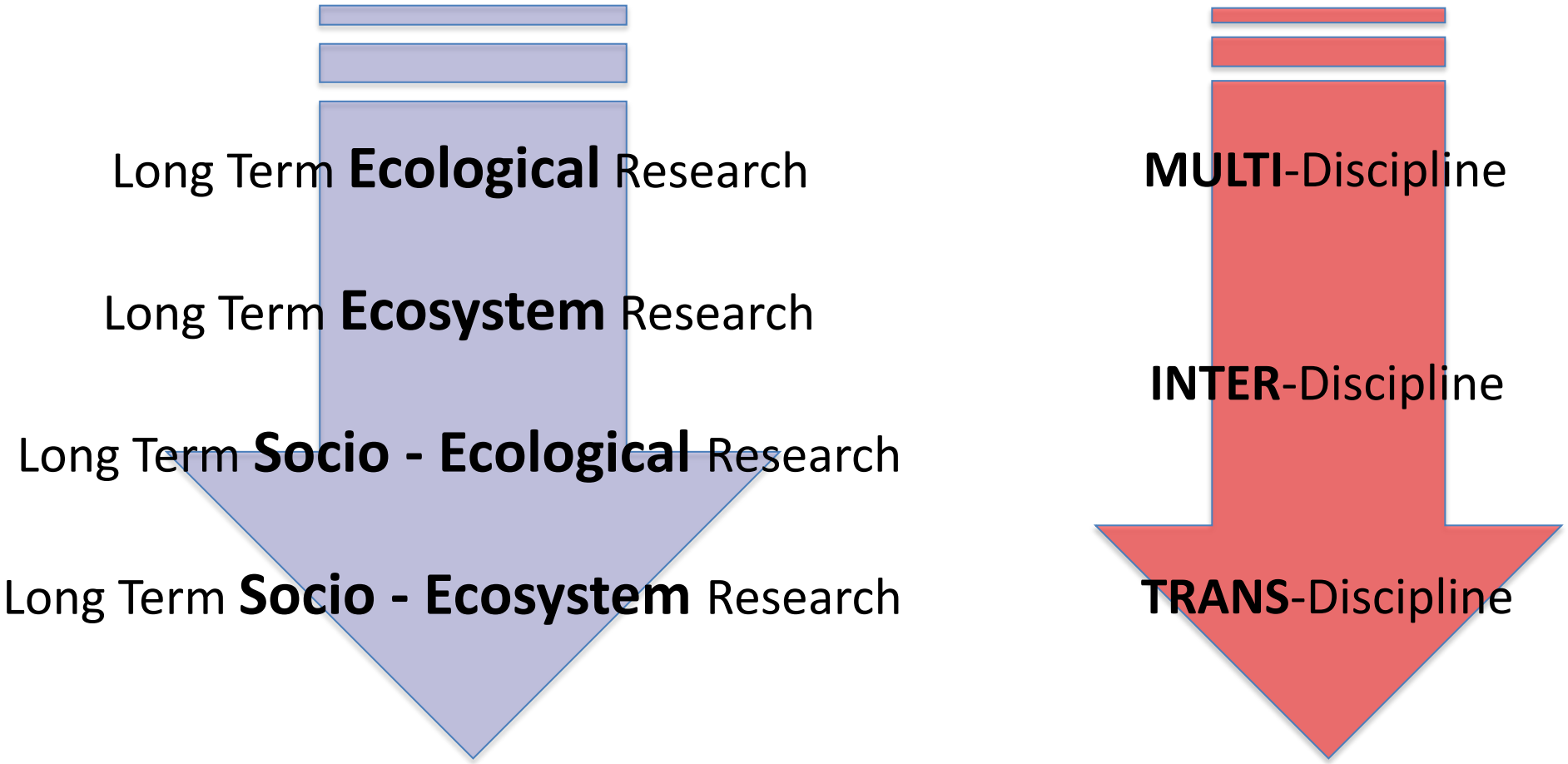
What are the patterns and frequency of ecosystem disturbances?

What are the effects of climate change on the structure and functioning of ecosystems?

What are the interactions at the interface level between managed and natural ecosystems?

What are the criteria for ecosystem management (use, conservation & restoration?

Evolution of Mex-LTER



Mex-LTER Socio-Ecosystem agenda

- How demographic changes affects the decision and management practices of local and regional socio-ecosystem?
- How are the economic valorization / relationships of ecosystem services?
- What are the structure and functioning of local social institutions (governance) related with the management of socio-ecosystems?
- What is the roll of information and education (formal & non formal) in the socio-ecosystem management decisions?
- How is the environmental culture (perceptions and expectations) of local settlers in relation of the transformation of their socio-ecosystems?
- What are the consequences of transforming the local socio-ecosystems in the context of vulnerability ?

Hydrological Demands of Natural Ecosystems in México: Phase 1

a Mex-LTER strategic project

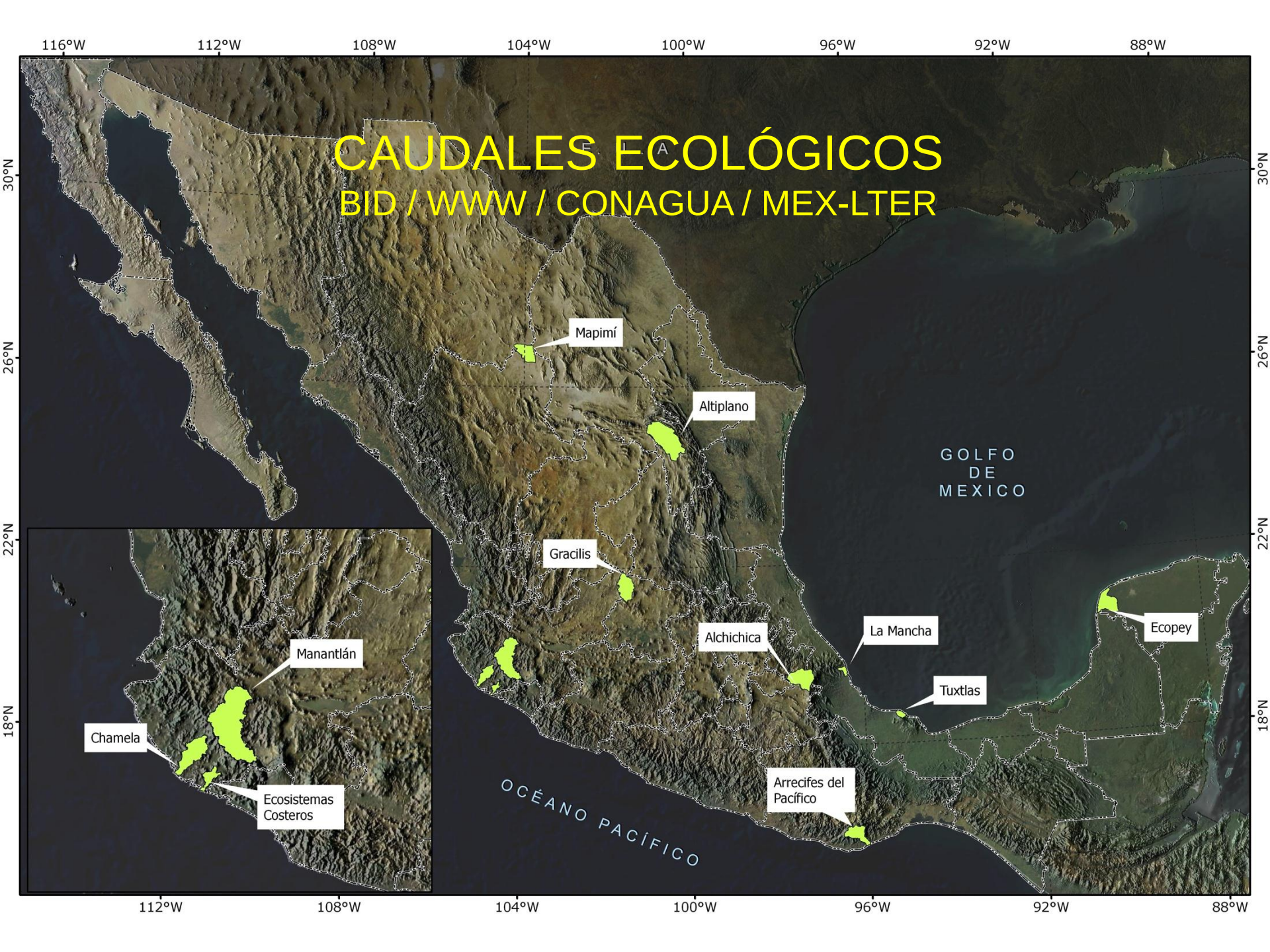
General objective (long term)

"Evaluate the hydrologic resilience of major natural ecosystems in México, in order to identify their water requirements to maintain the functional integrity required to supply ecosystem services to society"

Hydrologic requirements of natural ecosystems in Mexico: Phase 1. A Mexican Long Term Ecological Research Network (Mex-LTER) strategic project

Evaluate the resilience capacity of 10 main ecosystems spread all over México, measured in terms of their hydrological processes. The idea is to find out what kind of water (in terms of its quantity, quality and regime) does a natural ecosystem require to maintain its functional integrity and provide ecosystem services to society.

- Development of a comparable Geographic Information System
- Rescue (and place on line) historical climatic & hydrological data available for each basin
- Identify the main sources of water to the ecosystem
- Calculate the water balance
- Identify main water users in the basin
- Evaluate ecosystems services awareness among main water users
- Launch a long term socio ecological monitoring program
- Prepare a first integrated assessment of the water requirements of main ecosystems in Mexico


CAUDALES ECOLÓGICOS
BID / WWW / CONAGUA / MEX-LTER
116°W
112°W
108°W
104°W
100°W
96°W
92°W
88°W
30°N
26°N
22°N
18°N
Mapimí
Altiplano
Gracilis
Alchichica
La Mancha
Ecopey
Tuxtlas
Arrecifes del Pacífico
Manantlán
Chamela
Ecosistemas Costeros
GOLFO DE MEXICO
OCÉANO PACÍFICO

RED MEX·LTER

FUNDACIÓN GONZALO RÍO ARRONTE, I.A.P.

Community Monitoring of Water Quality in 11 Contrasting Basins in México

Objectives

Provide information, tools and training required to the design and implementation of a long-term water monitoring (quality, quantity, regime) with the participation of the local community within the 11 Mex-LTER basins.

