



Full Proposal Submission

Section 1: General Project Information

Project Title: **Open, Collaborative and Alternative Science: overcoming health, inclusion and environmental challenges in Argentina**

Duration of Project: 24 months

Countries included in this project: Argentina

Regions included in this project: Latin America

Research Themes: Theme 1 (T1): Motivations (Incentives and Ideologies); Theme 2 (T2):

Infrastructures & Technologies; Theme 3 (T3): Communities of practice in Open and Collaborative Science and Theme 4 (T4): Potential Impacts (Positive and Negative) of Open & collaborative science

Justification of Research Themes: This project will address aspects of the four themes of the OCSDnet research as follows: Theme 1 (Motivations): we will study the relation between OCS approaches and the production of alternative science to that conducted by mainstream science and technology institutions. Theme 2 (Infrastructure): we will create open source software infrastructure to support OCS in Argentina. Theme 3 (Communities of practice): we will develop an understanding of the practices and aims of OCS when conducting alternative science and the barriers and obstacles actors face to legitimise their scientific knowledge production processes and outputs. Theme 4 (Impact): our research will both analyse and enhance the impact of OCS for the production of alternative science.

Total Budget Cost (CAD): 79,973

Section 3: Proposed Study Information

Research Project Abstract

WORD LIMIT: 250.

Open and Collaborative Science (OCS) can potentially enhance the democratisation of knowledge production by providing opportunities for broader societal input into and participation in the definition of research agendas, as well as other aspects of the research process. Given this potential, this project is concerned with whether and how OCS practices are contributing to (and how they could better contribute to) the production of what we term 'alternative science', understood here as research problems and questions that are neglected by incumbent scientific and funding institutions, but for which there is nevertheless a wider social demand, and which have important development consequences.

What we term 'Open, Collaborative and Alternative Science' (OCAS) nevertheless faces two

challenges. One of these (which is generic to all types OCS initiatives) is about how to support and sustain openness and participation, while the second (which is more acute for OCS initiatives producing alternative science) is about how to ensure that knowledge producing processes are recognised as legitimate.

We will explore empirically, analytically, and practically, these challenges, based on an analysis of two case studies of OCAS in Argentina -concerned, respectively, with documenting and understanding pesticide poisoning, and developing a knowledge base for agro-ecological agricultural practices.

Our objectives are to understand how challenges of openness, participation, and legitimation are being addressed in practice within OCAS initiatives; and how they could be enhanced. To this end we will develop, collaboratively, a software platform and a set of policy recommendations to support practices of openness, collaboration, and legitimacy.

Research Problem, Significant and Justification

WORD LIMIT: 1,000. Please provide a brief overview of relevant literature and highlight the knowledge gaps that this project will address. Indicate the size and scope of the problem, as well as how the problem relates to the purpose and goals of OCSDNet; broader national development priorities, and the research and capacity needs of the countries involved.

A wide variety of reasons have been suggested as to why Open and Collaborative Science (OCS) could contribute to development goals in the Global South (Hunter & Leahey, 2008; Tacke, 2010) including that of providing opportunities for societal input into the definition of research agendas, problems and questions (Wagner, 2009; Hand, 2010).

Our research is concerned with that issue: the potential for OCS practices to enhance the democratization of knowledge production (and in so doing help support unattended development issues). To do so, we adopt a political sociology of knowledge perspective, based on asking what kind of knowledge is produced, who produces it, and who gets access to that knowledge (Frickel & Moore, 2005). Conceiving of OCS as a socio-political process will allow us to reflect on whether the adoption of OCS can effectively contribute towards the further democratization of knowledge or whether it will be concerned primarily with increasing the efficiency of existing scientific practices.

We shall focus on the production of what we call 'alternative science', by which we mean research problems that have been neglected by incumbent scientific and funding institutions, such as universities, agricultural research institutions, research councils, and government departments (*cf* 'undone science' Frickel et al, (2010)), but for which there is nevertheless a

wider demand, for example, amongst social movements or citizen groups.

Alternative science may be important where research agendas in developing countries are subordinated to international scientific agendas (Kreimer, 2006) or when scientists, following government and/or market imperatives, become embedded in a web of routines and resources that make alternative research problems less visible (Woodhouse 2005, Martin 2005, Parkinson y Langley, 2009).

OCS practices have the potential to contribute to the production of alternative science because they allow civil society to link to the institutional science domain, directing the latter's attention to wider social problems that have not been addressed by mainstream institutions (Epstein, 1996, Irwin, 1995, Leach and Scoones, 2005).

