

1. INSTITUTIONAL SKILLS

1.

Section I – Project details

Training Programme Title

Mobilising the value of biocultural collections in Brazil

Objective

The project aims to build capacity among Brazilian research institutes to research, catalogue and mobilise data from important collections, and to develop these important resources for improved understanding of the useful and cultural properties of plants. It will build and strengthen collaborative relationships in this area within Brazil, and between Brazil and the UK. It will facilitate and enhance development of data portals, making biocultural collections and associated data freely accessible, and will strengthen capacity of indigenous communities on the Rio Negro for autonomous research into material culture and plant use.

Lead Institution in Brazil

Instituto de Pesquisas Jardim Botânico do Rio de Janeiro (JBRJ)

CNPJ of the Leading Institution in Brazil

04936616000120

Project Leader in Brazil

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Beneficiary Institution(s) in Brazil

Fundação Flora de Apoio à Botânica

Instituto Socioambiental (ISA)

Federação das Organizações Indígenas do Rio Negro (FOIRN)

Museu Paraense Emilio Goeldi (MPEG)

UK Lead Partner Institution

Royal Botanic Gardens, Kew

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Other UK Partner Institution(s)

Birkbeck, University of London

2.

Section II – Description of project

Need for training programme

All the institutions involved in development of this proposal were engaged in a scoping meeting (Digital Amazon Workshop) held in Kew in July 2015, where prioritisation exercises were undertaken for the development of collaboration and capacity in the context of the exploration and application of important biocultural collections. The training programme aims to address identified skills gaps at the interface between botany and social sciences in Brazil, and in engagement of indigenous communities with botanical science in a culturally relevant context. Wider development of capacity for integrated research of

these collections is a priority, alongside accelerated contemporary biocultural documentation within the context of disappearing indigenous knowledge, technologies and lifestyles. The Ethnobotany collection at the Rio de Janeiro Botanical Gardens (JBRJ) was established in 2012, constituting a new direction in research in the institution. Brazil holds important ethnological collections from the Amazon and enhanced capacity to research these from a cross-disciplinary perspective will provide benefits across the sciences. One of the oldest and most important this collections of indigenous peoples of this region is in The Museu Paraense Emilio Goeldi (where a new economic botany collection is also currently under development). Instituto Socioambiental (ISA), which is working with indigenous communities in the Upper Rio Negro, has identified a need for technical capacity building of indigenous researchers in the region, particularly in the context of the interface between botanical science and indigenous knowledge/technology. This has important implications for development of projects supporting livelihoods through sustainable use for forest resources, as well as for strengthening the process of autonomous cultural documentation, valorisation and application of indigenous knowledge within these communities.

The Reflora project, in which Kew and JBRJ are major partners, has made great progress in repatriating important botanical collections and data held outside the country, contributing to the development of greatly enhanced understanding of Brazil's plant diversity. However, it is recognised that capacity for integrating these data with important knowledge on the uses and applications of plants, from contemporary and historical perspectives, requires strengthening alongside the development of mechanisms for data dissemination.

Extracts from final report of Digital Amazon workshop:

* "Exchanges in education, technology transfer and capacity building were seen as fundamental outcomes for the network and projects."

* "Digitisation, research and repatriation of ... collections, coupled with generating an understanding of their relationship with current use and knowledge of plants in the Amazon and the nature and drivers of change ... were identified as the highest priorities. Exploring the scientific and economic potential of this knowledge was also considered an important thematic outcome."

Objectives of the training programme

The programme aims to deliver capacity and institutional skills within Brazil that will provide sustainable impact on:

