

OECD Global Science Forum
SciColl: The Scientific Collections Initiative
Progress report (March 2010)

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Progress on developing an international coordinating mechanism for scientific collections, named Scientific Collections International (SciColl), is presented. The OECD Global Science Forum is asked to note the progress on:

1. Expanding disciplinary and international participation
2. Developing the governance and sustainability of the initiative

Background

Scientific collections of samples and objects are fundamental components of our scientific infrastructure. They consist of carefully selected samples of the world around us which allow us to verify or repeat earlier scientific experiments and observations and, through new technologies, re-examine the samples to make new discoveries. The fact that the samples in scientific collections are arranged in particular ways means that they are both a reference system of existing information as well as a source of new knowledge and ideas. The challenge is to ensure that this distributed infrastructure is arrayed, or connected, to serve the needs of science and society.

The initial proposal for an activity on scientific collections was introduced by the Dutch delegation at GSF-14 (Feb. 2006). This was followed by technical workshops in Leiden (June 2007) and Washington DC (July 2008). At the October 2008 GSF meeting approval was given for an 18 month planning period during which governance and sustainability of an international coordinating mechanism should be explored together with encouragement to expand disciplinary and international participation. The UK undertook to foster the planning phase. Reports on progress were given to the GSF in April and October 2009.

This initiative aims to build an international coordinating mechanism for scientific collections with two primary goals:

- to ensure collections are efficient and integrated infrastructures
- to enable more science to be done, especially interdisciplinary research using collections.

SciColl is being developed through a steering committee of experts from 18 countries and international organisations, distributed in three working groups:

1. Strategic planning (chair: Dr David Schindel, Smithsonian Institution, USA)
2. Governance and financial planning (Chair: Dr Christoph Häuser, Museum für Naturkunde, Berlin)
3. Outreach (Chair: Dr Myriam Néchad, Muséum National d'Histoire Naturelle, Paris).

The chair of the initiative and chairs of the three working groups have regular teleconferences (including the GSF secretariat) to monitor progress. The governance and financial planning working group had a workshop in Paris in March 2010.

A meeting of the full steering committee together with invited participants from non-OECD countries was held in Brussels in February 2010 hosted by the Royal Belgian Institute for Natural Sciences immediately following the scientific conference (reported below). 21 participants from 17 countries attended (see Annexe, indicated by **) and reviewed the recommendations of the scientific conference, the updated governance and financial plan and the offer to hold a meeting in Australia.

Progress since October 2009

Progress has been along two main lines since the last update to the GSF in October 2009.

1. Expanding disciplinary and international participation

A key development was a scientific conference entitled *International Coordination of an Interdisciplinary Global Research Infrastructure* held at the Royal Belgian Institute of Natural Sciences in Brussels on 8-9 February 2010. The conference was supported by the European Science Foundation, the US National Science Foundation and the Belgian Science Policy Office. It was attended by 85 researchers and institutional representatives from 36 countries (annexe).

The conference explored the types of interdisciplinary research that have and could benefit from access to a diversity of research collections. Examples ranged from earth sciences through biomedical sciences to archaeology. There was very strong support for the SciColl initiative and it was recommended that, from a research perspective, the initiative should focus on facilitating access to the diversity of collections that is required to address challenging contemporary scientific questions. It was noted that SciColl is concerned with scientific collections which contain specimens and samples that can be re-examined with new technology and therefore used for purposes other than that for which they were originally collected. In this way SciColl is very different to but complements organisations that collate and coordinate data, (such as GBIF). A number of suggestions were made by the participants that subsequently have been incorporated in the workplan and governance of SciColl.

The website established for the Brussels conference is enabling the wide range of conference participants to continue to engage with SciColl.

A meeting of the Steering Committee together with a small number of invited researchers is planned for autumn 2010 in Australia to produce a detailed workplan for two or more pilot projects that build on the recommendations of the Brussels conference. Suggested topics are ocean acidification (physical and biological aspects) and emerging diseases (animal, human and plant).

SciColl has accepted an invitation to be an observer at the European Science Foundation's "Member Organisation Forum on Research Infrastructures".