Each site will have:

Personal

- Water quality
- Technician
- Monitoring Technician
- Social Study Technician

Equipment

- Laboratory equipment
- Field equipment
- Laptop
- Vehicle

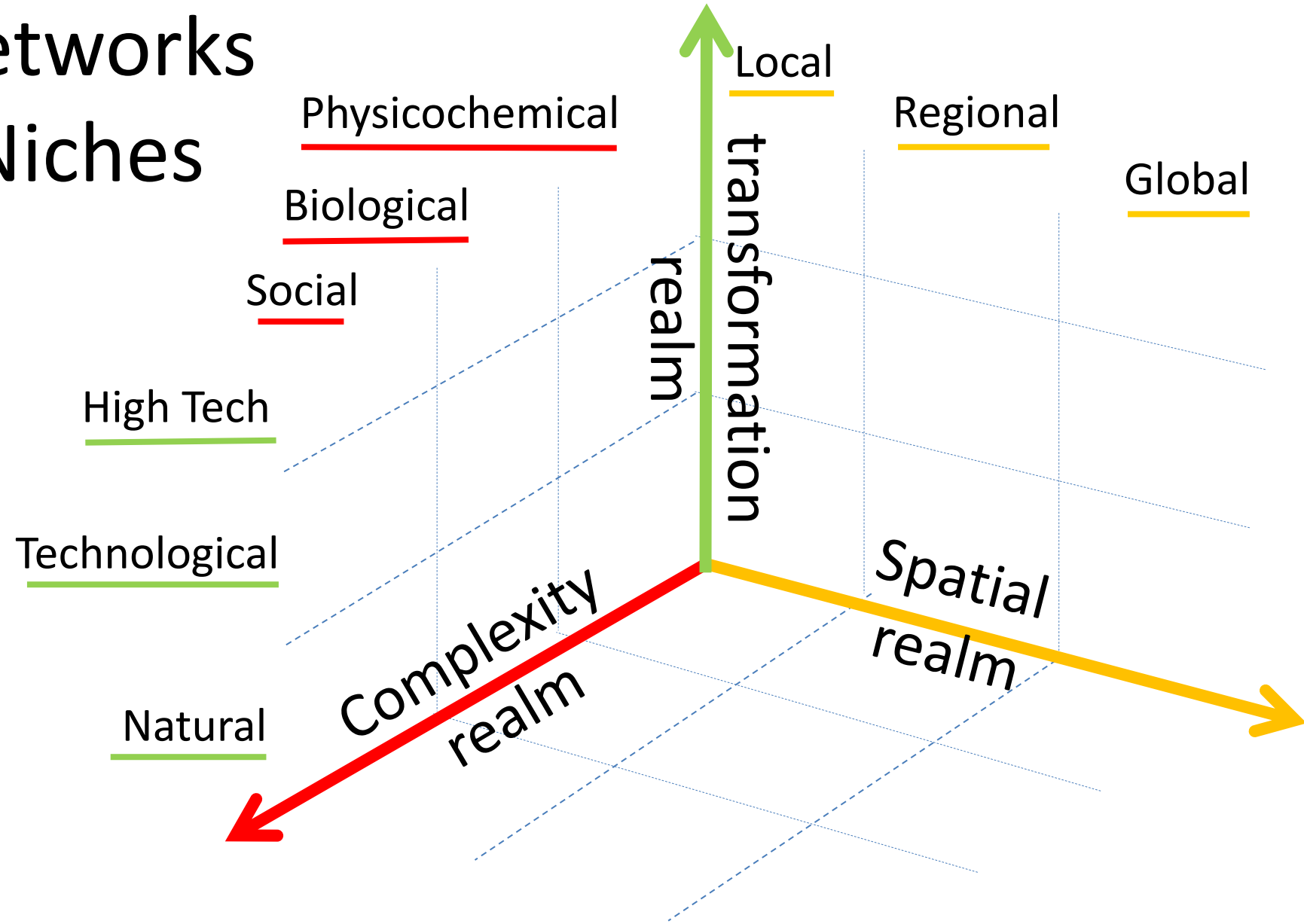
Travel

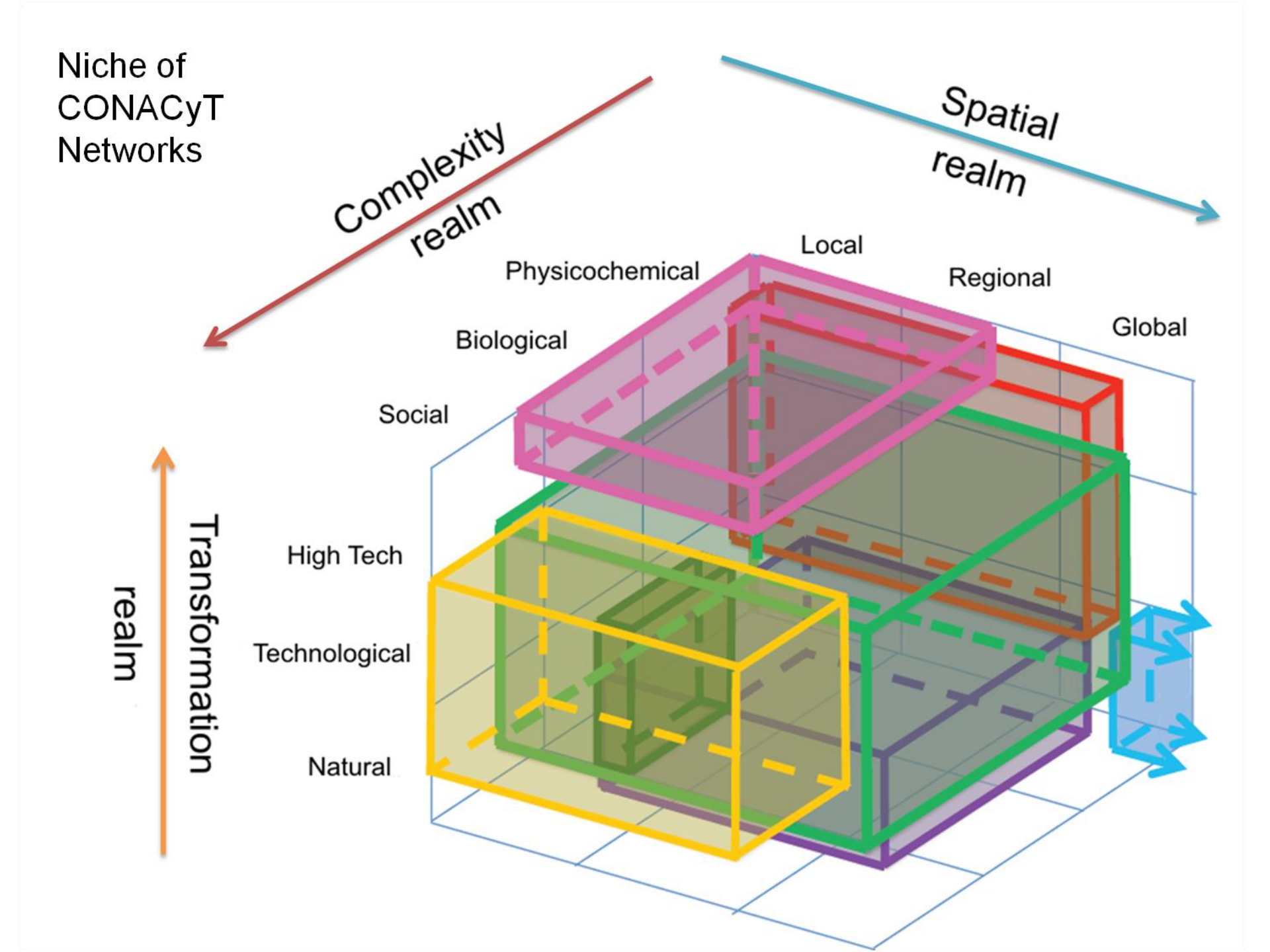
- Training
- Workshops
- Monitoring
- Social Surveys

Supplies

- Field work
- Lab work
- Monitoring kit
- development
- Office

CONACYT Networks Niches




Niche of
CONACyT
Networks
Complexity
realm
Spatial
realm
Transformation
realm
Local
Regional
Global
Physicochemical
Biological
Social
High Tech
Technological
Natural

Proyecto ROBIN

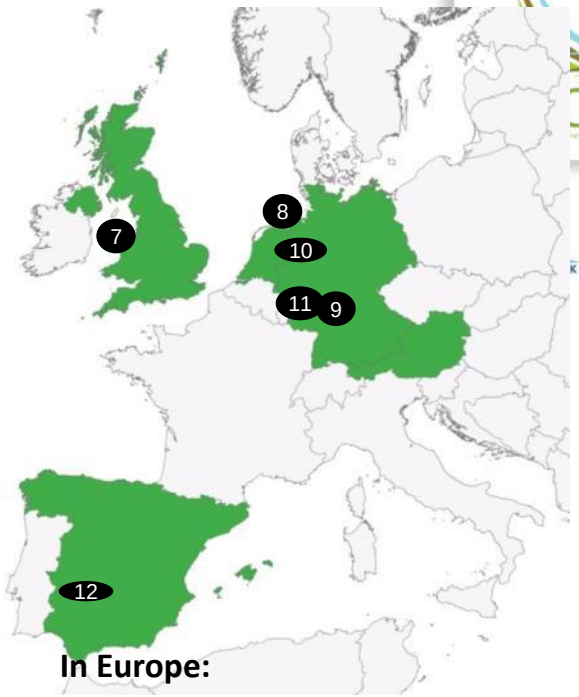
Role Of Biodiversity In climate change mitigatioN

Coordinator: Dr. Terry Parr

Collaborative Project
(large scale integrating project)

Topic FP7 ENV-2011.2.1.4.1
Potential of biodiversity and ecosystems for the mitigation of climate change

9 de marzo de 2011



In Central and South America:

1. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (MX)
2. Empresa Brasileira de Pesquisa Agropecuaria (BR)
3. Instituto Boliviano de Investigación Forestal Asociacion (BO)
4. Instituto de Ecología (MX)
5. Universidad Nacional Autonoma de Mexico (MX)
6. Guyana Forestry Commission (GY)

In Europe:

7. NERC, CEH (UK)
8. Alterra (NL)
9. University of Klagenfurt (AT)
10. Wageningen University (NL)
11. PIK (DE)
12 . University of Madrid (ES)

Multinational ROBIN Team

ROBIN objectives

1. Quantify the role of biodiversity to mitigate the effect of climate change
2. Quantify the local and regional interactions between biodiversity, land use and key ecosystem services.
3. Evaluate socio-ecological consequences of changes in biodiversity and ecosystem services under climate change scenarios.
4. Evaluate current actions and mitigation policies.
5. Analyze the impact of alternative scenarios of land use.
6. Provide information for land use planning.

Working Scales

Regions

Amazonia (Guiana Shield, Brazil & Bolivia) and Mesoamerica (Mex – CR & Panama)

- Natural (primary) vegetation is tropical rain-forest but other land uses.
- Also transition zones between forest and grasslands.

Sites

At least 9 sites in the Amazonian region and 7 in Mesoamerica.

- >500 km^2 to 10,000 km^2.
- Transition from primary forests to agricultural ecosystems.
- They are mostly multi-functional landscape.
- Relatively data rich.

Sub-sets of these sites will be used for the participatory approaches and the case-study work on specific ecosystem services and trade-offs affected by biodiversity (e.g. disease mitigation, invasive species, food and water security issues).