Improving technical/scientific skills in the design and delivery of projects and information services relating to cultural and practical roles of Brazilian plants and indigenous knowledge by civil society organisations, science museums and botanic gardens; Developing new methods and products in the above context delivered by civil society organisations, science museums and botanic gardens in partnership with community organisations; Supporting technology transfer of academic and indigenous knowledge among populations in the Alto Rio Negro, and developing resources for wider uptake and application. The training programme includes four main elements. The first aims to build expertise in integrated collections research and knowledge transfer through orientated hands-on research at Kew, working with Richard Spruce's collections from the Brazilian Amazon. Orientation will be provided by a range of relevant Kew/Birkbeck staff, and skills acquired will be transferred within Brazil through subsequent training at JBRJ. In addition to cross-disciplinary capacity building, this will also furnish data and digitised resources for application in the other three elements of the programme. In this way, it will support the establishment of collaborative research on biocultural collections from Brazil. The second element, which will run over eight months at JBRJ, focuses on building capacity for enhancement of an existing platform (currently focused on plant specimens), extending its value as a key Brazilian biocultural resource and opening opportunities for integration of data from other collections. This element, including modification of the Reflora online resource at JBRJ through incorporation of digitised Spruce material (economic botany artefacts, notes and letters, voucher specimens), will be conducted by two contracted researchers (employed with non-Newton funds), with supervisory input from specialists at JBRJ and Kew. The third element aims to provide wider capacity building in integrated collections research and mobilisation among a range of Brazilian organizations, whilst strengthening inter-institutional collaboration and knowledge-sharing within Brazil. This will be achieved through a one-week training course delivered in Rio de Janeiro, applying Brazil- and UK-based expertise whilst drawing on specialist knowledge and

expertise among the trainees. The fourth element aims to develop skills in autonomous biocultural research and interpretation/education among indigenous communities in the Upper Rio Negro, building on the Instituto Socioambiental (ISA)'s existing programme in the region. It aims to strengthen working relationships between researchers and communities, facilitating the development of collaborative research partnerships and exchange between scientific and indigenous knowledge in the region. This will be achieved through a two-week training course in São Gabriel da Cachoeira. Richard Spruce's collections, many of which originated from this region, will be used as source material for part of the training, alongside a focus on contemporary material culture and plant use. The training aims to serve as a two-way knowledge exchange mechanism, and will build capacity of ISA staff alongside community representatives. Training will be followed by an indigenous research programme supported by ISA, consolidating skills acquired by trainees, with a training manual developed for wider application within Brazilian indigenous communities.

Value added by the UK partner

The Royal Botanic Gardens Kew is one of the world's foremost botanical institutions. With a long history of research and collaboration in Brazil, from the 19th century to the present day, it holds important biocultural collections from the country and has well-developed expertise in integrated collections research, development of digital platforms, and communication of science to academic and non-academic audiences. It also has substantial field experience among Brazilian Amazonian indigenous communities, and an established track record in the delivery of international training programmes. Kew's role is integral to all four main training elements of the project.

Kew's Brazilian collections, which will form the basis for the hands-on UK-based training, constitute not only a key training resource but also a valuable source of data for development of enhanced online platforms. The biocultural objects and associated information collected by Richard Spruce in the Brazilian Amazon in the 1850s constitute a unique point of reference for the useful plants, ethnobotany, anthropology and environmental history of the region. This priceless collection, incorporates indigenous plant-based artefacts, samples of useful plant products, detailed archival notes on the use of plants by inhabitants of the Amazon, and accompanying herbarium voucher collections. These form part a larger body of 19th century material held in European collections, much of which has been poorly researched and is unavailable within Brazil. Such collections have huge potential as data for studies of Amazonian vegetation and ethnobotanical knowledge over the last 200 years, and provide a basis for analysis for future studies being conducted in Brazil.

Kew has also been a key partner in the development of the Re flora programme and its online platform for collections and data access, which forms one of the nuclei around which this training programme is designed. Together with Birkbeck, University of London, it was responsible for development and delivery of the Digital Amazon workshop which worked with Brazilian partners to identify and prioritise the training and capacity-building needs which this programme aims to address. Drawing on their experience in the development of a digital platform for Andean textiles, Birkbeck will provide support for training on new methodologies for working with biocultural collections, combining fieldwork, digital documentation and information visualization.

