

The Earth League

Towards a Global Research & Assessment Alliance

Humankind has become a quasi-geological force on Planet Earth. Our species is the most successful ever, still growing in numbers and absorbing more and more natural resources for its industrial metabolism, which is largely based on fossil fuels and other dwindling stocks. As a consequence, societies around the world are currently witnessing severe crises that call for a “Great Transformation” toward sustainability. Climate change might be understood as just one manifestation of the emerging complex problem or as a driver. Many other challenges such as the distortion of ecosystem services, the loss of biodiversity, the degradation of land, sprawling urbanization, worsening water scarcity, the disturbances in terrestrial and marine food chains or the ubiquitous pollution of all environmental systems have to be taken into consideration.

At the same time, the gains of the human enterprise are distributed quite unevenly: abject poverty, lack of education, insufficient access to health services and other social disparities persist worldwide in spite of dramatic economic growth in many countries. Securing a life in dignity for all people alive while maintaining the essential ecosystems for future generations presently looks like squaring the circle. The UN has recognised this unprecedented challenge and therefore is about to set well-chosen Sustainable Development Goals (SDGs) that complement and transcend the conventional Millennium Development Goals (MDGs).

Science will have to play an unprecedented role in this enterprise if that circle is to be squared. Among the many reasons supporting such a statement, two stand out:

First, modern civilization is virtually a “brainchild”, generated by the Enlightenment and the consistent application of reasoning through the scientific method. From an evolutionary point of view, it would be foolish not to harness research and innovation for overcoming the problems that those cultural forces keep on creating. So the best possible science should be employed to identify pathways and measures for perpetually improving the human condition. Truly transformational strategies may be needed to overcome the climate crisis and global demographic change.

Second, the scientific community owns part of the knowledge established around the planet which is arguably spearheading the eventual development of a cosmopolitan paradigm for humankind. This is so because the generation of genuine knowledge is based on community-wide best practices that reflect the universalities of reality as epitomized by the laws of physics or genomics. For instance, quantum mechanics governs the development of modern electronics

irrespective of politics, culture or religious belief. Thus scientists, wherever they work, have “the truth” as a common reference point. Such a unique position is able to transcend national interests which continue to dominate multilateralism in a world composed of some 200 sovereign states.

In summary, the knowledge enterprise has both the capacity and responsibility to find and propose global solutions for global problems, yet this will require new forms of self-organization and novel concepts for the dialogue between science and society.

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In view of the challenges and opportunities outlined above, we propose to establish a voluntary alliance of leading scientists and institutions dealing with planetary processes and sustainability issues - the *Earth League*.

The name is meant to reflect that this initiative is about *the whole Earth as a research topic*, on the one hand, and about *involving world-class scientific entities*, on the other hand. The latter are universities, institutes or think tanks which are strong enough to stand comfortably alone, yet would gain additional weight and impact by standing together.

We will sketch options for the initial and intermediate design of that alliance below. First, however, we wish to address the critical question, why such a network might have considerable advantages in comparison to existing relevant structures. As outlined in the previous section, the world urgently needs transnational scientific and evidence-based capacities – in order to mobilize objective critical masses for investigating global issues and to form unmistakable voices in the dialogue with societies facing enormous pressure for change. Evidently, those capacities and voices do not exist yet, or only in much constrained versions.

Of course, there are networks like the IPCC and similar international panels that are supposed to synthesise the scientific state-of-the-art regarding certain aspects of global sustainability and to express the views of the research community in a way that can easily be understood by the relevant stakeholders. Of course, there are hundreds of national academies that represent their respective knowledge communities and occasionally weigh in on debates about planetary issues. And, of course, there are several worldwide research programs on global change like IGBP or IHDP that try to coordinate investigative synergies. In fact, serious steps towards an integrated Earth System science program, finally bridging the gap between the natural and the social sciences, are currently being made.

All these entities have done marvellous jobs so far. And yet these structures are either tenuous and severely underfunded (like the global-change programs) or inherently unwieldy by construction and mandate (like the intergovernmental panels) or rather ill-connected across the national boundaries (like the academies). Also, hardly any of the institutions mentioned are able to do original research on an emerging issue within an appropriately short period of time. So it is only natural to turn directly to the top “primary producers” of global sustainability knowledge and to unleash their synergistic forces by a carefully designed alliance, i.e. an “Earth League”. The members of such an association can (i) use their autonomous resources for tackling crucial scientific problems together; (ii) collaborate on setting and advancing research agendas for the respective international communities; (iii) jointly apply for national as well as transnational funding (as provided, e.g., by eminent foundations); (iv) co-produce assessments of intra- and extra-alliance findings; and (v) communicate to and discuss with decision makers as well as society at large the conclusions to be drawn from those assessments.

In summary, the collaborative activities of the Earth League will unfold in scientific as well as in societal arenas: based on ground-breaking research in the fields of Earth system analysis, sustainability science and transformation dynamics, credible transnational advice to decision makers, opinion formers and society at large may be provided if solicited or necessary.