2. Developing the governance model and sustainability of SciColl

The objectives and various formal aspects of SciColl's governance and operation (how it will operate, be governed and the hosting of the secretariat) have been further developed and incorporated into a revised Terms of Reference (Accompanying document 1). A draft Memorandum of Understanding incorporating the Terms of Reference is also under development which is anticipated to be signed by both national authorities and institutions when joining SciColl. The details of the MoU will be finalised when the legal structure of SciColl is known.

The budget and contributions base have been reviewed and are presented in the Draft Workplan and Budget (Accompanying document 2).

The key next stage in the development of SciColl is to build a critical mass of governments and institutions willing to commit to supporting the initiative.

Timetable:

Phase 1. Exploration, February 2006 to October 2008: Two exploratory workshops were held under the auspices of the OECD Global Science Forum and approval was granted for a second phase.

Phase 2. Organizational planning and community consultation, October 2008 to April 2010: Two steering committee meetings were held and three working groups developed a strategic plan, program of work, governance model, business plan, and outreach campaign. An international conference was held in February 2010 to gather input from the research communities and stakeholders.

Phase 3. Membership development, April to November 2010: An Interim Executive Board consisting of representatives of committed governments and institutions, in partnership with SciColl's steering committee, will solicit expressions of interest (letters of intent) in becoming SciColl members from governments and institutions. When there is sufficient interest, governments and institutions that have expressed interest will be asked to make financial commitments for a three-year period and the Interim Executive Board will issue a call for proposals to host the Secretariat Office and select a host country and institution.

Phase 4. Organisational launch and implementation, December 2010 to late 2013: Governments and institutions that have signed the MoU and made financial commitments will:

- elect members of an Executive Board that will make operational decisions,
- advertise for and select an Executive Secretary,
- create and adopt Terms of Reference with a detailed governance structure,
- implement a program of work, and
- monitor progress against a set of deliverables defined by SciColl members.

Phase 5. Full implementation, beyond late 2013. Based on its achievements, impact, and perceived return on investment, SciColl expect to attract sufficient members and financial commitments for continued operation through successive renewal periods

Associated documents to this report:

Annexe – report on a scientific conference entitled *International Coordination of an Interdisciplinary Global Research Infrastructure* held at the Royal Belgian Institute of Natural Sciences in Brussels on 8-9 February 2010

Accompanying 1 – Draft Terms of Reference

Accompanying 2 – Draft Programme of Work and budget

Accompanying 3 – Request for Proposals for hosting the secretariat

ANNEXE

Scientific Collections International Conference:

International Coordination of an Interdisciplinary Global Research Infrastructure Brussels, 8-9 February 2010

Conference Report

[Scientific Collections International](#) (SciColl), an activity organized under the auspices of the OECD's Global Science Forum, held its first international conference at the Royal Belgian Institute of Natural Sciences in Brussels on 8-9 February 2010 (see agenda). The conference was supported by the European Science Foundation, the US National Science Foundation, the Belgian Science Policy Office. It was attended by **85** researchers and institutional officials from **35** countries (see list of participants)¹.

The conference goals were:

- 1. To introduce the concept of an international, interdisciplinary coordinating mechanism for scientific collections.** This conference was the first-ever interdisciplinary and international meeting to focus on object-based scientific collections. Participants represented the major research fields that depend on collections – biomedicine, biodiversity, earth and planetary sciences, anthropology, and archaeology – and they heartily endorsed the need for greater coordination and interoperability among their collections and with researchers.
- 2. To explore how the coordination of collections could promote more innovative interdisciplinary research.** Three speakers described how they are using collections in novel ways for research projects that cross traditional disciplinary lines. A representative of the Global Earth Observing Secretariat (GEO) described their efforts to integrate data from diverse fields and how scientific collections are facing many of the same challenges². However, it was acknowledged that there is a significant difference between data that GEO and the Global Biodiversity Information Facility (GBIF) connect and the objects and samples that SciColl connects, in that the latter can be re-examined by different technologies and approaches. Participants in the conference agreed that the proposed SciColl research program on environmental changes was highly relevant and timely, and highlighted the potential impact that scientific collections could have on major research issues. They also identified other topics, such as emerging animal, human and plant diseases that would benefit from the same multidisciplinary collections approach.
- 3. To discuss SciColl's program of work to help improve returns on investments in scientific collections.** In addition to promoting interdisciplinary research using scientific collections and thus enabling more and higher quality research to be produced, SciColl would promote improvements in overall management, user access, workforce training, curatorial practices, digitization processes, associated data management operations and interoperability, and other aspects of collection operations. Three presentations described efforts within and across disciplines to improve collection management practices. Participants then discussed the proposed SciColl program of work in this area and there was broad agreement on the potential value of international and interdisciplinary coordination and sharing of good practices. A key recommendation was to describe collections in a range of discipline ontologies in order to maximise cross-discipline access to collections.
- 4. To discuss the proposed SciColl governance structure and costs of membership.** SciColl's steering committee envisions two types of paying and voting members: national governments, and institutions with collections (or consortia of institutions). Membership fees would be scaled