Developmental reference

Currently, 21% of the total length of the Amazonian Region is occupied and recognized as of exclusive use by indigenous peoples. In the Brazilian sector, the rate is about 22% (RAISG 2015). Many studies have shown how indigenous knowledge and practices are responsible, in large measure, for the production and reproduction of the great environmental diversity of the Amazon. Tropical rainforests are of utter importance for ecological balance and climate stability on a global scale. However, as widely reported, there is a growing threat to this biome and its traditional peoples, with deforestation performing between 15 to 20% of the global GHG emissions. The Northwest Amazon comprises a large region of equatorial forest on the border of Brazil, Colombia and Venezuela, which is inhabited by indigenous peoples since the pre-colonial period. Today they occupy 80% of its area. The region is known as a multiethnic social system comprising about thirty linguistic groups from three linguistic families: the Eastern Tukanoan and the Arawak are riparian and farmers, whereas the Maku, more mobile and exploring more dispersed resources, occupy inter-fluvial areas. This area is characterized by serious ecological limitations, acid soils and waters,

nutrient-poor and of low productivity, and extensive areas covered by Amazonian caatinga, which is very restrictive for agricultural practices. These two factors – antiquity of occupation and serious ecological limitations – have led the indigenous peoples to a long process of adaptation, finding effective and sophisticated forms of management of the land, forests and agriculture, fish and game. Some travellers, like Richard Spruce, who visited the region in the nineteenth century, described the vitality and dynamics of these populations, demonstrated by the size of their longhouses, their extensive inter-communal ceremonies, and their rich material culture. This regional social system underlies the constitution of contemporary indigenous organization and of the federation (FOIRN).

Collaborative research projects have been carried out among indigenous and non-indigenous researchers in some of the sub-regions, like the basins of the rivers Tiquié, Içana, Uaupés, as well as along the Rio Negro, connected to initiatives designed to address issues on environmental management, communities residents well-being, territorial governance, education, health care etc. Despite its geographical isolation, this region did not fail to be affected by state-sponsored integration policies, generally not suited to the Amazonian indigenous peoples. This interdisciplinary, cross-cultural and collaborative research will be linked to long-term research processes focused on sustainable environmental management. The use of plant resources is a key priority both for human livelihoods and the maintenance of ecosystem services. Important and potentially valuable information relevant to this challenge is contained in biocultural collections held both within and outside Brazil. Unlocking this potential requires an integrated, equitable approach to collections research, and the capacity to develop platforms for transmission of information to a wide range of end users. A diachronic approach to such research facilitates a better understanding of the shifting relationships between people and natural resources, with potentially important implications for the future. Successful translation demands constructive, culturally appropriate engagement with local communities, providing a portal into the world of scientific knowledge and helping to mobilise both scientific and indigenous knowledge in a mutually beneficial manner. The capacity we aim to strengthen within Brazilian institutions and community organisations through this project will facilitate multi-directional transmission of information on plant uses, recovering and documenting knowledge of practices and techniques involved in the making of artefacts from historic and contemporary collections. Digitally repatriating collections (images) and associated data, both to the public/scientific communities (via a dedicated web portal) and the forest communities from which they were originally collected, offers a direct pathway to long-term impact on economic development and social welfare. The programme is designed to support vulnerable indigenous communities in meeting some of the key challenges they currently face, including erosion and devaluing of vital indigenous knowledge, increasing demand for income from forest resources, environmental/cultural change, and the pressing need to raise awareness amongst the wider Brazilian population of their critical role as custodians of Amazonian biodiversity and ecosystem services.

Long term collaboration with UK partner

Rio de Janeiro Botanical Garden and the Royal Botanic Gardens, Kew have a well-established collaborative partnership in the field of botanical research. However, to date this has not extended to research on, and interpretation of, biocultural collections. The proposed training programme will broaden and strengthen this relationship, preparing the ground for development of new collaborative initiatives. It will also seed new collaboration between the other participating UK institutions (Birkbeck) and their counterparts. Fundamentally, the programme will build new relationships between UK/Brazilian partners and indigenous communities in the Upper Rio Negro, supporting the development of cross-cultural programmes and ongoing capacity building. Scope and need for the development constructive, collaborative relationships of this nature, specifically in the context of research on the 19th-century Amazonian collections of Richard Spruce, was highlighted in the 'Digital Amazon' workshop held in Kew in July 2015 with support from the Global Partnership Fund. The rationale for partially focusing this training programme around these collections is that it is expected that this will facilitate a sustainable, long-term legacy of collaboration through the initial development of concrete, focused research and data repatriation programmes, eventually leading to the development of a broader suite of collaborative projects working with biocultural collections and data, and their application within the context of economic development and social welfare.