Our research will focus on two different Open, Collaborative and Alternative Science (OCAS) initiatives in Argentina that are concerned, respectively, with documenting, and campaigning against pesticide poisoning, and on developing a knowledge base for agro-ecological agricultural practices, both of which are responses, in part, to social demands for knowledge that challenge, and explore alternatives to high input commodity crop production. Agricultural activity is increasingly being questioned as a long-term development strategy (e.g. because it generates little added value, has few links to the rest of the economy, enhances inequality, displaces small farmers, and is environmentally problematic - due in part to heavy use of pesticides). Nevertheless, there is almost no state-funded scientific attention to negative effects such as pesticide poisoning, and little interest in exploring agricultural alternatives, for example as a way of addressing livelihood problems for small farmers. OCAS initiatives that seek to provide knowledge with which to build alternative pathways of development are highly valuable.

The first case study comprises grassroot organizations that monitor and assess the health impact of pesticide use. A number of expert-civil society-based organizations have been formed to collect and analyze data on disease incidence in rural towns, using collaboratively designed methodologies in which both medical doctors, citizens and social movements participate (this is called University Network for Environment and Health (REDUAS)). A key aim is to create an evidence base for regulatory control and to campaign against agrochemicals.

The second is an agro-ecological movement comprising agronomists, small farmers, and other actors, who develop agro-ecological protocols and practices, through collaborative initiatives that combine modern science and technology with traditional farming practices and indigenous knowledge. A key aim is to provide a means for small farmers to remain

farming, become competitive and improve their livelihoods.

Following Martin (2005), it is possible to characterize the first case as a ‘science by the people’ strategy that seeks to empower citizens through increasing participation in the process of knowledge production. The second case can be characterised as a ‘science for the people’ strategy where institutionalised science (Martin, 2005: 282), due either to oversight or pressure from citizens and/or from researchers’ own commitment to knowledge democratisation.

Our project aims at understanding the motivations, practices, and consequences of OCAS initiatives, and the challenges they face, so as to develop tools and recommendations to support their activities. OCAS raises two types of fundamental challenges.

The first, common to all OCS practices, is how to support and sustain openness. Openness can be characterised in three dimensions: i. What information/data and research processes become opened; ii. Who participates, or to whom opening processes are oriented; and iii. What is the depth/scope of openness (i.e. to what extent openness enables collaboration and participation in knowledge production). The literature identifies multiple obstacles that restrict opening processes in all those dimensions (RIN/NESTA, 2010). An important challenge for OCAS, especially those characterised by a *science for the people* strategy, is how to overcome obstacles to openness and to support positive attitudes towards openness and participation.

The second challenge, which is more specific to alternative science, is how to gain legitimization. This challenge often arises for two reasons, which are sometimes linked. One is that institutionalised science and policy may contest the agendas and questions that are being pursued by alternative science initiatives (cf. external political legitimacy); the second is that some of the methods and practices adopted by alternative science may also be contested on scientific grounds (cf. internal scientific legitimacy) (Catlin-Groves, 2012). As a consequence, OCAS initiatives may struggle to gain recognition (including funding and resources) (Smith, 2006; Hess 2007). Overcoming this challenge is difficult because it must be done without undermining participation and openness (Colin & Powell, 2009). This challenge affects primarily OCAS led by a *science by the people* strategy.

Our project is designed to address both challenges. Based on case study analysis of two types of OCAS initiatives, both intrinsically concerned with development goals, we aim at understanding and enhancing openness, participation and legitimization. As explained in detail below, this project will address most aspects of the four themes of OCSDNet.



Research Questions and Objectives

WORD LIMIT: 500. Outline your project's central research question(s), sub-questions, and objectives. There must be congruency between the questions, objectives, research design and methods. You should highlight how the study's questions and objectives will contribute to the research themes of the OCSDNet.

Research questions

1. What are the practices and aims of open, collaborative and alternative science (OCAS)?
 - a. Who initiates and who is involved in OCAS, and why?
 - b. Which aspects of the research process are being opened, and in what ways?
 - c. To whom is openness and collaboration aimed, and why?
 - e. What are the consequences (positive and negative) of open and collaborative practices?
 - f. What tools and methods are being used to practice openness?
 - g. What resources are mobilized to conduct OCAS, and how have they been obtained?
 - h. What difficulties and obstacles do actors practising OCAS face?
2. What kinds of legitimacy problems arise in practising OCAS and what are their sources?
 - a. What difficulties do OCAS encounter (e.g. funding, evaluation, infrastructure) and from whom?
 - b. What kinds of criticisms are raised about OCAS practices and methods, and from whom?
 - c. What strategies have OCAS actors followed to diminish those difficulties?
 - d. How have actors attempted to achieve greater legitimacy?
 - e. What tools could help to improve legitimacy?

