South African Research Infrastructure Roadmap (SARIR)

Enhanced Terrestrial and Freshwater Environmental Observation Network

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science & technology

Department:
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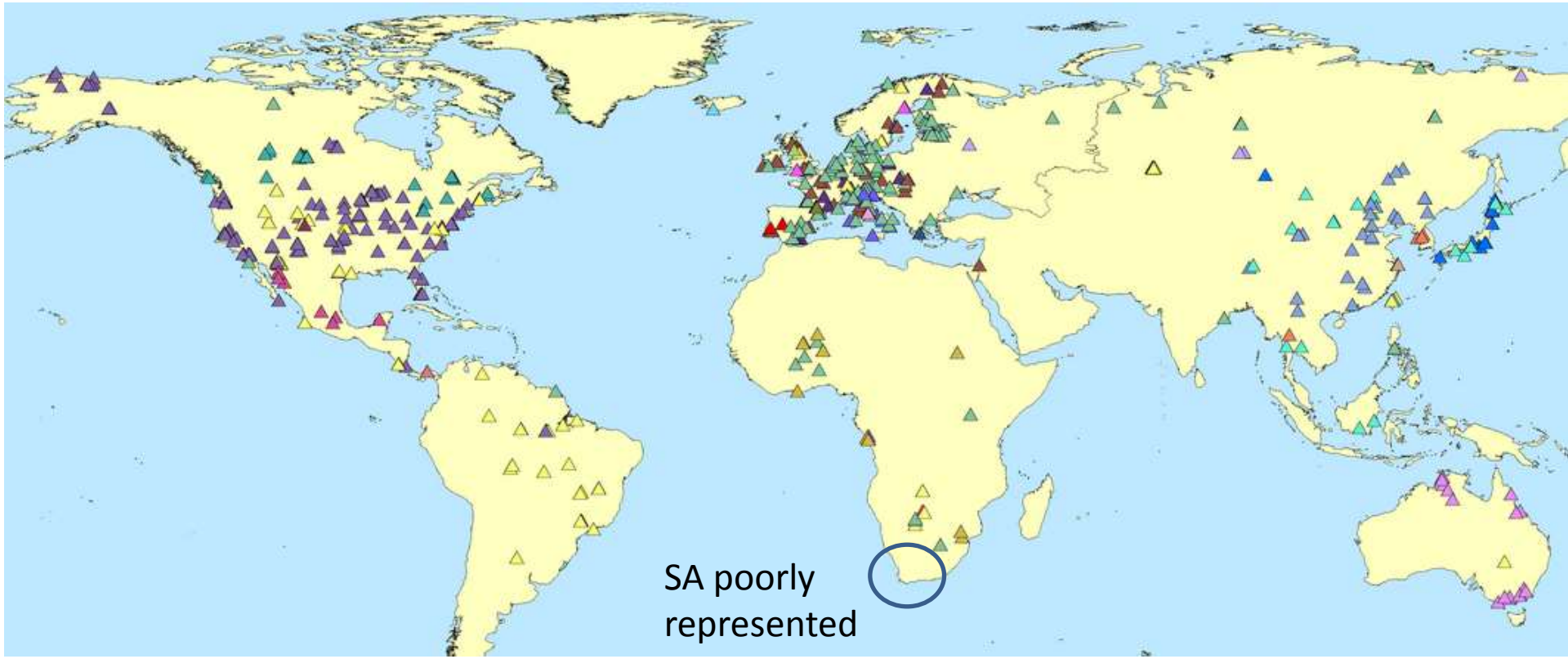
Background to the SARIR process