Plots

Small plots (<4 km^2) located in single land-cover/land-use/ecosystem types that can provide data on biodiversity relevant to:

- establish biodiversity and climate change relationships.
- develop, test and validate theoretical relationships and models.
- calibrate and validate remote sensing data and products.

Alianza del Pacífico

La Alianza del Pacífico es una propuesta de bloque comercial entre cuatro países de América Latina

- Estados Unidos Mexicanos
- República de Chile
- República de Colombia
- República del Perú

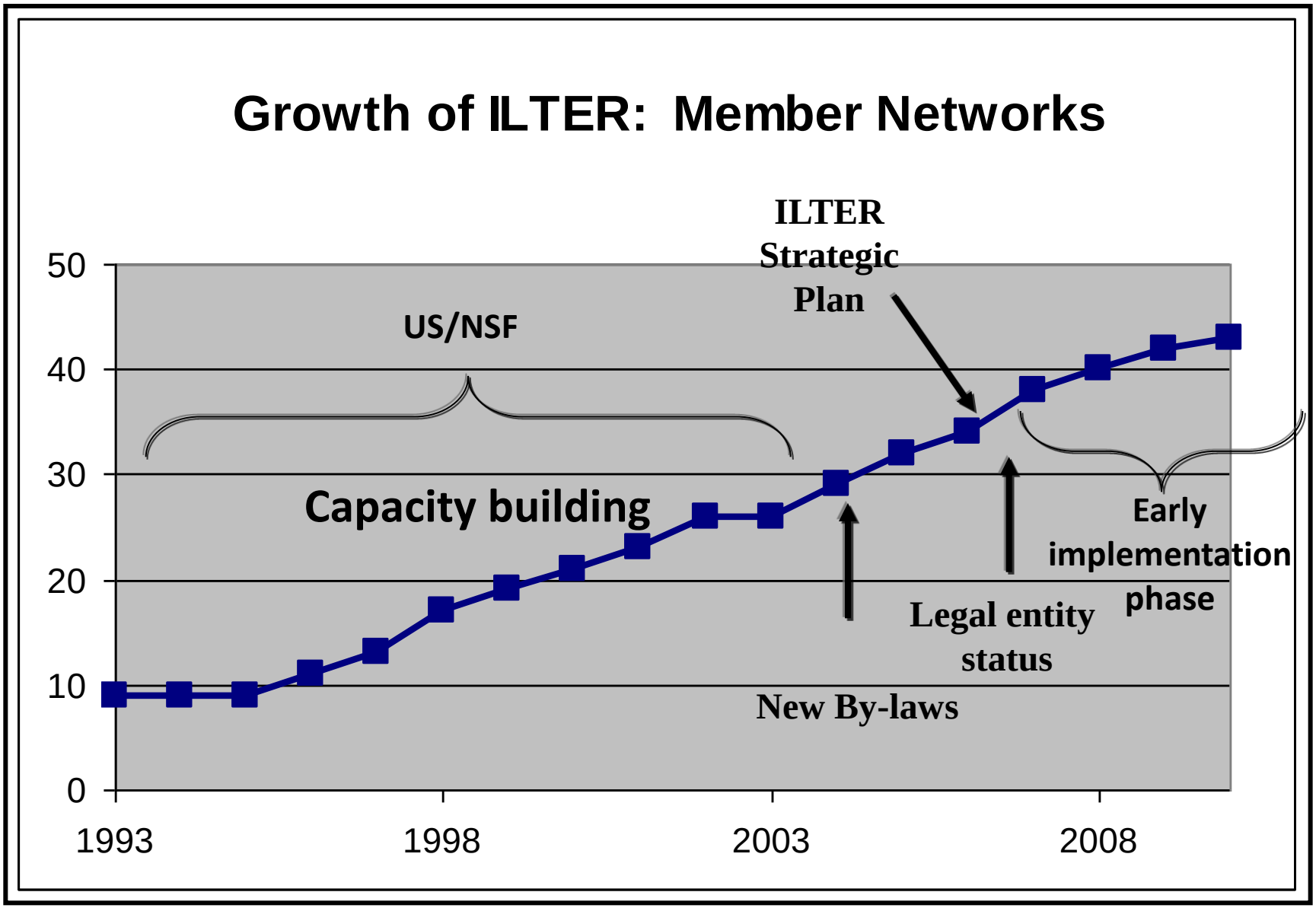
Esta propuesta se dio a conocer en Lima, Perú el 28 de abril del 2011. El proyecto fue una iniciativa del entonces presidente del Perú; Alan García Pérez con el propósito de profundizar la integración entre estas economías y definir acciones conjuntas para la vinculación comercial con Asia Pacífico, sobre la base de los acuerdos comerciales bilaterales existentes entre los estados parte."

Crear una Red de Investigación Científica y Técnica en materia de Cambio Climático.

Internacional Long Term Ecological Research Network

www.ilternet.edu

A Brief History (Terry Parr)

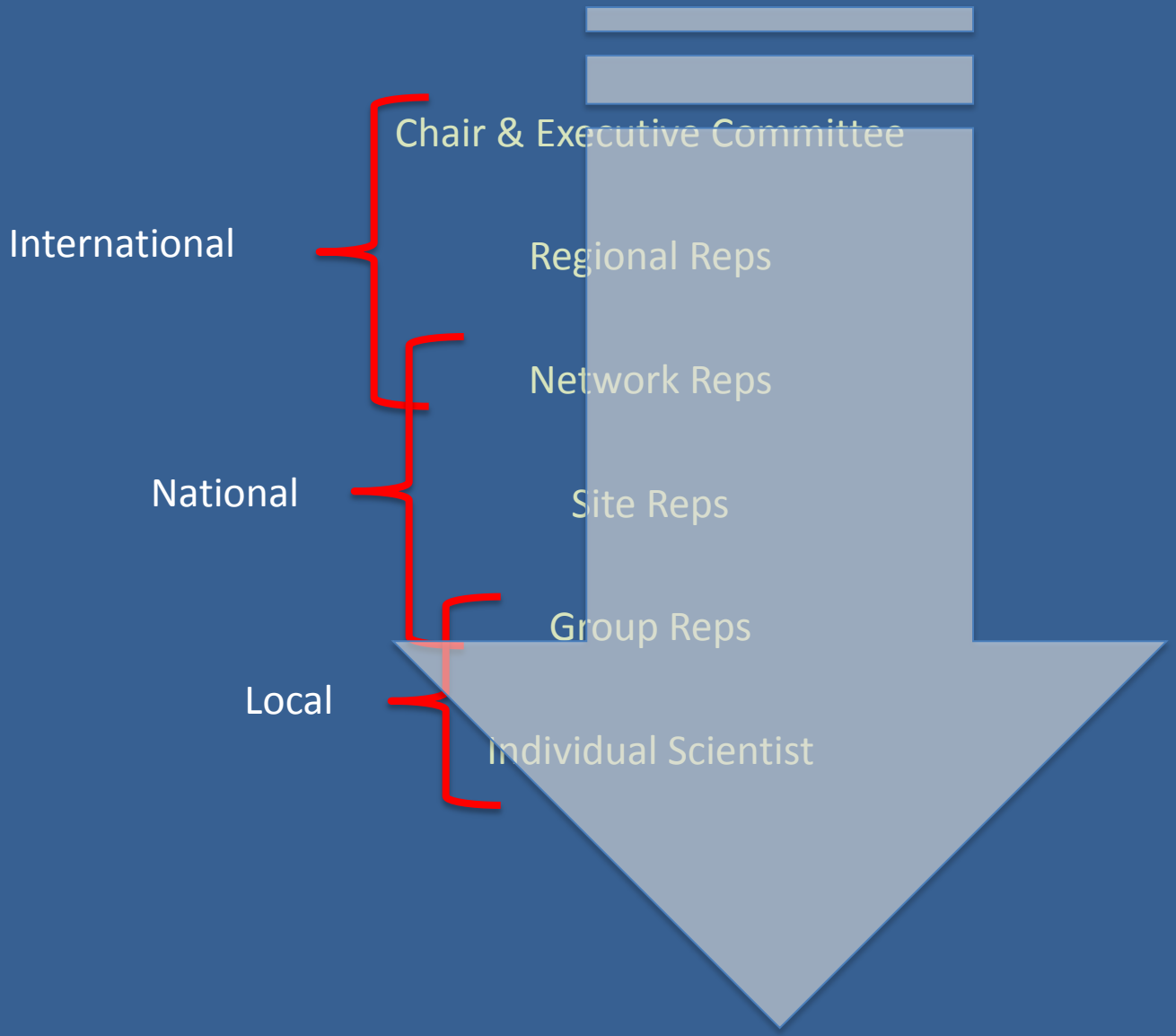


Over 600 LTER Sites
40 Countries
All Continents

ILTER Agenda

- ✓ Communication (new technologies)

We need to improve top-down communication



The ILTER Web-site

www.ilternet.edu

Site Map Accessibility Contact

Search Site Search

only in current section

Home | About | Member networks | Sites | Research | Data & info management | News | Events | Training | Education | Links

Log in

You are here: Home

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About
Member networks
Sites
Research
Data & info management
News
Events
Training
Education
Links

Log in

Login Name

Password

Log in

Forgot your password?

International Long Term Ecological Research – Welcome!

ILTER is a 'network of networks', a global network of research sites located in a wide array of ecosystems that can help understand environmental change across the globe. ILTER's focus is on long-term, site-based research and monitoring.

ILTER can contribute to solving international ecological and socio-economic problems through question and problem-driven research, with a unique ability to design collaborative, site-based projects, compare data from a global network of sites and detect global trends.

"ILTER's vision is a world in which science helps prevent and solve environmental and socioecological problems"

Most ILTER members are national or regional networks of scientists engaged in long-term, site-based ecological and socio-economic research (known as LTER or LTSER). They have expertise in the collection, management and analysis of long-term environmental data. Together they are responsible for creating and maintaining a large number of unique long-term datasets.

Photo © INECOL

ILTER is leading the development of the GEO BON field site network. More details...

News

Paper by international team highlights the scientific value of ILTER
Jan 17, 2013

ILTER leads development of GEO BON field site network
Dec 18, 2012

Call for papers, Biohydrology conference, Germany
Nov 15, 2012

More news...

