LTER-EUROPE: CRITERIA AND RECOMMENDATIONS

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The proposal is based on lists of disciplinary descriptors proposed by WP I3, R4 and R1 of the EU-project ALTER-Net. The grouping and categorization considers the outcomes of related discussions of the LTER-Europe conferences in Mallorca (February 2007) and Hungary (June 2007). The table giving the characteristics of LTER-sites and LTSER platforms is attached to this document (annex 1).

1 Criteria for LTER-Europe Network membership

1.1 Criteria for application of national networks

- Recognition by a government body or other institutional entity acting at the national level;
- Existence of a national committee authorized to make commitments for the members;
- Acceptance of LTER-Europe criteria; at least a subset of sites should fulfil these criteria;
- A statement of collective purpose that might include defined research or monitoring themes;
- A data management and accessibility policy including a commitment to share and exchange data and knowledge with other members of LTER-Europe;
- Evidence for long-term stability of the programme;

A commitment to supply information about its sites

1.2 Commitments for accepted members networks

- Participation in the annual LTER-Europe Coordinating Committee meeting.
- Maximum response time to questions/requests of 15 days (email).
- Conduct LTER research & monitoring
- Conduct strategic LTER-Europe research
- Share data
- Build and update website of the national network
- Update information on national LTER facilities in the LTER InfoBase (metadata on registered sites and platforms)
- Response to LTER-Europe calls for action
- Foster capacity building

Still open: membership dues!

2 General criteria for LTER sites and LTSER platforms

Equally applicable for LTER sites and LTSER (Long Term Socioeconomic and Ecological Research) platforms on the one hand and monitoring and research agenda on the other. Checking of criteria is the task of national networks (negotiation, approval and evaluation of applying new LTER sites and already accepted members)

2.1 Formal criteria

- Basic commitment of hosting institution(s) for at least 5 years (signed paper; template available at website LTER-Europe) including
  - Staff
  - Infrastructure (field work, lab work etc.)
- Principal agreement on (meta)data exchange

- Availability of information in **English**
- Maximum response time to questions/requests of 10 days (email).

2.2 Data criteria

- Language: English
- Up-to-date/current documentation in the LTER InfoBase (3 adopted levels of meta-information, first level of highly integrated data)
- Storage (ad hoc solution -> Excel, Access; future perspective -> shared database, at least for metadata)
- Availability (bylaws for sharing)
- Time series (depend on topics; at least two data sets with a sufficient time interval)
- Frequency of measurements (thresholds for discontinuity?)

3 Explicit LTER site criteria

3.1 Formal criteria

- Site coordinator (permanent staff) with distinct definition of tasks (should express his/her willingness separately)
- Site coordinator formally appointed for at least 2 years

3.2 Status of sites

The status of a site is connected with a specific set of rights and duties.

1. **Regular sites** (explicit criteria fulfilled)
2. **Intermediate sites** (e.g. no sufficient time series of long-term data, but promising for the future)
3. **Starting sites** (newcomers, just starting to collect long-term data)

4 LTSER Platforms

4.1 Selection criteria for LTSER platforms (European and nat. networks perspective)

These are criteria to be applied in the selection of NEW LTSER platforms by the national LTER-networks and by LTER-Europe as a regional network, mainly to achieve the best possible coverage in terms of various European gradients. Therefore new candidate platforms should primarily

- cover missing European environmental zones
- cover missing LTER socio-ecological regions (LTER-SER)
- increase the number of countries
- include regions with varying income levels, but similar resource endowments of special interest

4.2 Formal criteria

- Management of the entire LTSER platform must be established
    - Including several LTER sites with affiliated site coordinators
    - Platform managers are formally appointed for at least 2 years
- Memorandum of understanding (MoU) signed by at least 5 participating partners across client groups. The underlying assumption is that LTSER platforms enable a kind of research which can only take place in LTSER regions, given their characteristics and fingerprints (typology of LTER facilities). This includes ongoing sociological, economic and natural scientific research ("Socioeconomic-Ecological research") as well as the binding involvement of non-scientific client groups and stakeholders (local decision makers, provincial administration, regional developers, population) to support transdisciplinarity and participatory approaches. Thus the number of 5 partners represents a bottom line of involvement, even if one institute covers a range of scientific disciplines.

- Institutional commitment of partners

4.3 Design criteria

- Scale- and level explicit approach: concept how the design addresses relevant levels and scales
- LTSER facilities/activities shall cover main habitat types of region
- LTSER facilities/activities shall cover different scales, levels of organisation and sectors
- Involvement of client groups (research, networks, monitoring, local decision makers, regional development; see MoU)
- Coverage of within-gradients of the biogeographical region (e.g. range of land use intensity)
- Concept for the coupling of monitoring and research and how both can be secured in the long term

4.4 Data criteria

- Statement on the availability of documentation of land use history. *(*Investigations shall have been carried out to allow for a reliable judgement on the potential availability of data on land use and environmental history.
- Ongoing collection of both ecological and socio-economic data (according to the concept of addressing relevant scales and levels
- Measurement of the set of mandatory LTER-parameters according to LTER standards (referring to research agenda of LTER-Europe?)