Section III – Project Outline

Summary

Provide a summary of the training programme and a detailed activity plan. In no more than 500 words, please provide a general introductory summary of the training/capacity building programme, as context for the activity plan below and the [timetable \(Gantt chart\)](#) to be attached (detailing the chronological sequencing of project activities).

The programme will deliver a suite of integrated training and capacity-building activities in parallel with development of information resources designed to promote project sustainability and impact through wider uptake. 'Training the trainer' will therefore be incorporated in all activities. Staff trained in Kew (Activity 1) will go on to support the development of the Reflora data platform (establishing it as a key resource for biocultural data in Brazil), as well as generating content for establishment of a 'test case' within it, whilst assimilating knowledge that they will subsequently transmit through in-country training in Rio de Janeiro (Activity 3). In-country training (Activity 3) will provide important skills not only for staff from Brazilian institutions working with biocultural collections, but also for participants and trainers involved in the community-based training in São Gabriel da Cachoeira (Activity 4). Community-based training (Activity 4) will not only build capacity of indigenous researchers in the Alto Rio Negro, but will also provide important skills for ISA employees who will go on to support indigenous research and education programmes in the region. Meanwhile, the two-way nature of this proposed course will enhance the capacity of trainers to work with biocultural and associated data within a cross-cultural context. Additional outputs, including a biocultural training manual for indigenous researchers and an indigenous research programme, are designed to consolidate the impacts from training activities and to maximise the wider uptake.

4. Activity 1

Title

Integrated collections research - Experiential learning in UK

Training/capacity building impact – outcome of activity:

This intensive training will be given to two participants from Rio de Janeiro Botanic Garden who will be engaged in biocultural collections development of the Reflora data platform (Activity 2) and in-country training (Activity 3). Training will be provided through working with staff members including Dr Mark Nesbitt, curator of Kew's Economic Botany Collection, Frances Cook (Assistant) and a range of other Kew staff. The key outcomes will be that participants (1) have specific skills for handling, research and digitisation of economic botany artefacts and historic documents; (2) have the skills to reassess and, as appropriate, modify their curation and data management practices in the light of those experienced at Kew and other UK institutions; (3) are able to formulate research and dissemination activities based on ethnobotanical collections, aimed at well-defined user groups including the public, researchers into traditional knowledge, and (especially) source communities; and (4) have built strong connections with curators and other specialists at Kew and other institutions visited, providing continuing sources of advice and acting as a basis for future collaborations. A further outcome, through the training in photography and manuscript digitisation, will be new records of the Richard Spruce collection providing fresh material for incorporation into the Reflora resource as part of Activity 2.

Elements of Activity (detailed description)

1.1 : Introduction to advanced curation of ethnobotanical specimens: technical aspects of curation of ethnobotanical specimens, including cataloguing, storage, handling of toxic materials, object conservation. Participants will be guided through reassessment of selected Richard Spruce specimens from Brazil, such as poisonous arrows and fragile artefacts, and will re-catalogue these to current museum standards. By the end of their stay the trainees will be familiar with Kew's ethnobotany collections and aware of strengths and weaknesses in its curation, and thus able to take a fresh approach to documentation and storage of the biocultural collections and associated data. As the world's largest and oldest collection of this type, with three full time staff, Kew is well-placed to provide this training.

1.2 : Training in museum photography and manuscript digitisation. This is emphasised both because of its central importance in academic and public dissemination, and because the Spruce economic botany

collection was last photographed in 2004; fresh images from new angles are urgently required. The trainees will work alongside a highly experienced specialist photographer on digitisation of museum specimens, and under supervision of experienced library staff on manuscripts (which have not previously been digitised). Training will not be in photography itself but in curatorial practices, such as choice of views, use of scales and colour bars, inclusion of documentation in images, and setting up efficient workflows. Outputs will be used to enhance the ReFlora data platform as a case study in integrated collections.