Upcoming Events

IPBES 1
Bonn, Germany,
Jan 21, 2013

Biodiversity & Ecosystem Services in Impact Assessment
Washington DC, USA,

"ILTER's vision is a world in which science helps prevent and solve environmental and socio-ecological problems"

Information Management Strategy

- Discovery of data
  - XML based Ecological Metadata Language (EML))
  - Search System Based on Multi-lingual Thesaurus
  - Regional Metacat Servers

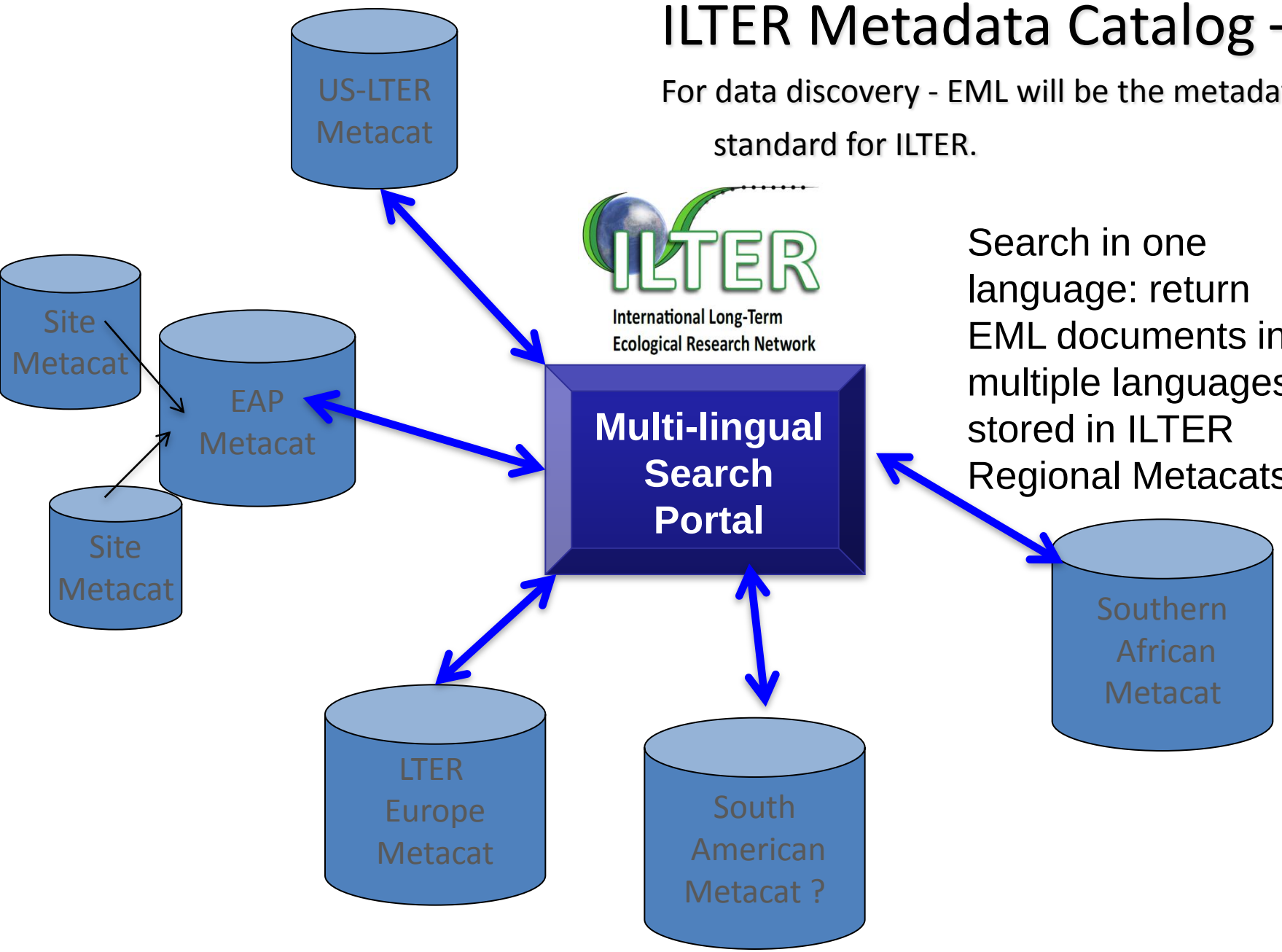
- Adoption of DEIMS (Drupal Ecological Information Management System) Web-Based Tool for Centralized and Network/Site Use
  - EML Entry Tool and Site Description Entry and Search

- Data access and exchange - interoperability
  - Distributed data storage (data stored at sites or networks)
  - Development of Tools to Facilitate Data Reuse in Multiple Languages

A multilingual metadata catalog for the ILTER: Issues and approaches

ILTER Metadata Catalog –

For data discovery - EML will be the metadata standard for ILTER.



Search in one language: return EML documents in multiple languages stored in ILTER Regional Metacats

Ficha detallada de Búsqueda - Iceweasel

File Edit View History Bookmarks Tools Help

http://www.mexlter.org.mx/INGLES/averages/ficha_avg.php?sitio=MexLTER&folio=5

mexlter

Getting Started Latest Headlines

Back

Network: Mexico LTER Network

Country: Mexico
Chair: Manuel MAASS
Web Page: www.mexlter.org.mx

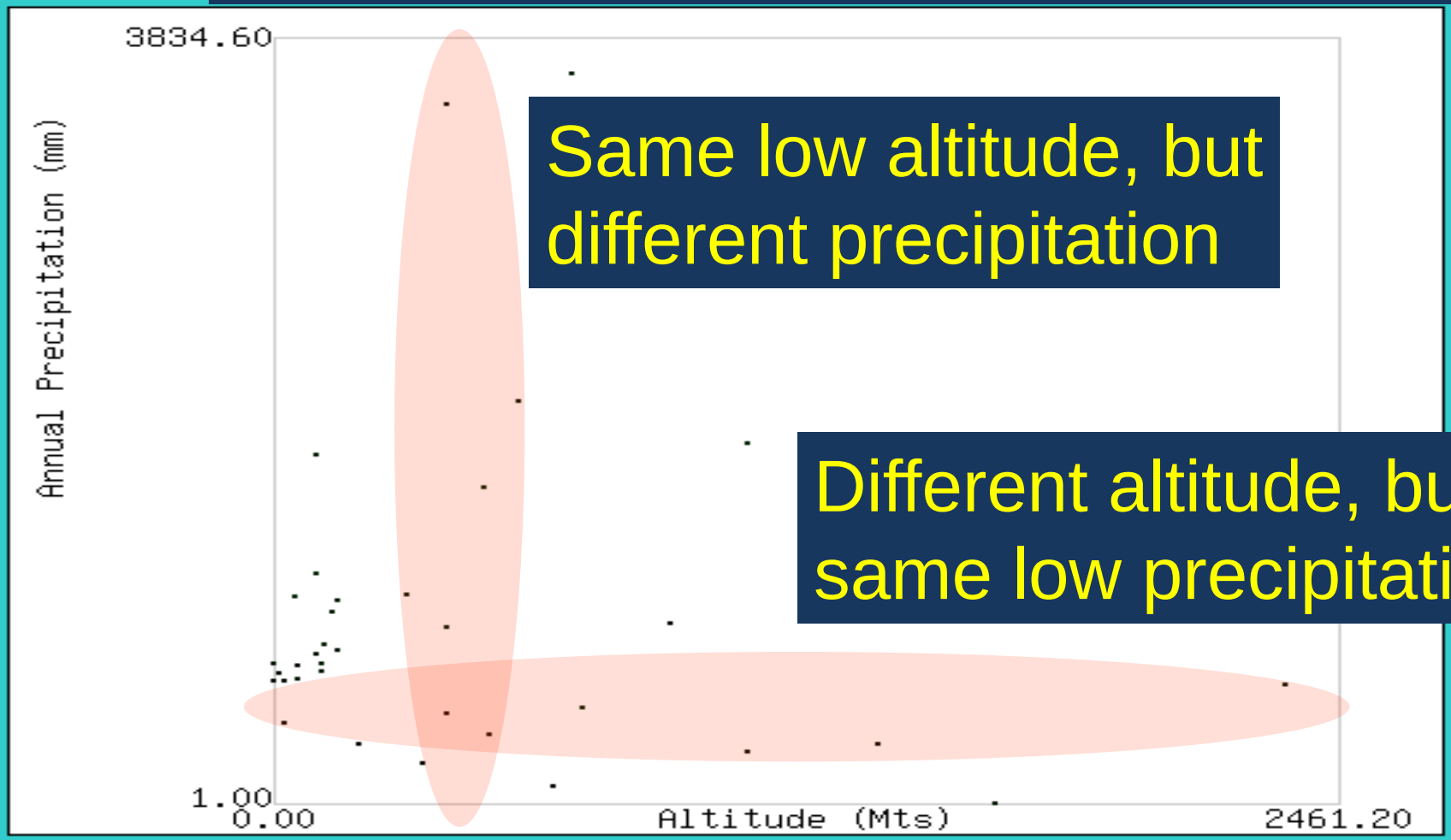
Country: Mexico
Chair. Miguel Equihua
Web Page: www.mexlter.org.mx

Latitude	Minimum	19° 22'' North
	Maximum	19° 35'' North
Longitude	Average	254° 96'' East
	Minimum	256° 57'' East
	Maximum	255° 4'' East
Annual Precipitation	Average	770
	Minimum	391
	Maximum	1393
Temperature	Average	24
	Minimum	19
	Maximum	29

Modify Data

Done

Altitude / Annual Precipitation



Same low altitude, but different precipitation

Different altitude, but same low precipitation

ILTER Agenda

Communication (new technologies)

- ✓ Evaluation (different capabilities but same commitment)

We all sign a "Letters of Intent" or "Memorandum of Understanding" clearly setting out the “dual obligations of the individual LTER networks to ILTER and of ILTER towards national networks”.

However, we recognize that not all country networks have the same economic, human and organizational capabilities. Therefore, we can’t expect the same level of response or speed of consolidation in all country networks.

We recognize different levels of development among countries, and request same commitment but different level of obligations according to their stage of development.