¹ A list of participants, the conference agenda, and other relevant documents are posted at www.scicoll.org.

² Presentations from the conference are available at <http://www.scicoll.org/content/programme>.

according to the size of the member government or institution. International organizations, NGOs, associations of institutions, and other types of organizations could be non-voting members (perhaps paying a modest fee). SciColl would have a small Secretariat Office and an Executive Board that would conduct business on behalf of the Members in the General Assembly. Details concerning the composition of the Executive Board are still under discussion and would be affected by the relative numbers of national governments and institutions that decide to join SciColl.

- 5. *To present and discuss the plan and timeline for SciColl's development.*** SciColl's steering committee will be making its final presentation to the OECD Global Science Forum in April 2010, at which GSF will decide whether or not to endorse the concept. If it is approved, the steering committee will conduct a membership campaign to convince national governments and institutions to express their interest in joining SciColl. If there is sufficient commitment by potential members, they will be asked to sign a formal Memorandum of Understanding during 2010. An interim Executive Board would be formed. Bids to host the Secretariat Office will be sought and a search for an Executive Secretary will be conducted. Formal launch of SciColl would take place in early 2011.

Conclusions. Participants strongly supported scientific collections as essential parts of the international research infrastructure and they endorsed the idea that an international coordinating mechanism is needed. They provided many constructive suggestions on how SciColl could improve its proposed program of work to be more valuable to potential members. SciColl's goals and proposed activities align very well with those of a US inter-agency working group on scientific collections and with the European Science Foundation's 'Mapping of European Research Infrastructure Landscape' (MERIL) There was strong general interest in the proposed research program on environmental change and several additional research topics were suggested and discussed. SciColl's steering committee recorded these suggestions and will consider them as the initiative develops.

The participants ended the conference by expressing their enthusiasm for SciColl's overall approach and the positive impact that SciColl could have on interdisciplinary research and support for scientific collections. The conference organizers agreed to keep all participants informed as SciColl develops and to work through them whenever possible to provide information about joining SciColl to their national governments and institutions.

**Agenda for the SciColl conference *International Coordination of
an Interdisciplinary Global Research Infrastructure***

Brussels, 8-9 February 2010

Monday, 8 February 2010:

9:00 – 10:00 Session 1: Welcome and Overview; Session chair Patrick Grootaert

- **Welcome by host organization** ([pdf](#), 2.08Mb)
Dr. Patrick Grootaert, Royal Belgian Institute of Natural Sciences, Brussels
- **The global landscape of scientific collections** ([pdf](#), 166Kb)
Dr. Scott Miller, Smithsonian Institution, Washington, USA
- **SciColl: Overview of the concept** ([pdf](#), 996Kb)
Dr. Richard Lane, Natural History Museum, London, UK
- **SciColl as part of the research infrastructure landscape** ([pdf](#), 1.19Mb)
Dr. Marc Heppener, Director of Science and Strategy Development, European Science Foundation

10:30 – 12:30 Session 2: The role of collections in global research: What are limits of current information and what new information is needed for breakthroughs? Session chair David Schindel

- **Introduction of proposed SciColl research programme on Environmental Change** ([pdf](#), 3.18Mb)
Dr. David Schindel, Consortium for the Barcode of Life, Smithsonian Institution, Washington, USA
- **Climate, Environment, and Ecosystem Change from Paleo Proxy Collections** ([pdf](#), 2.46Mb)
Dr. David Anderson, World Data Center for Paleoclimatology, Colorado, USA
- **Hypothesis-driven research of changing disease patterns: The role of collections with three case studies** ([pdf](#), 1.87Mb)
Dr. Gregory Glass, Johns Hopkins University, Baltimore, Maryland, USA
- **Importance of natural history collections in climate change research** ([pdf](#), 2.46MB)
Dr. Adrian Lister, The Natural History Museum, London, UK
- **Data Management in the Global Earth Observation System of Systems** ([pdf](#), 3.31Mb)
Rob Koopman, Group on Earth Observations (GEO), Geneva, Switzerland
- Open discussion of interdisciplinary collections-based research

