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## GERI – The emerging Global Ecosystem Research Infrastructure

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Ecosystem Research Infrastructures around the world have been designed, constructed, and are now operational as a distributed effort. The common goal is to address research questions that require long-term ecosystem observations and other service components at national to continental scales, which cannot be tackled in the framework of single and time limited projects. By design, these Research Infrastructures capture data and provide a wider range of services including access to data and well instrumented research sites. The coevolution of supporting infrastructures and ecological sciences has developed into new science disciplines such as macrosystems ecology, whereby large-scale and multi-decadal-scale ecological processes are being explored.

Governments, decision-makers, researchers and the public have all recognized that the global economy, quality of life, and the environment are intrinsically intertwined and that ecosystem services ultimately depend on resilient ecological processes. These have been altered and threatened by various components of Global Change, e.g. land degradation, global warming and species loss. These threats are the unintended result of increasing anthropogenic activities and have the potential to change the fundamental trajectory of mankind. This creates a unique challenge never before faced by society or science—how best to provide a sustainable economic future while understanding and globally managing a changing environment and human health upon which it relies.

The increasing number of Research Infrastructures around the globe now provides a unique and historical opportunity to respond to this challenge. Six major ecosystem Research Infrastructures (SAEON/South Africa, TERN/Australia, CERN/China, NEON/USA, ICOS/Europe, eLTER/Europe) have started federating to tackle the programmatic work needed for concerted operation and the provisioning of interoperable data and services. This Global Ecosystem Research Infrastructure (GERI) will be presented with a focus on the involved programmatic challenges and the GERI science rationale.