

EUROPEAN RESEARCH INFRASTRUCTURE FOR ANALYSIS AND EXPERIMENTATION ON ECOSYSTEMS



Newsletter 5

ISSUE FIVE

Dear Reader,

AnaEE is now moving faster than ever, as we begin to see beyond the preparatory phase and start to elaborate the rules and policies that we need to ensure the longevity of our shared European infrastructure.

At our Annual Meeting and Stakeholder Meeting in Antwerp, Belgium (13-15 October 2014), we met over three days to discuss some of these issues together, both within the consortium and with our closest stakeholders. The Stakeholder Meeting brought together over 60 scientists, ministry representatives, European Commission officials, NGO representatives and others.

Speakers included Reinhart Ceulemans of the University of Antwerp, John Porter of the University of Copenhagen, Ana Iglesias of the Technical University of Madrid, John Wood of the Asso-

ciation of Commonwealth Universities and Clare McLaughlin of the Australian Mission to the EU. Together, they dealt with issues including food security, climate change, economics, governance and international cooperation.

This was followed by an open workshop on data and quality, which featured prominent speakers: these included Werner Kutsch (Director-General of ICOS), John Watkins (Theme Leader for Environmental Informatics at the CEH), Giulio Cardini of the Italian Ministry of Food, Agriculture, and Forestry, Madeleine van Mansfeld of the Climate-KIC, and Joachim Maes of the European Commission's Joint Research Centre.

We also continue to advance on important matters including our ongoing Call for Expression of Interest, about which you can find information on our website, and also in several previous news-

letters. Between now and the end of the year we will have many challenges, not least an ESFRI assessment, which is an important step in making AnaEE's achievements sustainable.

We are also working to bring other countries into AnaEE both as Preparatory Phase partners and further in the future.

Finally, we are very happy to announce that we have signed a Memorandum of Understanding with NEON (U.S. National Ecological Observatory Network) and have started work on a similar document with TERN (Australian Terrestrial Research Network).

AnaEE is not only a tool for scientists - it also aims to bring together the scientific community. Without unity of purpose, we cannot succeed.

Kind regards,
Abad Chabbi

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FOOD SECURITY: THE KEY ROLE PLAYED BY RESEARCH INFRASTRUCTURES

Prof. Tim Benton

Champion of the UK's Global Food Security Programme

Professor of Ecology at the University of Leeds



Why is food security such an important issue for the world, Europe and the UK in particular?

The issue of providing enough food to allow people access to a safe, sufficient and nutritious diet is the biggest grand challenge of our age.

Why? Because to tackle this we simultaneously have to tackle a range of issues: agriculture, climate, sustainability, equity and health.

The size of the challenge is getting bigger every day because, as the world's population is increasing and getting richer, demand for food is growing faster than we can supply it.

To put the scale of this challenge in context: if current demand trends continue over the next 36 years we will need to grow more food than we have grown throughout human history.

Food security is not solely a developing world issue.

Rapid food price inflation can be a cause of civil unrest.

Food insecurity can also act as a driver for changing patterns of human migration, including trans-nationally.

The developed world also has food insecure people: growing income inequality means that the number of those struggling to provide a family food budget is also increasing.

Across the EU some 50 million people face material deprivation, with 18 million receiving food aid in 2010.

Paradoxically, topping the risk factors for all the deaths and disabilities accounted for are dietary factors that contribute to non-communicable diseases.

Over 9% (>33m people) in the EU are diabetics, and this disease cost the UK £24bn in 2010/11.

In addition, diet is linked to increased cancer risk and heart disease.

Across the world obesity is increasing. In the EU about 20% of people are obese.

Thus, food creates challenges in terms of the supply, demand, access and consumption.

Getting the balances right across economic, environmental and public health is tricky.

Growth in demand for food is already outstripping the world's ability to supply in that yield growth of the major crops is falling short of that needed to meet long term demand projections.

Add to this the looming spectre of climate change: without significant technological change, global supply may decrease rather than increase over the coming decades.

Increasing demand puts ever greater pressure on natural resources: more food, from less land, using less water makes it harder to reduce the environmental damage agriculture causes.

The economic realities of supplying demand typically trump greater "sustainably" because sustainability costs money in the short term.

As food security champion in the UK, how have you seen science and policy on this issue evolve in recent years?

For me, the biggest change is the growing recognition that food security is not a production issue alone, and is not something that should only "sit" within the development policy area.