13:30 – 14:30 Visit to research collections

14:30 – 15:30 Session 3: Breakout discussion groups. Each group will discuss:

- **Interdisciplinary solutions to research bottlenecks using collections**
- **Other opportunities for interdisciplinary research based on collections**
- **SciColl's proposed research programme on global change**

16:00 – 17:30 Session 4: Presentation and discussion of breakout discussion groups; Session chair Richard Lane

- **Rapporteur reports on obstacles and opportunities**
- **Moderated discussion to identify priorities**

19:00 Dinner at the Royal Belgian Institute of Natural Sciences

Tuesday, 9 February 2010:

9:00 - 10:00 Session 5: Improving scientific collections; Session chair Leo Kriegsman

Presentations of four initiatives to improve collections and their management:

- **SciColl's proposed programme of work to improve collection management** ([pdf](#), 415Kb)
Dr. Leo Kriegsman, Naturalis Museum, Leiden, The Netherlands
- **Global Biological Resource Centre Network (GBRCN): Aiming to improve the management and networking of collections of laboratory-held living microorganisms and cultured cells** ([pdf](#), 1.77Mb)
Dr. David Smith, GBRCN Demonstration Project General Manager
- **Korean National Research Resources Center** ([pdf](#), 2.98Mb)
Prof. Yeonhee Lee, Director General KNRRRC, Korea
- **SYNTHESYS Networking activities: Assessing and sharing best practice in European collections to ensure their future survival and value as an infrastructure** ([pdf](#), 1.22Mb)
Dr. Rob Huxley, Natural History Museum, London, UK

10:30 – 12:30 Session 6: Plenary discussion; Moderator Christoph Häuser

- Proposed SciColl Programme of Work
- Identification of priorities
- SciColl membership
- Next steps in the development of SciColl

Afternoon: meeting of SciColl Steering Committee

**Participants at the SciColl conference International Coordination of
an Interdisciplinary Global Research Infrastructure
Brussels, 8-9 February 2010**

Australia	La Salle John**	CSIRO Entomology
	Miller Suzanne	South Australian Museum
Austria	Hagauer Sandra	Institute of Pathology, Medical University Graz
	Zatloukal Kurt	Medical University of Graz
Belgium	Grootaert Patrick**	Royal Belgian Institute of Natural Sciences
	Moulin Jean	Belgian Federal Science Policy Office (BELSPO)
	Pisani Camille	Royal Belgian Institute of Natural Sciences
Brazil	Pirmez Claude	FIOCRUZ (Fundação Oswaldo Cruz)
	Ribeiro-dos-Santos Ândrea	Universidade Federal do Pará (UFPA), Instituto de Ciências Biológicas, Laboratório de Genética Humana e Médica
	Carvalho Claudia**	Museu Nacional/Universidade Federal do Rio de Janeiro (UFRJ)
Canada	Therriault Ann	Natural Resources Canada
Cuba	Cejas-Rodríguez Francisco	Instituto de Ecología y Sistemática
Czech Republic	Kasperek Martin	CZELO - Czech Liaison Office for R&D (Technology Centre ASCR), Belgium
	Vlkova Michaela	CZELO - Czech Liaison Office for R&D (Technology Centre ASCR), Belgium
Denmark	Barfod Anders S.	Herbarium AAU, Aarhus University
Egypt	Barakat Hala Nayel**	Center for Documentation of Cultural and Natural heritage, Bibliotheca Alexandrina
Estonia	Puura Ivar	University of Tartu, Museum of Natural History
European Commission	Douka Maria	
	Pasini Daniel	
European Science Foundation	Beckers Paul	
	Berghmans Stephane	
	Heppener Marc	
Fiji	Heilala Fiona	Institute of Applied Science, University of the South Pacific
Finland	Kallio Arja	Academy of Finland
	Muona Jyrki	Finnish Museum of Natural History