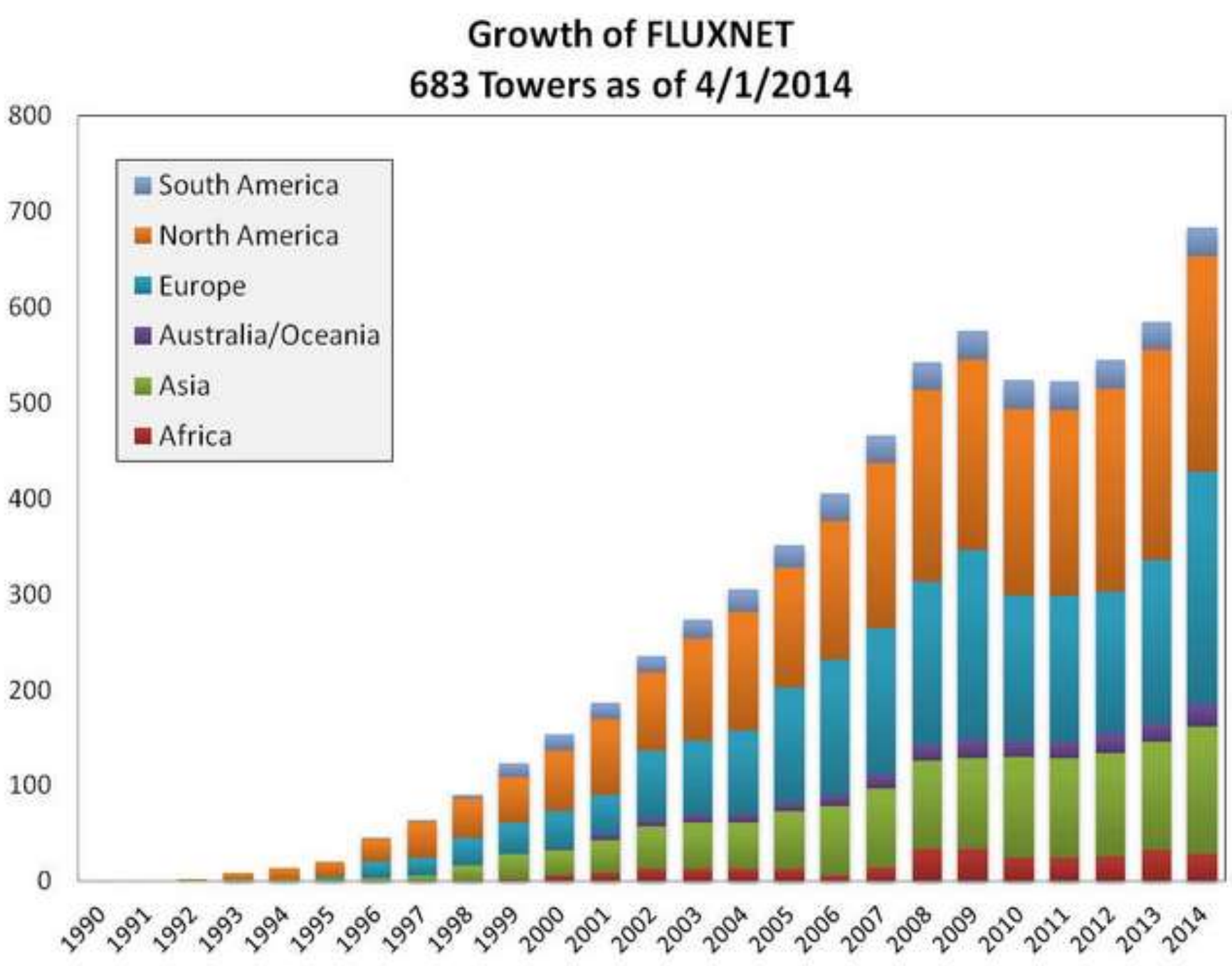
- In order to remain scientifically competitive, SA scientists need access to world-class research infrastructure, too big and expensive for single institutions to acquire and run.
- The Dept. of Science and Technology ran the SARIR process in 2013-4 to identify such infrastructure needs.
- The Terrestrial proposal has been accepted in principle, along with 12 others.
- Next step is a detailed Implementation Plan by Oct**t**ober 2015, for funding beginning as soon as mid-2016.