ILTER Country Members

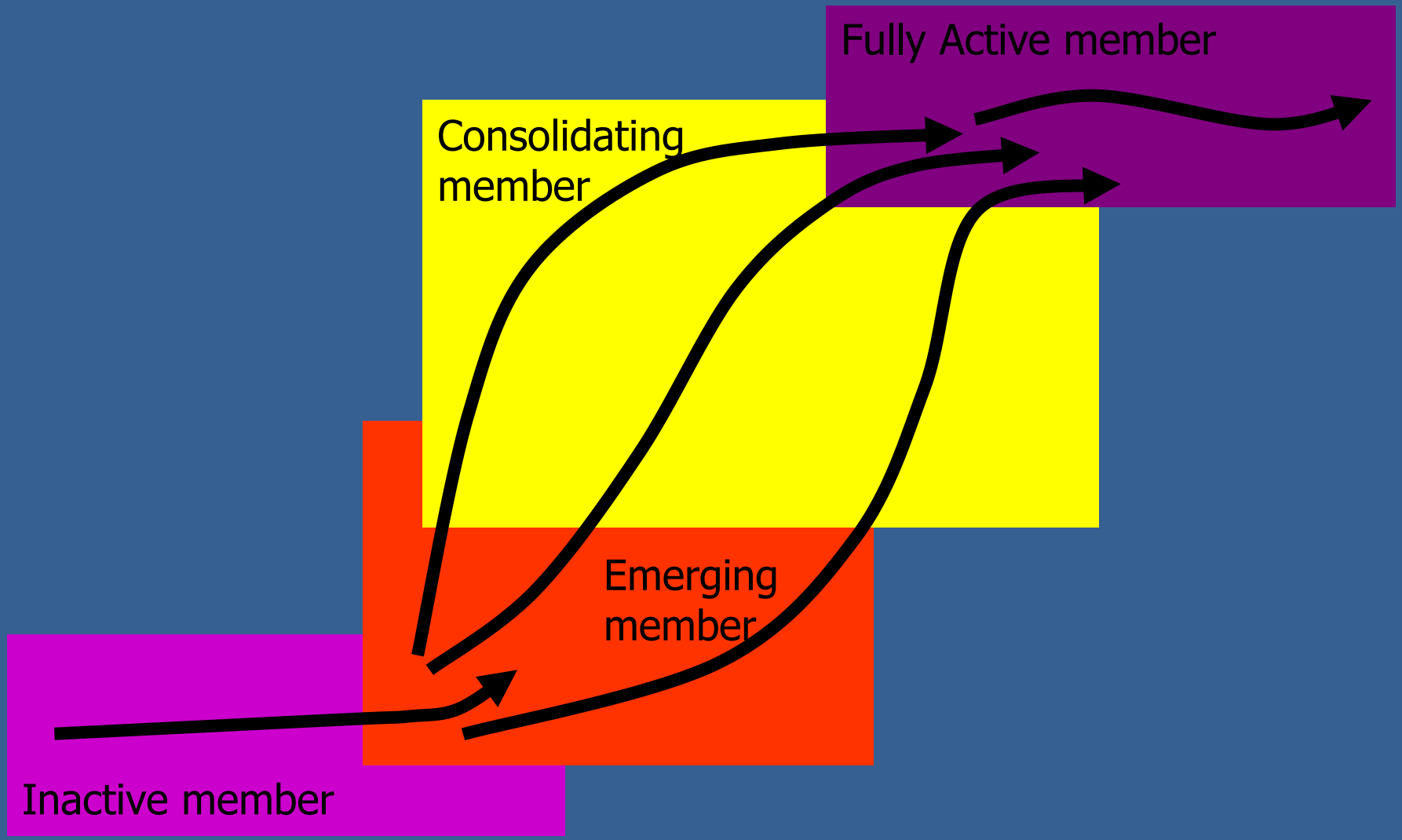
Fully active national network are those with a well established ongoing LTER research and monitoring program, with a secure source of money for several years ahead, and with a critical mass of scientists ready to respond properly to almost any ILTER suggested activities.

Consolidating national networks are those with an established program and a reasonable research capacity, but with a limited source of money which constrains their capability to respond to all ILTER activities.

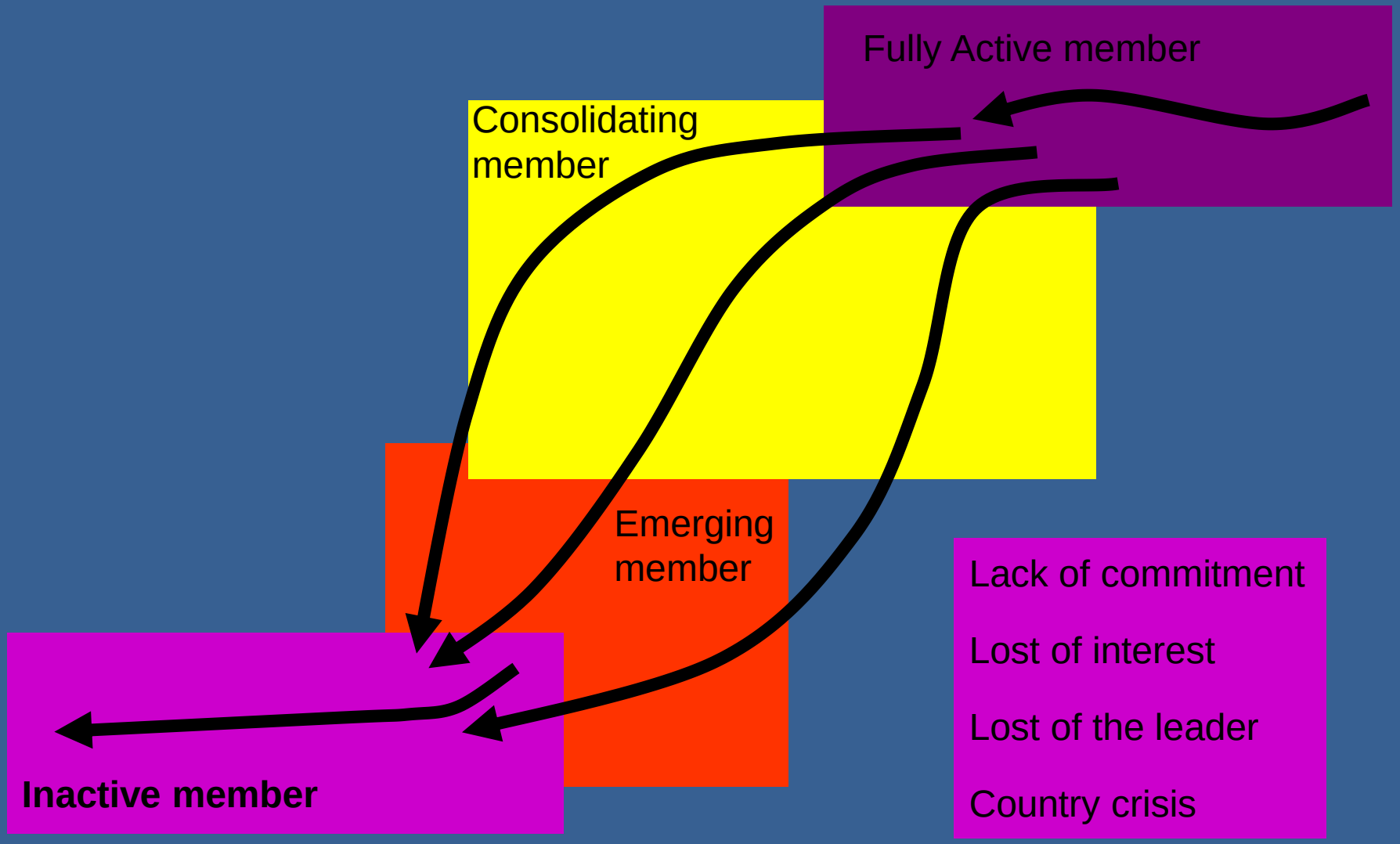
Emerging national networks are those with a low research capacity and fully dependent of ILTER support to respond to an ILTER activity.

Inactive national networks are those that, for different reasons, are not attending ILTER call for action.