Recognition of the complexity of the issues and development of a systems

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EUROPEAN VIEWPOINT

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approach to food, whereby economic, environmental and public issues are seen as inherently linked,

This is a global problem affecting every country, is the first step towards trying to find the best policy responses to dealing with the challenges.

This view allows a focus on changing the demand side of the equation (via changing diets, or reducing waste) just as much as changing the supply side (by increasing production).

How can research infrastructures play a role in better understanding and providing responses to this issue?

Each country exists in a globalised world and is affected by drivers beyond its borders.

Each individual country is therefore a stakeholder in the global challenge.

Yet no single country has the resources to fully research (and understand) the issues around global food security.

EU research investments, such as Horizon2020, are a crucial component of research of national and supra-national interest - and in this context AnaEE could play an important rôle.

Furthermore, significant additional value can be gained by coordinating and aligning national and EU research strategies.

What is lacking in the current research infrastructure landscape with regards to food security?

On the supply side, there is recognition that the fact each farm differs creates problems and opportunities.

The problem is that one-size-fits-all solutions do not universally apply.

Developing different approaches for different locations is an opportunity to provide overall yield gains in a sustainable way.

For any farmed plant or animal its phenotype (i.e. its yield), depends on a complex interaction between its genes, the local environment and the way it is farmed.

Likewise, the same management intervention can have different environmental impacts depending on the place.

This implies a real need to ensure an appropriate farm-based research infrastructure.

This infrastructure needs to sample effectively across different places, farm types and their cultural settings.

Such a network of farms, within a range of landscapes, would allow greater understanding of the genes x environment x management interactions.

This would therefore give us a better understanding of how to implement sustainable intensification to allow farm productivity and incomes to continue

to flourish but also reduce their environmental impacts.

What role can AnaEE play?

AnaEE can help to drive forwards the development of a network of farm platforms in a coherent way.

It can help link up member states' national research farm infrastructures across the EU.

It can also provide that collection of farms across representative socio-environmental parameter space.

What can the UK's role be in building AnaEE?

In the UK, we have significant existing investments in research farms.

These investments come both from Universities and from publicly funded research institutes.

Some of these are globally important (such as Rothamsted).

What could happen were we fully to develop this network?

Well, it is already beginning and would allow the UK to really claim to have a globally important distributed network.

The UK Research Funders are starting to recognise the value in developing AnaEE as something that complements and benefits the UK science base.

Hopefully, this can help facilitate our excellent academic capability in this area to collaborate across

OUR CALL FOR EXPRESSION OF INTEREST: BUILDING AnaEE

Abad Chabbi and Evan O'Connell

Coordinator and Communication/Lobbying Officer

AnaEE (Analysis and Experimentation on Ecosystems)

ESFRI Infrastructure currently in its Preparatory Phase



The recent 'International Conference on Experimentation in Ecosystem Research in a Changing World' organised in the framework of the ExpeER (Experimentation in Ecosystem Research) project (which brought together around 120 top-level scientists and policy-makers from all continents) was a chance for the experimental ecosystem research community to show the growing interest in, and need for, an experimental approach to terrestrial ecology.

AnaEE is a key part of Europe's response to this need.

The Call

Our Call for Expression of Interest - a vital step in building a world-class and inclusive infrastructure on a European level - was launched in the summer of 2014.

This Call aims to identify platforms that could be part of AnaEE either

in their current form or following an upgrade, as well as planned new platforms.

These platforms will have to meet a certain number of criteria. You will be able to find all relevant information by contacting AnaEE's Project Office or your National Focal Point (list on the AnaEE website - www.anaee.com).

In countries where National Focal Points have already been nominated, you may have already heard from this person (and if not, you will soon) and will receive more information on how the Call applies to you and how you, as a key stakeholder, can work with us to ensure AnaEE is a success.

Moving Forward

Now a few months in, AnaEE's Call for Expression of Interest has picked up the pace, as National

Focal Points reach out to their scientific communities.

The online questionnaire open to platform owners is now available.

This questionnaire is available on request via the National Focal Points.

As platform owners or managers, filling in our questionnaire will provide us with vital information on how you believe your platform or site fits our criteria and why it should be part of AnaEE.

This includes showing proof of long-term funding commitments that allow the platform to be financially sustainable.