Analytical objectives

1. To understand OCAS practices of openness and collaboration, and their consequences.
 - 1.2 To learn how open and collaborative practices can be supported and scaled up
2. To understand what causes problems of legitimacy in OCAS
 - 2.2. To learn how legitimacy can be improved for OCAS.

Engagement objectives

3. To develop software infrastructure to support OCAS
4. To enhance the visibility and support of OCAS by co-producing tools of communication and dissemination of OCAS activities
5. To develop policy recommendations to enhance OCAS
6. To support the creation of a network of OCS actors in Argentina

Research guided by these objectives will contribute to OSCDNet themes as follows:

Theme 1 (Motivations): Research question (RQ) 1 aims at studying motivations of OCS in the context of alternative science. RQ2 aims at understanding how a pro-open environment might be created.

Theme 2 (Infrastructure): Objective 3 aims at creating open source software infrastructure to

support OCS in Argentina. We plan to develop apps for data collection that are suitable for OCS. We also plan to develop specific software for data consistency validation.

Theme 3 (Communities of practice): Our research problem is to understand the potential of OCS approaches for knowledge democratisation. One of our case studies is on *science shaped by citizens* so we will understand more about how communities contribute to science. More concretely, in terms of processes, benefits and obstacles RQ1 explores different aims and practices of OCS when a diversity of actors participate, and RQ2, in turn, seeks to understand actors' strategies to gain legitimation

Theme 4 (Impact): Our research aims at both analysing and enhancing the impact of OCS. Objective 1 aims at understanding consequences of OCS in the context of alternative science. Objective 2 is about identifying sources of legitimation and strategies to improve it. Objectives 3, 4 and 5 are to develop software and communication tools and policy recommendations in that direction. Finally, Objective 6 is about contributing to interaction amongst OCS initiatives in Argentina.

Stakeholders

WORD LIMIT: 250. Identify and briefly describe your project's stakeholders. How will your project respond to their needs and interests?

Our primary stakeholders are the two OCAS networks to be studied (i.e. REDUAS and agroecology). The former comprises medical scientists, rural doctors and citizens. The latter includes agronomists and biologists working in public research organisations, ecology NGOs, cooperatives of farmers, and rural families. Our project will contribute to understanding how challenges of openness, participation, and legitimation can be better addressed to enhance these practices. We will develop software tools, a set of policy recommendations, and dissemination outputs to support and visualise these practices.

Other stakeholders include:

Other OCS initiatives, Cooperativa de trabajadores de tecnología, innovación y conocimiento (FACTTIC) - (in English: cooperatives of workers on technology, innovation and knowledge) - to be directly involved in this project-, and the wider open software and maker community. These three communities share principles of openness and collaboration, whose benefits will be highlighted and disseminated in blogs, infographics, and documentaries. We will also develop tools to support those practices and we will contribute to the creation of a national network of OCS initiatives to improve their visibility and to support cross-learning. The network may help to gain increasing recognition and resources from science and technology institutions and policy makers.

Policy makers in the area of science and technology, agriculture and health: Policy making is mostly oriented to support industrial agriculture. This project will provide policy makers with empirical evidence about OCAS practices and how they foster developmental goals, as well as concrete policy recommendations.

Research Design & Methods

WORD LIMIT: 1,000. In this section, applicants should clearly indicate and justify the proposed study design. You should discuss how you intend to collect the data that you will need to achieve the study's objectives and answer the project's research questions. You should clearly outline how each data collection activity will contribute to the study objectives.

Our study design is based on a combination of methods and tools from the political sociology of science, participatory development, participatory methods of software programming, and participatory workshops. The design is intended to achieve both our empirical and analytical goals and our engagement objectives. It is divided into four phases, as follows:

The **first phase** is a preparatory stage, intended to deepen our knowledge of the two OCAS to be studied in case studies. To that end we will conduct in-depth interviews with up-to three key actors in each network, in particular with network entrepreneurs (i.e. actors responsible for building networks, and developing OCS practices, whether they be scientists, representatives of civil society groups or other actors). The aim of this preparatory stage is to identify most actors participating in these networks that were important either in terms of facilitating the operation of OCAS or on raising barriers. We will also analyse secondary evidence, reports from NGO or from science and technology institutions, regulations, media reports, etc. to contextualise both case studies.