	Nyrönen Tommi	CSC IT Center for Science
France	Dagher Georges	INSERM (Institut National de la Santé et de la Recherche Médicale)
	Bizet Chantal	CRBIP - Institut Pasteur
	Clermont Dominique	CRBIP - Institut Pasteur
	Guiraud Michel**	Muséum national d'Histoire naturelle
	Hulin Danièle	Ministère de l'Enseignement Supérieur et de la Recherche
	Né Chad Myriam**	Muséum national d'Histoire naturelle
	Papierok Bernard	Institut Pasteur
	Rigollet Christophe	BRGM (Geoscience for a sustainable Earth)
GBIF	Chavan Vishwas	GBIF (Global Biodiversity Information Facility) Secretariat, Denmark
GBRCN	Smith David	GBRCN (Global Biological Resource Centre Network) Secretariat, Germany
Georgia	Lordkipanidze David	Georgian National Museum
Germany	Häuser Christoph L.**	Museum für Naturkunde
	Quaisser Christiane	Museum für Naturkunde
	Winkler-Nees Stefan	German Research Foundation
	Wolf Ulrich	Federal Ministry of Education and Research
Ireland	Kelleher Margaret	ESF Representative/ National University of Ireland Maynooth
ISBER	Hewitt Robert	International Society for Biological and Environmental Repositories, Luxembourg
Italy	Bartolozzi Luca**	Museo di Storia Naturale della Università di Firenze
Japan	Matsuura Keiichi**	National Museum of Nature and Science
Kenya	Oyieke Helida	National Museums of Kenya
Korea	Lee Yeonhee**	Korea National Research Resource Center (KNRRC)
	Lim Yong Pyo	Korea National Plant Research Resources Center (KNPRRC), Chungnam National University
Mexico	Perez Ortiz Tila Maria	National Autonomous University of Mexico (UNAM)

Netherlands	Dekker René	Netherlands Centre for Biodiversity Naturalis
	Kriegsman Leo**	National Museum of Natural History / Naturalis
	Los Wouter	University of Amsterdam
	van Dam Andries	Museum of Anatomy - Leiden University Medical Centre
Norway	Bjørlykke Arne	Natural History Museum, University of Oslo
	Mehlum Fridtjof**	Natural History Museum, University of Oslo
OECD	Sgard Frédéric**	Global Science Forum
Poland	Szrek Piotr**	Polish Geological Institute - National Research Institute
Portugal	Mota Paulo**	Science Museum University of Coimbra
Romania	Popa Mihai Emilian	University of Bucharest / European Science Foundation
Slovenia	Kuntner Matjaz	Slovenian Academy of Sciences and Arts
South Africa	Bartels Paul**	National Zoological Gardens
Spain	Manrique Reol Esteban	National Museum of Natural Sciences (MNCN) - CSIC (Spanish Research Council)
	Sanchez Gimeno Benjamin	Ministerio de Ciencia e Innovación, Subdirección General de Instalaciones y Organismos Internacionales
Sweden	Claesson Stefan	Swedish Museum of Natural History
Switzerland	Koopman Robert	GEO Secretariat
Taiwan	Yang Man-Miao	National Chung Hsing University
Turkey	Ergin Emre	Turkish Research and Business Organisations, Belgium
	Gürsoy Akile	Yeditepe University / European Science Foundation
	Koban Evren	TUBITAK Marmara Research Center
	Sahin Fikrettin	Yeditepe University, Genetics and Bioengineering Dept.
	Telci Dilek**	Yeditepe University, Genetics and Bioengineering Dept.
United Kingdom	Huxley Robert	The Natural History Museum
	Lane Richard**	The Natural History Museum
	Lister Adrian	The Natural History Museum
	Prince Stephen	Centre for Ecology & Hydrology, Natural Environment Research Council

United States	Anderson David	World Data Center for Paleoclimatology
	Bart Hank	Tulane University Museum of Natural History
	Blakwell Meredith	CollectionsWeb / Louisiana State University
	Frasch Tripp	Tulane University College of Medicine
	Krishtalka Leonard	University of Kansas Biodiversity Institute
	Lilburn Tim	ATCC
	Miller Scott**	Smithsonian Institution
	Prather Alan	CollectionsWeb/Michigan State University
	Rabeler Richard	University of Michigan Herbarium
	Schindel David**	Consortium for the Barcode of Life, Smithsonian Institution

** attended the SciColl Steering Committee meeting