By the 1st of February, 2015, when the deadline for platform submissions has passed, National Focal Points will have a clear idea of the response of the scientific communities in their countries.

Following on from this, they will have roughly a month to consult with their national ministries, funding agencies and other institutional stakeholders.

This consultation is crucial.

National nodes of AnaEE cannot exist without a minimum level of support from national research funding and policy bodies.

National Focal Points will, therefore, draw up a non-binding Letter

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COMMENT FROM ANAEE

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of Intent presenting a preliminary list of platforms with national support.

This letter will be drafted and submitted to the Steering Committee of AnaEE's Preparatory Phase.

The Steering Committee will then have a period of several months to judge all of the platform submissions and give its feedback on their relevance.

Following continued consultation between AnaEE's Steering Committee, National Focal Points and funding agencies, we hope to draw up a list of initial platforms for AnaEE by Autumn 2015.

As our Preparatory Phase project comes to an end in 2016, we need to have a list of agreed-upon platforms before this deadline, to ensure that AnaEE can fully move into its Construction Phase.

However, it must be noted that while we have a deadline for this Call for Expression of Interest, we are flexible and understand national deadlines and priorities do not always line up with our own calendar.

Nevertheless, next year will be a key phase in building a sustainable legal and financial model for AnaEE. The Call is crucial in defining, assessing and formalising the infrastructure for which these structures will be built, based on the four 'key components' (in natura sites, ecotrons and in vitro platforms, analytical platforms and modelling)

Inclusiveness

We want to continue bringing new countries into AnaEE. We have already begun to do this, and now have focal points from Israel and Estonia in addition to the ten coun-

tries already represented in the Preparatory Phase.

We (Abad Chabbi and Evan O'Connell) are travelling to Israel to meet with relevant scientific and policy stakeholders in November.

This will be a chance to ensure AnaEE grows to include ecosystem types from a key region of the Mediterranean basin.

In addition, we will both be attending a vital meeting in Berlin in December on German-Italian research cooperation.

This, along with other contacts with stakeholders in Germany, will (we hope) build closer ties between the German scientific community and AnaEE.

We have also increased outreach to additional key countries in Southern, Central and Eastern Europe.

The entire AnaEE Preparatory Phase consortium is working together to grow AnaEE.

Get involved

Please visit our website and check whether your country has a confirmed National Focal Point.

If the answer is yes, then you are kindly invited to contact him or her - all contact details are on the site.

If your country is not already covered, you can still contact us to know more about the construction of AnaEE. We would be happy to provide relevant information and indeed discuss how to build AnaEE in your country.

While we are identifying additional cooperation channels to involve a greater number of countries both inside and outside the EU, we would also love your input and ideas.

NEWS UK

This month BBSRC has been active in discussing potential UK contributions to AnaEE as part of the call for expressions of interest.

On-going discussions with relevant stakeholders continue including:

- NERC (the Natural Environment Research Council);
- DEFRA (Department for Environment, Food and Rural Affairs);
- The Scottish Government;
- And academia.

Additionally, advice from boards and panels including the Global Food Security Programme is being taken on board to develop next steps in formulating a UK response.

COMMENT FROM AnaEE: FORWARD MOVEMENT



Two years. As of November 2014, AnaEE will be two years into its Preparatory Phase... with much done and much to do! In two years, we have outlined a coherent vision, developed communications tools, built links with different stakeholder groups, and now launched a process that aims to define which platforms will be part of AnaEE beyond the Preparatory Phase.

This 'Call for Expression of Interest' is one of our proudest achievements: in under two years, we were able to outline clear criteria for admission of nationally funded platforms into the AnaEE infrastructure. Based on these criteria, National Focal Points (full list on our website) will liaise with their research communities and national research funding agencies to draw up and finalise a list of sustainably funded platforms that will be submitted to the AnaEE Steering Committee.

Assuming they fit those criteria, they will join the lists of the first sites, laboratories and modelling platforms within our distributed, integrated European infrastructure.

Beyond the Call, we have now begun the process of examining options for governance and funding models for a future legal entity. These discussions have already involved considerable input from national authorities in many countries. However, more discussion and concertation will be needed if AnaEE is to build an inclusive, broad-based infrastructure that can work for all relevant parties.

This is our challenge today. As we tackle additional tough issues - intellectual property, access, data - we will endeavour to speak to as many of our closest stakeholders to make sure that our rules and policies make sense for all concerned.