Stage / Type of Development Among ILTER Country Members

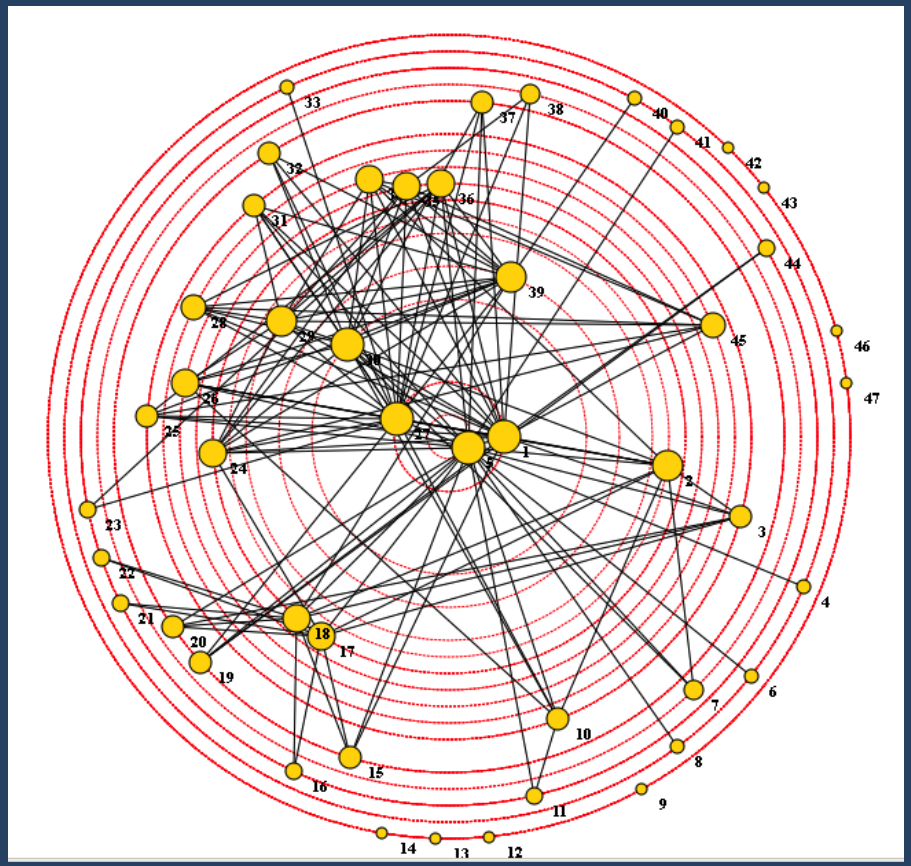


Stage / Type of Development Among ILTER Country Members



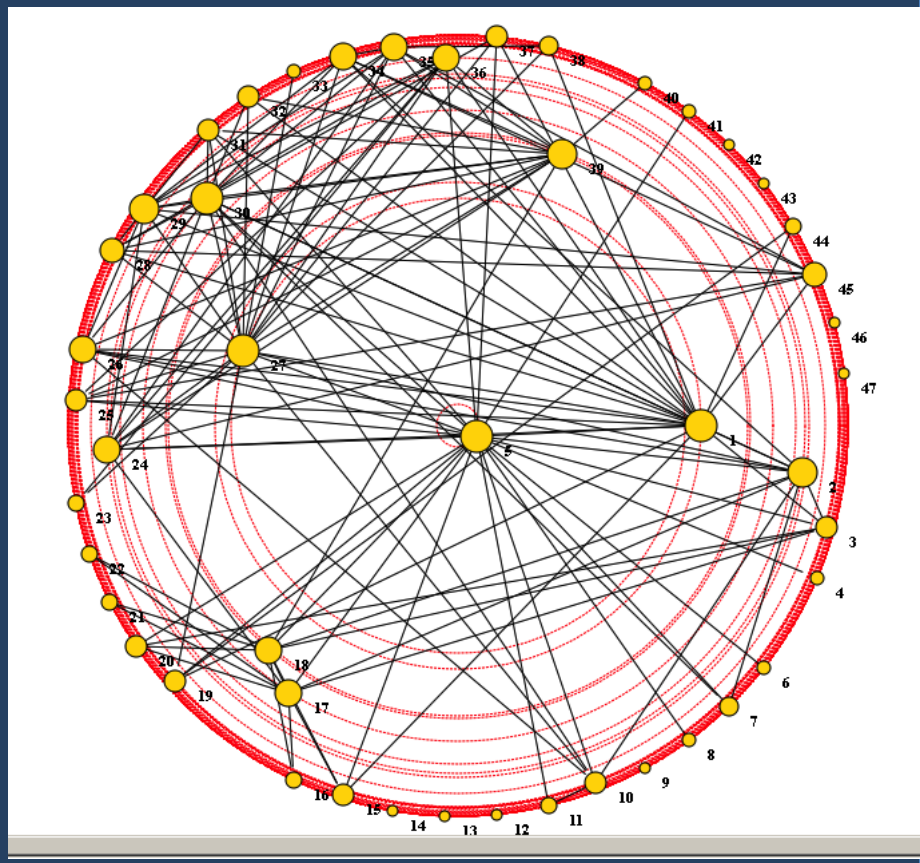
Few results in a glimpse

In-degree centrality



US-LTER,, UK & México

Betweenness



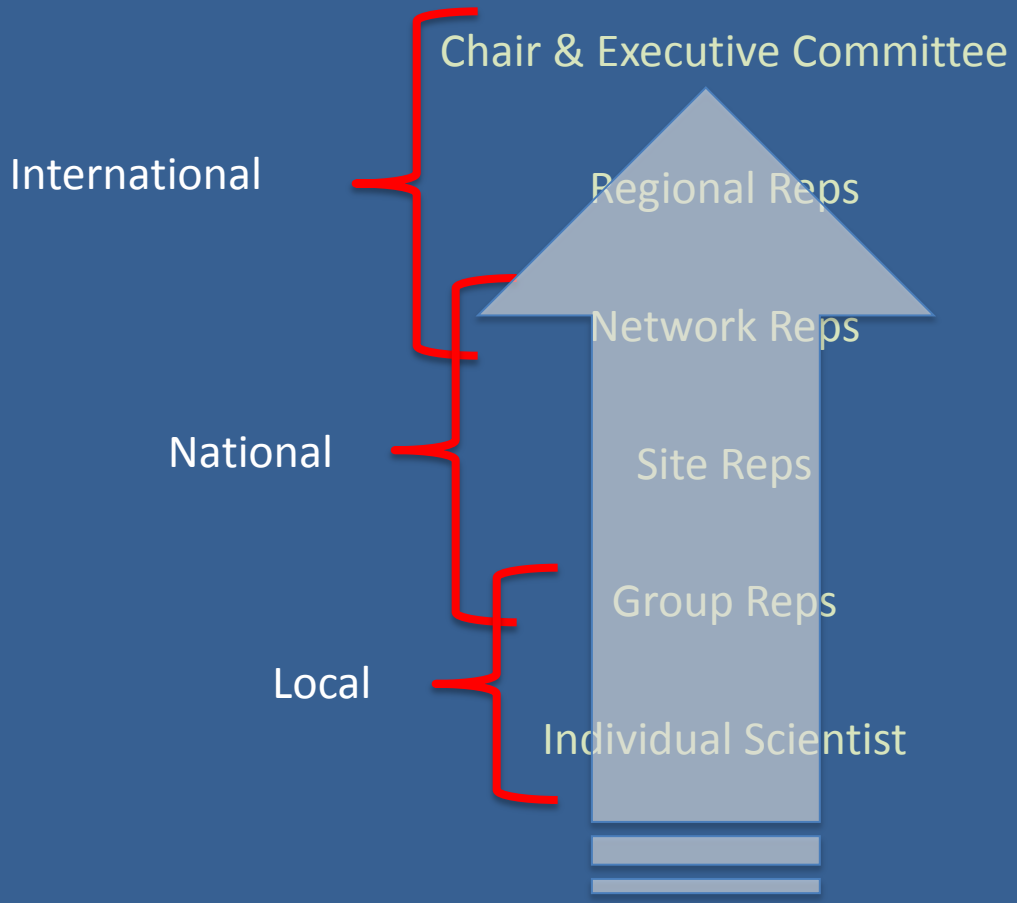
México

ILTER Agenda

Communication (new technologies)

Evaluation (different capabilities but same commitment)

- ✓ Bottom up approach (the wisdom & the power of the crowds)



We need to keep and promote the bottom-up participation strategy!

Network Level Collaboration between US and Mexico Ecohydrology Research

James Vose & Fred Scatena..... Kristin Vanderbilt

Catalyzing New International Collaborations

PROGRAM SOLICITATION
NSF 11-508

REPLACES DOCUMENT(S):
NSF 04-35

Bill. Mc. Dowell
Charles Redman

October 8-12, 2012.

National Science Foundation
Office of International Science and Engineering

Full Proposal Target Date(s):

March 01, 2011

March 1, Annually Thereafter

September 01, 2011

September 1, Annually Thereafter

Proyecto: Taller US-México: Catalizando Colaboración internacional para desarrollar una plataforma de Investigación sobre Ecohidrología (2012)

ILTER

LTER

RED MEX·LTER

National Science Foundation
WHERE DISCOVERIES BEGIN

Fundación
Gonzalo Río Arronte I. A. P.

US/Mex-LTER Socio-Ecohydrology Research

21 Researchers
9 Students
11 LTER Sites

US	Mex
CAP	ALC
CWT	CHA
FCE	ECO
LUQ	GRA
SEV	MAN
	MAP

US/Mex-LTER Socio-Ecohydrology Research

How do biophysical and social attributes facilitate or limit the ability to build the resilience of social ecological systems such that sustainability of water is ensured in the face of internally and externally driven changes?

Specifically, we propose to conduct a comparison among long-term research sites to enhance understanding of:

- ✓ How ecohydrological and social conditions constrain possible outcomes of sustainable socioecological systems (e.g. environmental flows, maintenance of biodiversity).
- ✓ How water quality and availability, among other ecosystem services associated with water, are affected by the interacting drivers of climate change, population, economic, and land-use changes?
- ✓ The importance of local knowledge and perception, especially of ecosystem services, in strengthening and stimulating sustainable water governance.
- ✓ The role of stakeholder engagement, partnering with practitioners, and the co- production of both knowledge and decisions to building adaptive capacity.

RCN-SEES: Advancing our understanding of complex mountain landscapes and the vulnerability of natural and human systems to environmental change
(Jim Gosz et al.)

- The Northern Rockies NEON domain in the US We propose to use this region as a model for developing research collaboration that can be expanded to many regions of the world.
- How can we reduce the vulnerability of natural and human systems in complex mountain landscapes? This includes vulnerability from climate change/variability, land-use change, and hazards such as wildfires, floods, and insect/disease outbreaks on engineered and natural hydrologic structures and human communities.

RCN-SEES: complex mountain landscapes……

The main objectives…..

- ✓ to facilitate integration of existing programs and studies;
- ✓ to design collaborative interactive research, education, and governance projects; and
- ✓ to create partnerships that better link new informatics to produce linked, scalable models that will help inform management decisions at multiple scales and better link non-governmental and governmental constituents who affect the resilience of these mountain systems.

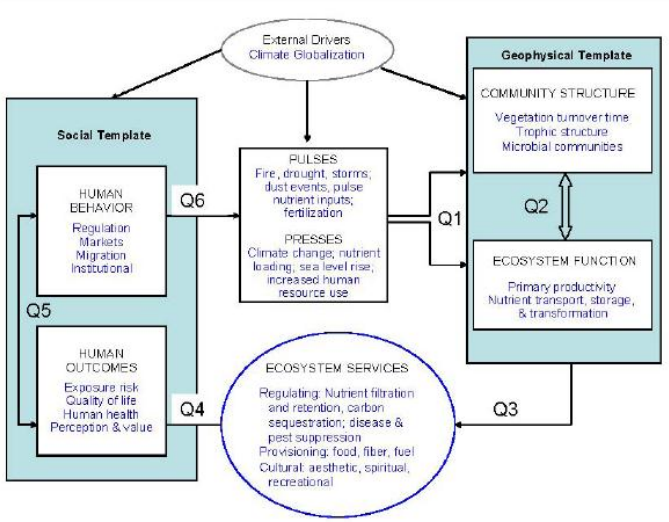
New international examples are the international Mountain LTER Network sites (Niwot Ridge US, Stubai Valley, Austria, Tyrolean Central Alps, Northwestern Alps, Italy, three Mexican LTER mountain sites, and the Himalayan mountains of Asia that straddle 10 countries.

Interactions among ecosystem services, ecosystem dynamics, and human outcomes and behavior

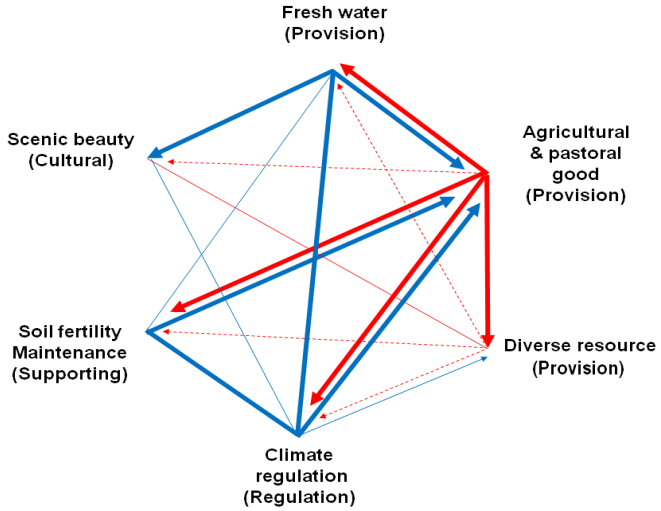
Submitted by the ILTER Science Agenda Committee Chair Patrick Bourgeron

This proposal is the first network-level attempt by the ILTER network to address the linkages between ecosystem services (ES) and human outcomes and behavior, and how they influence each other in biomes.

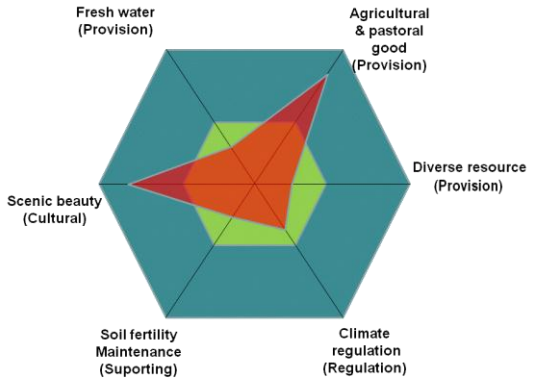
The work will be conducted by developing site-specific feedback models for one selected site representing a biome for each member network.