The **second phase** will be to conduct main data collection activities for the two case studies, one for each proposed OCAS network. A minimum of 10 interviews for each selected network will be conducted. All interviews will be conducted using an open questionnaire organised in different sections and aiming at understanding practices of openness and collaboration, the motivation and consequence of these practices, and obstacles faced by OCAS communities to legitimise their practices. In order to have a comprehensive view, we will ensure to interview actors with different roles in each network (i.e. policy makers, activists, scientists, practitioners, citizens, farmers, etc.) including those that are meant to be supporting scientific production in these areas. We will produce interview audios and transcripts. Additionally, we will complement the interviews with analyses of media and official documents to identify outstanding queries regarding OCAS legitimacy. We also aim at non-participatory observation of field activities, public meetings and events. We will take field notes, pictures and videos from these activities. The qualitative software “Nvivo” will be used for indexing the interviews, field notes and secondary sources.

A brief analysis of the evidence collected in the interviews will be used as an input for the first engagement activity: two separate day-long workshops to be organized with representatives of each network in which we will organise and run a Participatory Impact Pathways Analysis (PIPA) exercise (Douthwaite, 2012). We expect our external advisor Dr. Smith to participate in one of these workshops. The PIPA exercise is designed to help actors in a project to think systematically about the impacts they want to bring about, and the changes required to support those ambitions among key actors and stakeholders. More specifically, this exercise will invite participants to: i) make explicit the outcomes that their OCAS network activities are trying to foster (e.g. in relation to processes, outputs and impacts of knowledge production); ii) develop hypotheses about the main obstacles to change, whether in terms of people, institutions, processes, practicalities; which key actors and stakeholders need to change; what changes are required, e.g. of practices, knowledge, attitudes, and which strategies are needed to realise these changes; iii) create a network map of the key actors and stakeholders involved, and their role in bringing about the desired changes; and iv) develop

an impact narrative (linking ii and iii above).

The **third phase** of the project comprises core analytical activities aiming at fulfill objectives 1, and 2 (see Analysis and Synthesis below).

During this phase we will also develop tools to contribute to practices of openness and to enhance internal scientific legitimation of OCAS which complies with objective 3. Based on insights from previous analysis and to enhance openness, collaboration and internal scientific legitimation, we will work with software programmer members of FACTTIC (see stakeholders) to develop software tools for data collection, data consistency and validation. The software will be developed building on previous knowledge and software tools (if any) used by both OCAS initiative. Software development will take advantage of available open software tools. These will adapt it to the local use of OCAS (probably through the development of a mobile app). It will then be tested through an iterative process based on focus groups organised with software developers and representatives of OCAS. A beta version of the software design will be subsequently presented to some users on the Internet. The plan is to develop a set of tools suitable to serve the specific requirements of the targeted networks, but also sufficiently flexible to allow modifications for use by other OCS initiatives. Engagement activities to improve external political legitimation, will be pursued in phase four.

Phase four aims at fulfilling objectives 4, 5 and 6 which we hope will help to improve external political legitimacy. For objective 4 we will hire a communication officer that will helps us to design a strategy to disseminate the benefits associated to OCAS practices and methods. We will also take advantage to diffuse outputs of our project. For objective 5 we will write a policy document in collaboration with the American University of Beirut: we aim at highlighting the main benefits of OCS in general, and OCAS in particular, and the difficulties and obstacles they face. For objective 6 we will run a final workshop in Buenos Aires with representatives of both networks, participants from other OCS initiatives in Argentina and policy makers. Activities of the workshop will include the presentation of our analytical findings. The final versions of the software tools will be launched during the event and presented to representatives of both networks and the wider OCS community. The presentation will explain how the software architecture will be opened to other potential users.

Analysis & Synthesis

WORD LIMIT: 1,000. Describe how you intend to organize, examine and model data to arrive at conclusions and insights.

We will develop a conceptual framework to analyse OCS combining contributions from Arnstein (1969), Humphrey (2006), RIN/NESTA (2010), Open Knowledge Foundation (2013), and Frickel & Moore (2005). This framework will be useful to understand different dimensions of openness (we have preliminarily anticipated three of them i. what, ii. to whom, iii. depth/scope) and their relation with motivations, consequences, obstacles and barriers.

This framework will be used to identify relevant patterns, insights and concepts as we collect and analyse our empirical information.