1.3 : Introduction to use of collections in public engagement. Training will be provided in two forms: through the example of use of collections at Kew, not only through formal exhibits but also in hands-on sessions and digital media. In 2016/17 Kew will be home to the high profile 'Hive' UK pavilion from the Milan Expo; Dr Nesbitt, as Chair of Kew's Science in the Gardens group, is heavily involved in this, and (with colleagues) will not only show how this works in practice, but also show the development process underlying it. Trainees will also make guided visits to two other botanic gardens (Chelsea, Horniman) and two museums (British Museum, Pitt Rivers) to look at the use of ethnobotanical specimens in different types of displays.

1.4 : Guidance on integration of collections for research. This will take Richard Spruce's Amazon collections as a case study, using ethnobotanical, herbarium and manuscript materials held at Kew. Trainees will track selected ethnobotanical artefacts through different collection materials and learn how this leads to more holistic understanding of their significance and meaning. Existing Kew projects will be used to prompt discussion of use of ethnobotanical collections for research into biodiversity and traditional knowledge, particularly with regard to engaging with source communities.

5. Activity 2

Title

Data platform development and programme management

Training/capacity building impact – outcome of activity:

This work programme, conducted over eight months at JBRJ, will focus on building capacity for dissemination of integrated biocultural data/collections using the Richard Spruce material as a test case. Orientation to the two staff contracted for this work will be provided by JBRJ specialists and (remotely) by Kew specialists. The outcomes will be: (1) enhanced capacity within Brazil for development of integrated data resources; (2) an integrated data resource on the important Amazonian collections and observations on plant uses made by Richard Spruce in the 19th Century and (3) an enhanced data platform for wider incorporation and dissemination of Brazilian biocultural information. Incorporated within this activity is the overall management of the project including Activities 1, 3 and 4.

Elements of Activity (detailed description)

2.1 : Establishment of infrastructure: Hardware will be purchased for data storage;

2.2 : Development of ReFlora data platform: Two contracted staff will develop the ReFlora data infrastructure necessary for incorporation of biocultural collections and data, and will incorporate the Richard Spruce 'test case' contents.

2.3 : Management and technical input: Project management, technical oversight and training input will be provided by JBRJ staff for Activities 1-4 as part of this activity.

6. Activity 3

Title

Integrated collections research - Brazil-based training course

Training/capacity building impact – outcome of activity:

This 5-day training course will be based on a short course delivered by the same Kew staff (Nesbitt + assistant) to Europe-based participants in 2013, funded by the EU Synthesys programme and offering an intensive training in practical curation and in use of ethnobotanical collections. The course is modified in that training will be based around JBRJ's own ethnobotany collection, and because the participation of Dr Martins (Birkbeck) enables us to greatly strengthen content on integration of different collection types (herbarium, image, text, artefact), on wider indigenous and historical perspectives. Rio staff will also

participate in delivery. To enable highly participatory training, the group will number 10-12 trainees, drawn from Rio and other botanic gardens/museums with similar collections in Brazil. Outcomes will be ability to (1) document ethnobotanical specimens and to 'decipher' them in terms of their making (e.g. weaving) and botanical identity (2) carry out basic curatorial techniques for ethnobotanical specimens, including databasing and storage; (3) locate and interpret varied types of collection relating to plants in 19th-21st century Brazil and understand how they can be connected; (4) identify different user groups in Brazil and consider how they can be reached and (5) understand how research using collections can be used to address questions relating to biodiversity and traditional knowledge, including from diverse disciplinary approaches that will be less familiar to garden and science staff.

Elements of Activity (detailed description)

3.1 : Working with ethnobotanical objects: Trainees will compare different museum documentation approaches to that used at Rio. The Rio Garden's ethnobotany collection will be used for group exercises on documentation and on understanding materials, techniques and source plants. Ethical and effective approaches to collecting objects and associated data from indigenous peoples will be demonstrated.