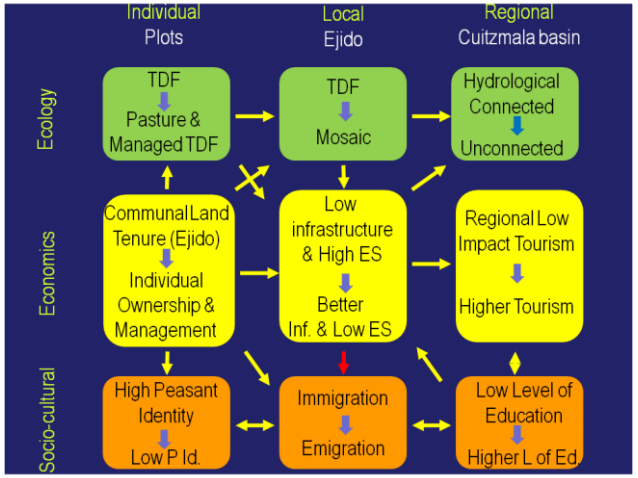
"Integrative Science for Society and the Environment" (ISSE) framework (Collins et al. 2007)



Six major ecosystem services and tradeoffs



Shift in the delivery of Ecosystem services



Major regimen shift and key threshold interactions

Biome/Network

- Tropical coniferous: *Malawi*
- Tropical dry broad-leaf forest: Mexico, Thailand, Venezuela
- Tropical moist broad-leaf: Philippines, Taiwan, Brazil
- Temperate broad-leaf mixed forest: France , Japan, UK, Korea, Australia, Germany, Poland, Romania
- Deserts: *Israel, South Africa, Namibia*
- Flooded grassland/savanna: *Malawi*
- Temperate coniferous/boreal: Italy, Mongolia, USA, Czech R., Germany, Finland, Slovakia, Chile, Austria
- Med Woodlands: *Spain, Portugal , Hungary*
- Temp Steppe, Woodlands: *Hungary, Romania*

ILTER initiative, "Socio-biogeochemistry of nitrogen cascading and interactions"

PI: Hideaki Shibata (Japan LTER, Science Committee Member of ILTER, Hokkaido University, Japan, shiba@fsc.hokudai.ac.jp)

This initiative will synthesize the current understandings and future needs based on the individual research outcomes in each ILTER member network.

We are willing to publish the synthesis paper within two years.

Main questions:

- What is the current problems and trends of nitrogen biogeochemistry in the coupled ecological and human systems?
- What is the critical processes, drivers, feedback and thresholds to cause the abrupt changes of the nitrogen socio-biogeochemistry regionally and globally?

Looking for….

- ✓ What are possible research questions for the synthesis?
- ✓ Key publications from your network to be utilized for the synthesis.
- ✓ Who is the possible candidates of the contributors for discussing and writing teams for synthesis paper
- ✓ Any other suggestions, comments and relevant information

COSUST (Special issue): Ecosystem Services: climate change and policy impacts

Using long-term ecosystem service and biodiversity data to study the impacts of and adaptation options in response to climate change: insights from the global ILTER sites network

Petteri Vihervaara[1]*, Dalia D'Amato[1], Martin Forsius[1], Per Angelstam[2], Cornelia Baessler[3], Steffen Zacharias[3], Patricia Balvanera[4], Bazartseren Boldgiv[5], Patrick Bourgeron[6], Jan Dick[7], Robert Kanka[8], Stefan Kloltz[3], Manuel Maass[4], Viesturs Melecis[9], Petr Petřík[10], Hideaki Shibata[11], Jianwu Tang[12], Jill Thompson[7].

Finland, Sweden, Austria, México, Mongolia, USA, UK, Slovakia, Latvia, Czech Republic, Japan, Puerto Rico

ILTER-project: Citizen forum – a website which

facilitates dialogue between scientists and the society

(Eeva Furman & Riikka Paloniemi, Finnish Environment Institute, SYKE, FinLTSER, Finland)

The aim of the project is to build an internet-based communication tool and research infra for national LTER networks (electronic forum). The forum will facilitate science-society dialogue and in the future, collect research data on behavior and attitudes on questions related to environmental problems and pro-environmental behaviour.

Research questions could include:

- ✓ How are issues of adaptation to climate change discussed in different countries and LTSER platforms? How does an electronic panel function as a platform for dialogue of environmental issues?
- ✓ What is the difference in answers if you use traditional questionnaires or an electronic dialogue method which allows exchange of views

The forum contains three elements:

- A discussion group on current environmental policy issues
- A questionnaire to be used to gather quantitative data
- In each LTSER area, a panel of around 20 (later 300-500) households that commit themselves to participate in discussion groups and fill in questionnaires for an extended period of time

ILTER Agenda

Communication (new technologies)

Evaluation (different capabilities but same commitment)

Bottom up approach (the wisdom of the crowds)

✓ Capacity building (student participation)

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Internal institutional strength (good practices)

✓ Collaboration (visibility and capacity)

Development of External Partnerships 2008-2012

ILTER links to many other International Organisations to Deliver Scientific information to scientists, policy makers, and the public to meet the needs of decision makers at multiple levels

- GEO/Global Earth Observation System of Systems
  - Global Biodiversity Observation System – ILTER recognised as key in situ data provider
  - Links to Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES)
- Global Biodiversity Information Facility (GBIF – MoU)
  - Taxonomic Data Working Group (TDWG)
- UNEP – Climate Change Adaptation Network (through CERN)
- UNESCO International Hydrological Programme
- UNESCO Biosphere Reserves
- IGBP/IHDP Global Land Project
- INTECOL
- ICSU – Grand Challenges

ILTER's Public Policy Committee

ILTER is leading the development of the GEO BON Global Network of Biodiversity and Ecosystem Observation Sites.

- ✓ Pull together the "community of common interest"
- ✓ A meta-database of sites will (what sites can contribute and where there are gaps in coverage)
- ✓ Ways of sharing, synthesising and analysing site

Our preliminary definition of a site is: a contiguous area undertaking long-term co-located ecosystem-based measurements at appropriate scales for linking: (i) drivers of change; with (ii) loss or gain of biodiversity; and (iii) impacts on ecosystem processes and ecosystem services.

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Davies Field et al. (dfield@ceh.ac.uk; neiltahiti@gmail.com)

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Main Idea….

Apply to the UK International Opportunities Fund with a proposal that aims to establish a global network of "Genetic Observatories".

LTER sites from the UK and US LTER networks are likely to be involved but they are also looking for about 15 other sites around the globe that are already undertaking some genetic work and would be willing to contribute to such a project.

Commitments…..

- ✓ provide some co-funding or in-kind support
- ✓ ultimately be willing to share data.
- ✓ In-kind participation (attending annual workshops to identify common research questions)

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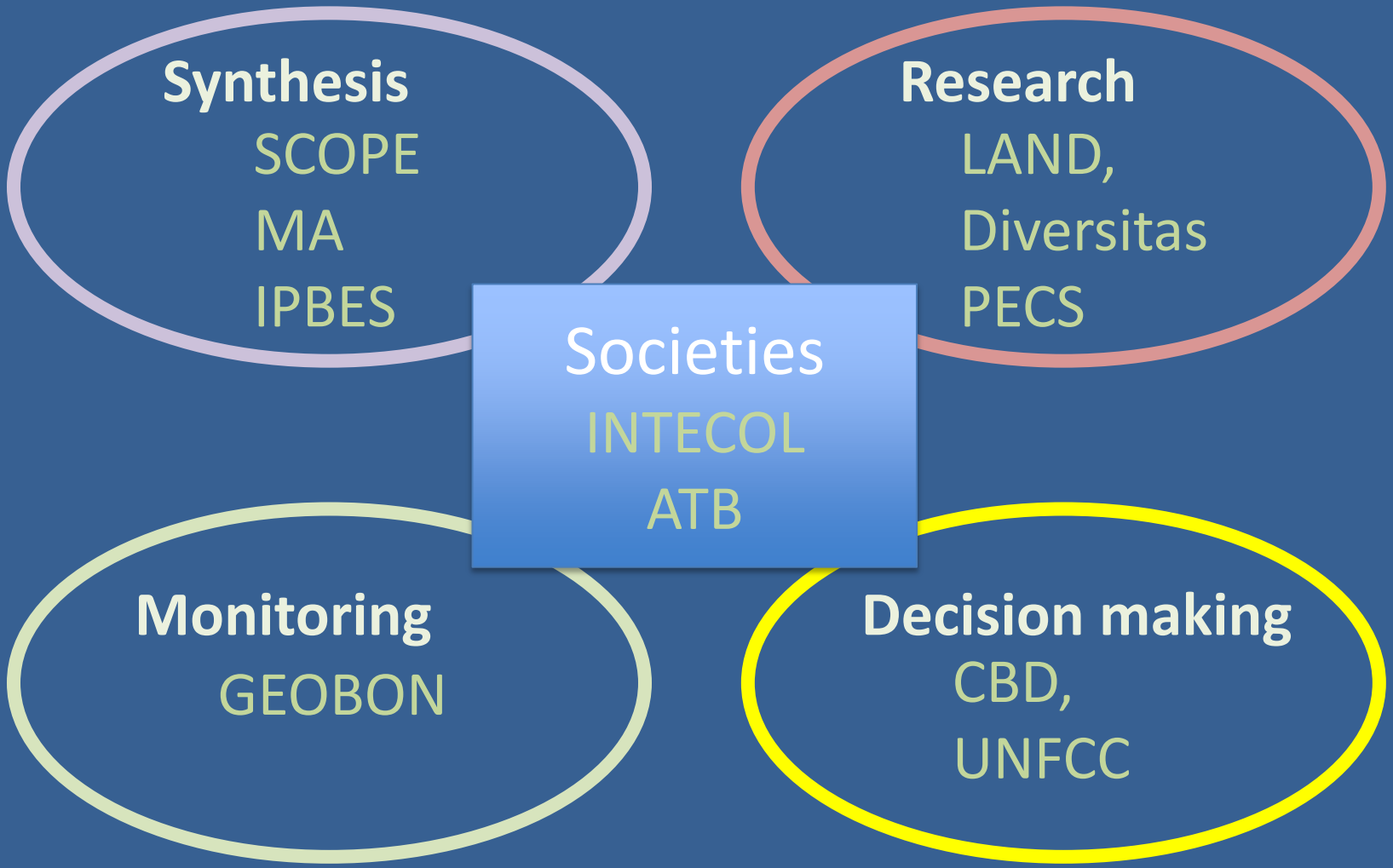
Collaboration (visibility and capacity)

✓ Networking (all scientist meetings)

Types of global initiatives



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Networking (all science meetings)

✓ Growth (new countries and associated sites)