This was the goal of our meetings in Antwerp in October 2014 - both our broad-based Stakeholder Meeting and our Data and Quality Workshop open to the public. These meetings brought together high-level speakers and attendees from academia, the research world, policy-making and funding bodies and NGOs.

Together, they dealt with some of the most important issues at hand for AnaEE today. How can we work together to face the challenges of food security, climate change and biodiversity? How can we build stronger ties between the environment and the economy? What must European research infrastructures do to keep up with a changing political climate? What can we do to build ties globally? How can we best marry data and quality?

Our meetings in Antwerp brought together over sixty experts and professionals from many different fields. But we must do more.

In continuing the Call for Expression of Interest, in building on work to define policies and governance for the future, we must ensure our infrastructure we build is as inclusive as possible.

This includes building crucial ties with industry and ensuring AnaEE provides a positive vision of education in ecosystem science. We will soon be launching an online education and training module - and also defining higher education policies in the coming 12 months.

Finally, the upcoming climate conferences in France in 2015 will be a chance for AnaEE to engage with a very wide and important set of stakeholders from the policy and research worlds and showcase the key role of AnaEE.

NEWS *Nordic Countries*

The NordForsk project on "Research Infrastructure Network for Nordic Atmospheric and Earth System Science" officially began at the beginning of October.

This project, coordinated by Finland, aims at building and ensuring deeper Nordic collaboration and participation in the individual RI activities (Nordic nodes for ICOS, ACTRIS, ANAEE, SIOS).

It will also help enhance the cross-Research Infrastructure collaboration in topics related to data, access, services, management, and policies at the Nordic level.

NEWS *France*

Consultations are ongoing in France between the French National Institute for Agricultural Research (INRA, coordinating AnaEE) and the National Centre for Scientific Research (CNRS, coordinating AnaEE France) on how to structure a French national node for AnaEE in the context of the ongoing Call for Expression of Interest. These discussions will be opened up to other research bodies in the near future.

UPCOMING DEVELOPMENTS AND WHAT TO EXPECT FROM ANAEE

ANAEE COORDINATOR TO PRESENT ON "SOIL – AN ESSENTIAL RESOURCE", IN FRAUENCHIEMSEE, BAVARIA, 16–17 APR 2015

The International Expert Group on Earth System Preservation (IESP) has invited AnaEE Coordinator Abad Chabbi to speak on "Soil – An Essential Resource" at an upcoming workshop in Frauenchiemsee, Bavaria on 16-17 April 2015. The workshop is organised in cooperation with the Bavarian Ministry for Environment and Consumer Protection.

The areas to be covered are soil threats like erosion and land take, Global and Regional Soil Partnerships, Climate Change and Soil Management Challenges and Infrastructures for Soil Research. Dr. Chabbi will be covering infrastructures in particular, focusing on AnaEE experimentation and the link to key soil security issues.

ANAEE COORDINATOR TO GIVE WINTER SEMINAR AT ROTHAM-STED RESEARCH, NORTH WYKE, DEVON, UK, 23 JAN 2015

AnaEE Coordinator Abad Chabbi will be giving a Winter Seminar at Rothamsted Research's North Wyke Farm site, funded by the Stapledon Memorial Trust (<http://www.stapledontrust.org.uk/welcome.htm>). Dr. Chabbi will talk about how AnaEE can contribute to integrated global environmental research.

'NEW PERENNIAL CROPS: THE NEXT GREEN REVOLUTION?', BRUSSELS, BELGIUM, 11 DECEMBER 2014

Abad Chabbi and Franco Miglietta will be co-organising a roundtable workshop on the vital issue of how perennial cereals, legumes and oil species represent a paradigm shift in agriculture and hold great potential to move towards sustainable production systems. The conference, organised at the representation of the Tuscany Region in Brussels, will bring together top quality speakers including Gianni Salvadori (Regional Minister for Agriculture, Tuscany Region), John R. Porter (Univ. Copenhagen, Denmark), Jerry D. Glover (USAID, USA) and Laura Gazza (CRA, Italy). This is of key relevance in the upcoming Horizon 2020 Calls, and AnaEE can play a key role. Key Commission and other EU/national officials are invited. More information can be found on the AnaEE website.

FOR MORE
INFORMATION
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This newsletter was drafted by Evan O'Connell and Abad Chabbi (INRA) with input from the entire AnaEE consortium.

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ESFRI



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