While quite a few institutions already offer individual topical advice to certain stakeholders, the Earth League will offer a truly global perspective to international initiatives, not least by forming fast-track investigative capacities and by adopting a responsive style of dialogue with societies around the world.

Scientific Activities

The new alliance will focus particularly on the production, dissemination and application of knowledge needed for managing anthropogenic global change according to the principles of sustainable development.

Crucial topics are the complex dynamics of the physical Earth system; functionality and resilience of biosphere diversity; world food production and global public health in the 21st century; planetary commons and planetary boundaries; integrated mitigation-adaptation strategies; climate-compatible energy mixes; novel urban and rural concepts; equity under global change; induced innovation and transformation – to name just a few. Taken together, the cognitive agenda aims to give answers to some of the most pressing questions humankind is facing today.

This process of knowledge production should lead to a detailed exploration of a multiplicity of options rather than providing a small set of prescriptive policy

recommendations. The Earth League will best serve its scientific and public purpose if the various pathways available within the solution space are assessed, along with their implied value assumptions, uncertainties and trade-offs. Policy choices, ultimately, will have to be made through societal decision processes and need to be based on explicit value judgments. Delivering robust background information for decision-making and enhancing transparency on the choices available will be among the crucial scientific tasks for the Earth League.

The Earth League will deliver its insights through a range of products and formats: feasibility studies requiring only seed money from internal or external sources; fast-track studies as solicited by third parties; workshops and conferences for advancing frontier fields; in-depth studies and assessments that transcend the resources of the individual partners; co-development of simulation instruments; model inter-comparisons, etc.

Outreach Activities

The Earth League will employ all professional means of communicating its scientific insights and strive to enhance the reputation of its members by publication in the most respected journals. In addition, however, the alliance will reach beyond the pertinent expert communities and other knowledge circles in an attempt to be part of a “new contract between science and society”. Today’s knowledge enterprise must not hide evidence that can make differences in worldwide decision making in technical papers or private colloquia.

Therefore the league will develop participatory interfaces and explore, together with stakeholders, strategies to integrate transdisciplinary knowledge, to translate knowledge into action and to support transitions toward sustainability. This is a deliberate commitment derived from the fundamental insight that knowledge permeates communities and cultures – under innovation-as-usual conditions - through a variety of relatively slow processes like education schemes. Yet postponing effective responses to the current environment and development crisis is a luxury we cannot afford.

A conspicuous example for possible novel ways of reaching out is the “Nobel Cause” symposia series on global sustainability that was launched in 2007. The events of this series have become unique opportunities for a top-level discourse between experts and stakeholders as demonstrated at the COP17 in Durban in 2011 and at the Rio+20 summit in 2012. The Earth League could become the permanent platform for this format and similar ones.

Building the League

The alliance is, above all, a self-organized network of scientific entities. This means, in particular, that it will be initiated through the vision and leadership of individuals that carry a certain weight in the global sustainability science community. Thus, the Earth League will come into being if a critical number of those individuals make appropriate commitments for themselves and on behalf of the institutions they represent.

The constitutive meeting of the Earth League will take place in London on 7 February 2013 after an informal gathering of a few members in Laxenburg, Austria in October 2012. The purpose of the London meeting is to discuss the major intellectual directions for the League in the coming months and to announce its creation.

Initial Members

As of January 2013, the following institutions and individuals have expressed keen interest in the emerging alliance:

- Centro Mario Molina, Mexico City, Mexico (***Mario Molina***);
- Chinese Academy of Science, Beijing, China (***Xu Guanhua***);
- Climate Service Center, Hamburg, Germany (represented by ***Guy Brasseur***) that will also host the Earth League Secretariat (***María Máñez***);
- Grantham Institute for Climate Change at Imperial College, London, UK (***Sir Brian Hoskins***);
- Instituto Nacional de Pesquisas Espaciais (INPE), Sao Jose dos Campos, Brazil (***Carlos Nobre***);
- International Institute for Applied Systems Analysis, Laxenburg, Austria (***Pavel Kabat***);
- Grantham Research Institute on Climate Change and the Environment at the London School of Economics, London, UK (***Lord Nicholas Stern***);
- Max Planck Institute for Meteorology, Hamburg, Germany (***Klaus Hasselmann***);
- Mercator Research Institute on Global Commons and Climate Change, Berlin, Germany (***Ottmar Edenhofer***);
- Potsdam Institute for Climate Impact Research, Potsdam, Germany (***John Schellnhuber***);
- Stockholm Resilience Center, Stockholm, Sweden (***Johan Rockström***);

- United Nations Economic Commission for Africa, Addis Abeba, Ethiopia (***Youba Sokona***);
- World Resources Institute, Washington, DC, USA (***Jennifer Morgan***);
- University of California at San Diego, Scripps Institution, La Jolla, CA, USA (***Veerabhadran Ramanathan***);
- TERI University, New Delhi, India (***Leena Srivastava***);
- School of Earth Science, Stanford University, CA, USA (***Pamela Matson***);
- Vienna University of Technology, Austria (***Nebojsa Nakicenovic***).

Further institutional and personal members will be joining the league in due course to shape a worldwide network that represents topical scientific excellence across disciplines, boundaries, and cultures.

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