Member Networks

New Members

2007 – Finland, Japan, Philippines, Thailand

2008 – Spain, Portugal

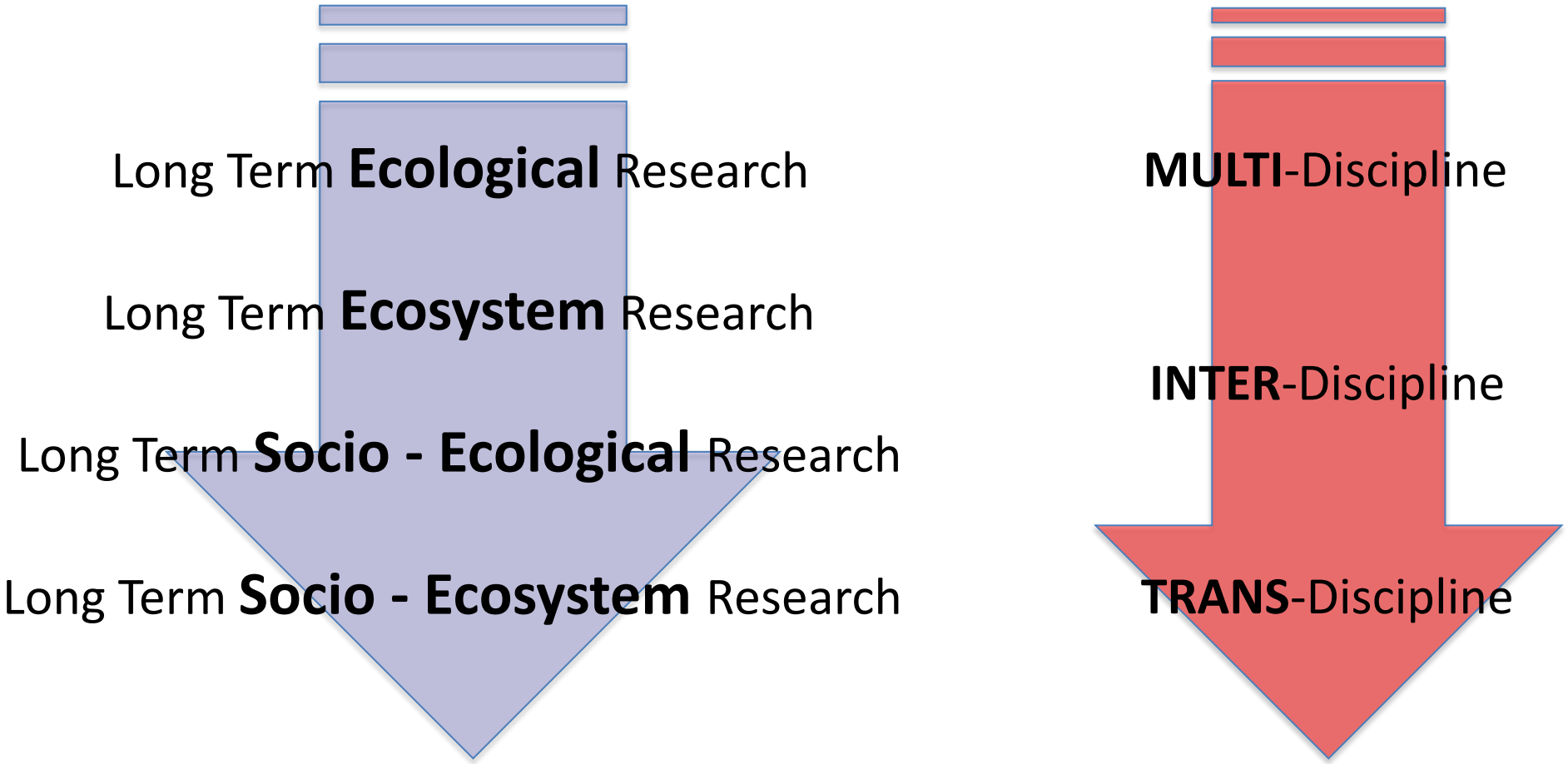
2009 – Bulgaria, Serbia

2010 – Sweden

2011 – Chile

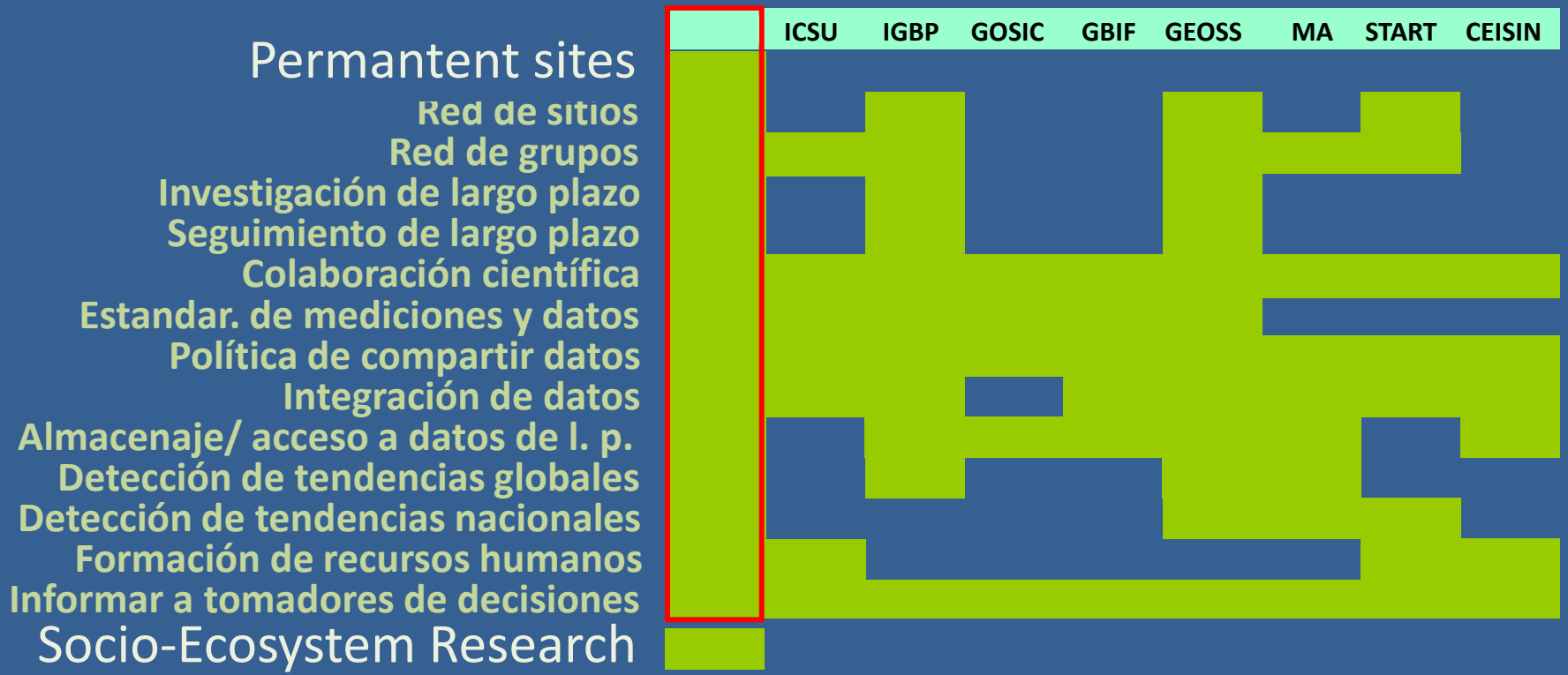
Should we go for individual groups membership?

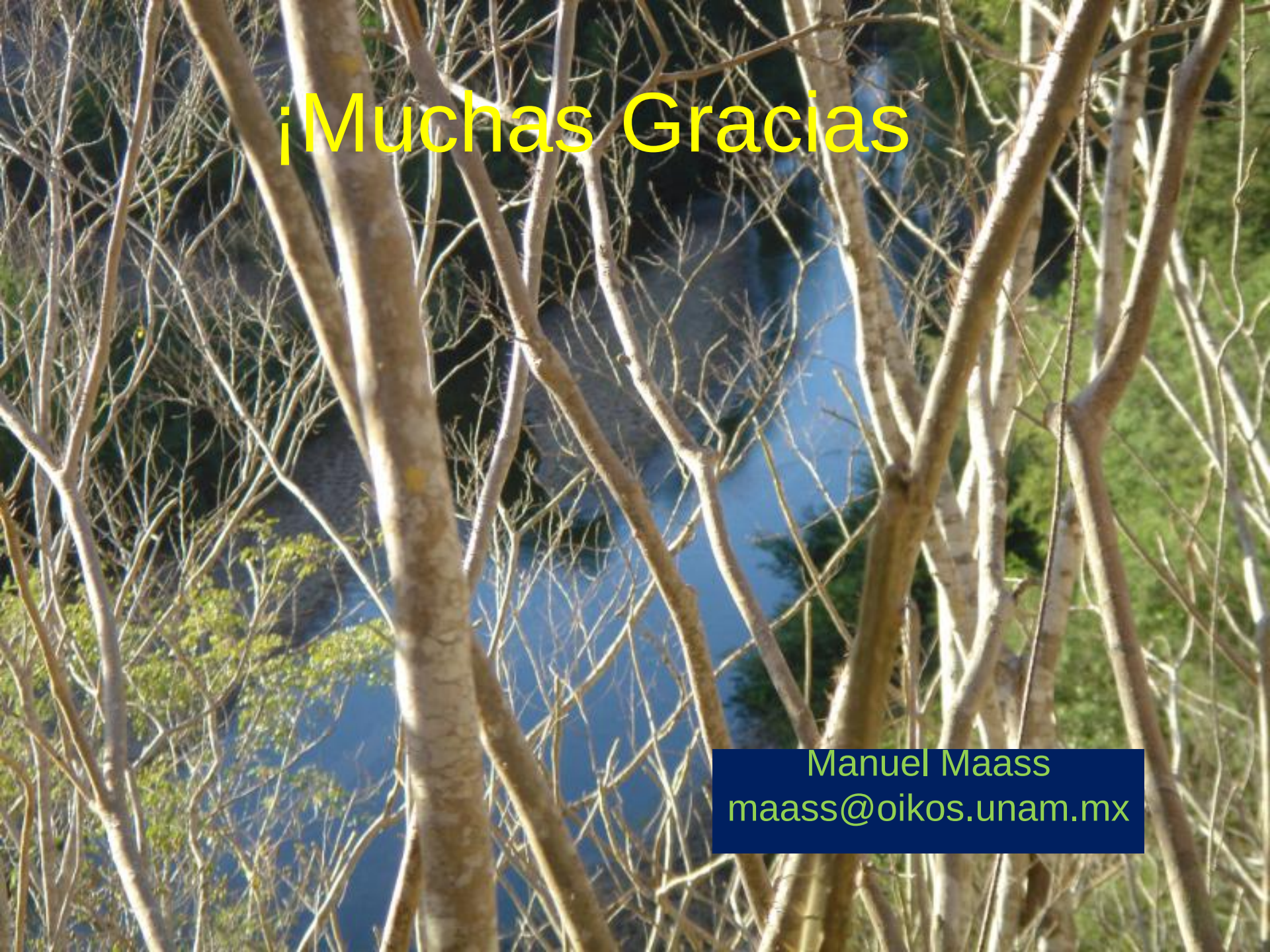
Evolution of ILTER?



Características del International Long Term Ecological Research (ILTER) Network

ICSU = Int. Council for Science
IGBP = Int. Geosphere Biosphere Program
GOSIC = Global Obs. Systems Inf. Center
GBIF = Global Biodiversity Inf. Facility
GEOSS = Group on Earth Obs. System of Systems
MA = Millennium Ecosystem Assessment
START = System for Analysis, Research and Training
CIESIN = Center for Int. Earth Science Inf. Network





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