Global FLUXNET sites

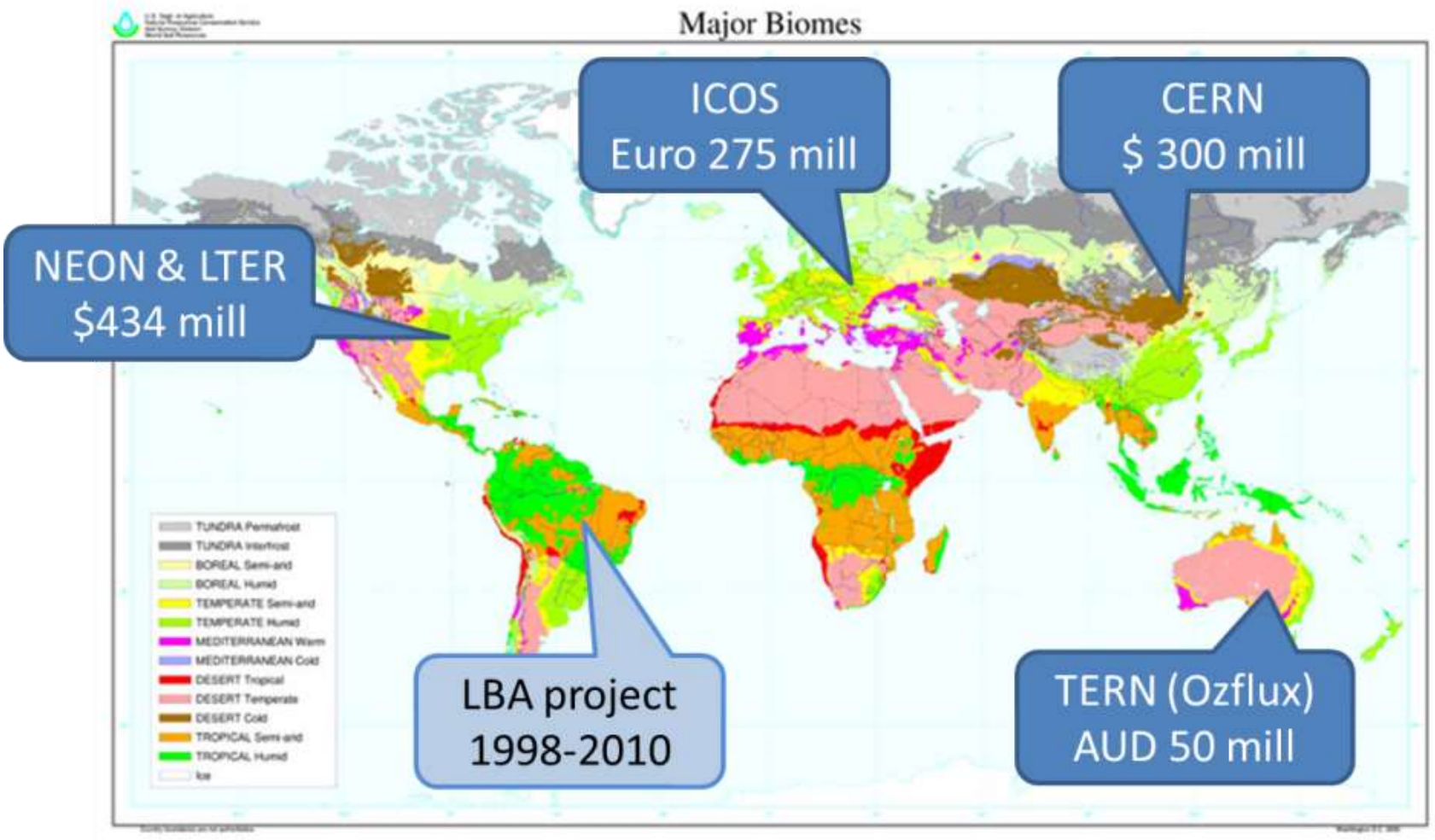


FLUXNET
April 2014
683 Sites

The flux tower sites use eddy covariance methods to measure the exchanges of carbon dioxide (CO_2), water vapour, and energy between terrestrial ecosystems and the atmosphere.


Growth of FLUXNET
683 Towers as of 4/1/2014
800
700
600
500
400
300
200
100
0
South America
North America
Europe
Australia/Oceania
Asia
Africa
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014

Investments by other countries



Motivation

Three compelling reasons to do this

- **reduced uncertainty** about the consequences of a world changing both as a result of global atmospheric and climate changes, and local land- and water-use changes;

- leverage South African **comparative advantage** based on ecological diversity to enhance and transform its world-class ecological research status;

- impetus to **integrate** and revolutionize existing currently underperforming and fragmented investments in environmental observation and prediction.