3.2 : Integrating collections: Using the Rio Garden's own library and herbarium collections, the links between different types of collection will be explored, both in practical terms - how can specimens be found and data compared - and in research terms: what does this approach add, and how can it be applied to public engagement and to research.

3.3 : Identifying user groups: discussions will be led in order to identify potential users, focussing within-country and including garden visitors, academic students and researchers and indigenous peoples. We will also explore existing use of the collections and how these could be enhanced.

3.4 : Collections-based research: taking a wide view, we will explore how ethnobotanical collections can be used to explore research questions relating to the evolution of human-plant relationships, particularly in Brazil. Trainees will be encouraged to consider collaboration across disciplines, particularly with regard to combining 'scientific' and 'indigenous' views of plant use.

7. Activity 4

Title

Indigenous research and collections training, São Gabriel da Cachoeira

Training/capacity building impact – outcome of activity:

This ten-day course, delivered by three specialist trainers from JBRJ, RBG Kew, Birkbeck, MPEG, with additional support from ISA staff, will focus on providing 12 indigenous trainees from the Tiquié (Tukano, Tuyuka and Desana peoples), Içana (Baniwa and Koripako peoples), and lower Uaupés (Tukano and Piratapuya peoples) with new skills in biocultural research. It will be supported by a follow-up programme of community-based research to consolidate skills. Specific outcomes will be: (1) increased capacity among indigenous researchers for application of systematic/scientific techniques for data capture and collections, enhancing autonomous research; (2) increased knowledge/understanding among indigenous representatives of biocultural collections held in museums and associated research programmes; (3) increased understanding/knowledge among researchers/trainers of cultural contexts and requirements for biocultural data collection and management; (4) established/enhanced collaborative relationships between indigenous communities and participating research institutes; (5) data capture (through follow up programme) for incorporation into education and sustainable use/management projects; (6) increased capacity among ISA employees to support and guide indigenous biocultural research initiatives; (7) training resources for use in wider development of the above approach and capacity-building with other indigenous communities.

Elements of Activity (detailed description)

4.1 : Training course: in data and collections acquisition and management, including: basic scientific taxonomy; herbarium specimen collection and management; systematic ethnobotanical data collection; use of photography in biocultural research; artefact collection and classification; cross-cultural interpretation; data management and storage.

4.2 : Follow-up research programme: a five-month follow-up research programme, supported by ISA staff, will be undertaken by indigenous trainees upon return to their communities. The data from this research

will be incorporated into educational material developed with support of ISA's Rio Negro programme. This follow-up is essential in order to ensure sustainability of outcomes from activity 4.1.

4.3 : Production of training manual: Drawing on the content of the training programme (Activity 4.1), and incorporating feedback from participants as well as photographs and information generated in the course of its delivery, a simple, accessible guide for collecting indigenous biocultural research will be prepared, printed, and distributed through ISA's network.

8. Other activities

9. Timetable

[GANTT_final.xlsx](#)

10.

Planned start date:

01/05/2016

Planned completion date:

28/02/2017

11.

Section IV – Project budget

Using the Activity Based Budget template, please describe the financial and non-financial cost of all activities that will take place within the implementation of the training programme.

Please be reminded that this call aims to provide co-financing, representing a maximum of 50% of the total project budget, between £10.000 and £100.000 pounds. The remaining 50% of the funding or in-kind resources needed to implement the project should come from the Brazilian beneficiary institution(s) or another source (e.g. a Brazilian grant, or a corporate partner/sponsorship, but not a publicly-funded UK institution). This co-financing can include non-financial contributions, such as office space, researchers allocated to the project, management costs but not the salary costs of permanent or existing staff at the beneficiary institution(s).

Activity Based Budget

[Spruce Newton budget_FINAL.xlsx](#)

12.

Section V – Support Letters

Lead Partner Institution in Brazil

[Letters of support_Brazil.pdf](#)

13. UK Lead Partner Institution/Expert

[Letters of support_UK Partners_.pdf](#)

2. Thank You!

Email

Jan 25, 2016 05:54:43 Success: Email Sent to: vfonseca@jbrj.gov.br