4.5 Recommendations

4.5.1 Formal

- Involvement of ecologists, local administrators and communities
- Make use of as many as possible existing LTER-relevant activities/facilities (long-term)
- Good status and long-term perspective of facilities (commitments, contacts, data access)

4.5.2 Design

- Use of existing ecological and social monitoring networks

4.5.3 General character of the region

- Cultural and socio-economic (administrative) unit
- Vulnerability due to biodiversity changes (e.g. dependency of economic sectors on set of species)

4.5.4 Activities

- Monitoring at appropriate scales e.g. landscape and land use related issues
- Investigation of ecosystem services (relevant for the broader region)
- Investigation of relevant management practices (alternatives to current management, scenarios for different management regimes)
- Use of qualitative monitoring e.g. for sociological parameters: narratives, responses from individuals and organizations to problem oriented questions
- Enabling and encouraging participatory research by amateurs
- -- local participation in data collection
- -- Policies addressing biodiversity and participation of sectoral stakeholders

4.5.5 Coverage of gradients

Selection of strong gradients in space and time to allow for good results in the shortest possible time:

-- Demography: dynamic structure

-- Located where rapid development and potential conflicts are anticipated

- Contrasting intensities of human impact, hence different conservation needs
- Availability of reference areas (undisturbed natural habitat(s) typical for the region)
- Conflicting social goals (open, gradual, potential influce on biodiversity)
- Subsistence production vs. trade networks: range of shares
- Presence of (???) good or bad relations between scientists and local communities
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4.5.6 Data pool

- Ecological data: main habitats, taxonomic groups, mass flows, abiotic base parameters...
- Human impact: waste, pollution, erosion
- Demographic data: population size, migration rate, age, origin, wealth, gender, employment, income, and topics related to operating scale (e.g. distance to nearest city)
- Human use of area: habitat diversity, use and harvest of natural resources, recreation, cultural traditions, industry, need for resources
- Attitudes: ecological awareness, educational resources and activities, follow-up of media rhetoric, voluntary contribution
- Management information: existing policies, management strategy, participation in management
- Economic data: especially income from primary (changing intensity), secondary (changing volume) and tertiary sector (incl. tourist industry)

- **ANNEX 1**

Developing finger prints for main types

The table below contrasts types of LTER-facilities alongside a set of criteria which cover the design as well as thematic foci and fostered research contents.

The characteristics given for the two types are to describe these types in an exemplary way with some remaining fuzziness in each single criterion (e.g. size depending on ecozone, orography, landscape type).

Tab. 1: Fingerprints of LTER-sites and LTSER-platforms as main types of European LTER-facilities

Criteria	**LTER-facilities**	
Categories	**LTSER-platform**	**LTER-site**
Synonyms	LTER-cluster, Multifunctional Research Platform (MFRP)	traditional LTER-site
General description		
Design	hierarchical	simple
Consists of	LTER-sites and other LTER-facilities (e.g. laboratories, infrastructure)	field stations within the site (plots, grid points)
Size	100-10000 km²	1-10 km²
Frequency (p. country)	0-5	5-20
Frequency (Europe)	30-80	100-300
Administrational, institutional and management aspects		
Number of institutions involved	many	1-few
Specific management necessary	unconditionally	limited
Top-class information technology	unconditionally	advantageous
Flexibility	high	low
Potential for (Multi-site) Experiments	high	limited
Cross-facility activities and harmonisation	frequent	limited
Scales and hierarchical levels covered		
Plot	yes (multi)	yes (multi)
Habitat/ local	yes (multi)	yes
Landscape	yes	no
Corresponding administrational units	yes (municipality, district, province)	little probable
Corresponding economic units	yes (farm, forest company, municipality, district, province)	little probable
Corresponding social units	yes (region, “homeland”, municipality, districts, provinces)	no
Parameter-groups		
Abiotic	yes	yes
Biotic	yes, multi-habitat	yes
Management practices	yes	no

Socio-economy	yes	no
Sociology, demography	yes	no
In-facility gradients		
Altitude	yes (dep. ecozone)	limited
Mesoclimate	yes	limited
Climate	limited	no
Habitat	yes	no
Land use intensity	yes	no
Management practice	yes	no
Demography	limited	no
Research foci supported		
Primary production	yes	yes
Populations	yes	yes
Inorganic input	yes	yes
Organic matter	yes	yes
Disturbances	yes	yes
Biodiversity and biodiversity related ecosystem processes	yes	limited
Sustainable regional development under global change	yes	no
Coupled human-ecological systems (models)	yes	no
Public awareness and education	yes	no
Ecosystem services	yes	limited
Sustainable development and local decision making	yes	no
Drivers and pressures covered potentially		
Land use change (history)	yes	limited
Management practices (agriculture, forest, hunting)	yes	limited
Climate change	yes	yes
Human population dynamics		
Alien species	yes	limited
Functionalities		
Cross-scale activities (up-scaling...)	yes	limited
Multidisciplinary approaches	yes	limited
Transdisciplinary approaches	yes	no