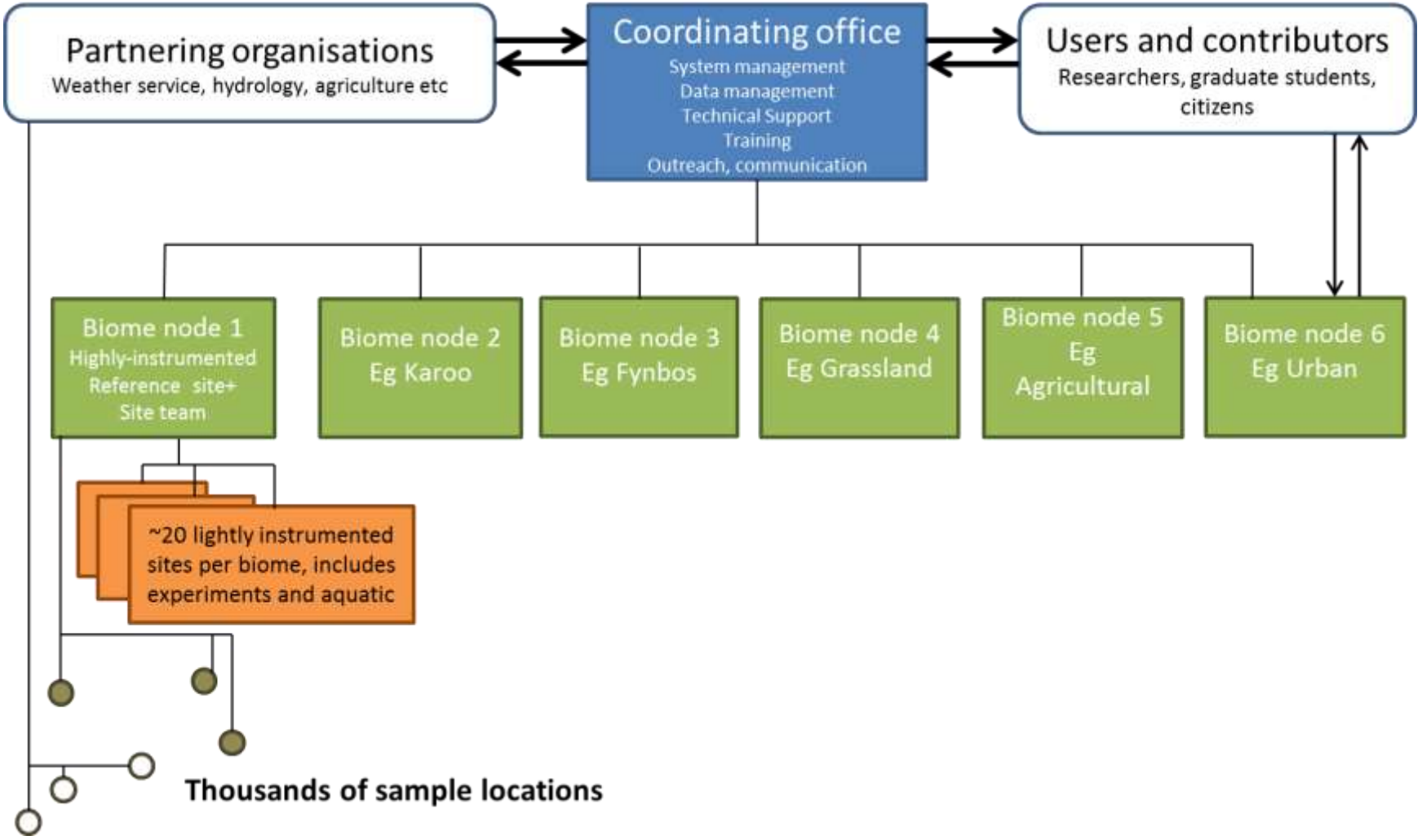
What has been proposed and approved

- A multi-million rand investment in long-term ecological infrastructure (equipment, sites, data systems and technical personnel to run them), available to all researchers
  - About six landscape-scale 'super-sites', some in urban and agricultural situations, with sophisticated instruments, regular remote sensing, for ongoing collection of research-grade environmental, ecological biodiversity and social data
  - Associated with each, about 20 sites with continuous but less sophisticated data collection, including long-term ecological experiments
  - Collation of data from thousands of point locations sampled occasionally
  - All supported by a data system integrating and making available data from the network and other sources

- Will be implemented through enhancement of the South African Environmental Observation Network.

- There are parallel approved infrastructure proposals for coastal and deep-ocean infrastructure, which will be coordinated with the Terrestrial and Freshwater one.

Proposed Structure



What is needed from you

- Your awareness and support as a potential beneficiary of the proposed infrastructure

- Feedback from the community on the design proposals at regional ½ -day sessions around the country

Eddy-covariance flux tower at Skukuza. An example of sophisticated research infrastructure for ecology

Contact details

For further information or to volunteer to be on the design team, feel free to contact

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