Our empirical material comes from different sources and collection methods:

- a) interviews with experts and other actors involved in OCAS;
- b) media and official documents;
- c) two workshops: one for each network of OCAS using PIPA methods;
- d) non-participatory observation of events, meetings and other activities of both networks;
- e) data and information coming from the project directed by the American University of Beirut;
- f) focus groups with software developers and representatives of both networks;
- g) final workshop with diverse actors related to either the practice or the support of OCS.

To comply with our *analytical objectives* we will do case study analysis (Yin, 2014) of the two OCAS experiences mentioned above (i.e. REDUAS and agroecological network). We will search for patterns and concepts that seem promising to provide answers to each of the research questions. We will identify the relevant patterns and concepts following a double and complementary strategy. On the one hand we will rely on the conceptual framework to be developed. On the other hand we will follow an inductive strategy working our data from the ground up, trying to identify useful patterns and analytical issues we have not previously anticipated in the conceptual framework.

To empirically assess those patterns we will manipulate the data in several ways, for example, making matrices of categories and then searching for evidence in interview transcripts, PIPA reports, focus group reports, media and official documents, and workshops notes that could be placed in each category. We may use computer assisted tools such as NVivo to help us with the coding and categorisation.

For the *engagement objectives* we will follow ad-hoc strategies.

For objective 3 (software development) we will follow an iterative process, involving consultation with OCAS representatives using focus groups. The final stage is the presentation and validation of the software in the final workshop.

For objective 4 (support through communication) we will use our insights on themes and challenges common to the practice of OCAS, coming from our own project (and from the

global OCSDNet network), to co-produce together with OCAS representatives and communication consultants, visually appealing documents to be published in blogs and social networks. The content of these outputs will be about the benefits and potential impacts of OCAS activities and they will be inviting other potential practitioners of OCS. We hope these outputs will also help OCAS actors to be recognised as part of a global network of OCS and to act collectively in further joint enterprises and also to overcome some of the difficulties and barriers they face..

For objective 5 (policy recommendations) we will examine plausible rival explanations of what can and cannot work in enhancing openness, collaboration and legitimation. This implies that for each of the outcome to which policies (or tools) are targeted we will develop a hypothesis of what seems to be needed according to our previous analysis and a rival hypothesis stating that some other action (or no action at all) is what is actually necessary. By being aware of the rivals (ahead in time) we will be able to test them in one of our instances of data collection (most likely the final workshop). The alternative hypotheses will be derived either from our conceptual framework or from the ground. The evidence to be used may be obtained from media and official documents; it may have been mentioned as facts from past experience by OCS actors or other actors included in the data collection activities; or it may actually consist of expectations/perceptions as expressed by those actors. We may decide to weight differently facts and expectations. Since we plan to do this analysis together with American University of Beirut we will have more evidence to work with. We will ensure that our colleagues in Beirut share with us their rival hypotheses (and the other way around) to optimise precision.

Outcomes & Outputs

WORD LIMIT: 700. Describe the major project outputs and intended outcomes. Your project outputs should creatively reflect the principles of open and collaborative science.

We aim to produce a series of outputs and outcomes that will result from both our analytical research and the engagement activities. These results will target our selected case studies. However, at the same time we expect to produce outputs and outcomes directed towards fostering OCS at a wider level in Argentina, open software communities and makers, policy makers and science and technology institutions.

Expected outputs at the end of the project are : i) project report; ii) two internal workshops with the selected networks and their PIPA reports, iii) a document describing a strategy for strengthening and extending the legitimation of OCAS networks, iv) a document analysing practices of OCS and OCAS in Argentina (input for future journal articles) v) a document analysing the contribution of OCAS to improve the democratisation of science (input for future journal articles), vi) adaptation of available open software tools for data collection,

distribution, and validation of OCAS practices, vii) a final open workshop, viii) a policy recommendation document written in collaboration with American University of Beirut for overcoming obstacles and barriers of OCS based on common analyses (input for future journal article), ix) policy briefs to support OCS in Argentina; and x) visually appealing documents highlighting benefits and practices of OCAS and OCS in Argentina directed to a wide audience. Finally, we will use advocacy and public communication tools to help replicate achievements by OCAS and OCS initiatives. Our affiliation in the international STEPS network, based at the University of Sussex in the UK, will allow us to increase the visibility to a wider global audience. We also expect to produce open access journal papers and follow-up research proposals using inputs from this project.

Development outcome 1: Supporting knowledge creation for neglected development agendas. Insofar as our activities support OCAS practices and initiatives, a longer-term, indirect outcome of our project will be to support knowledge creation for neglected development agendas and pathways.

Development outcome 2: Fostering interaction amongst OCS initiatives. This project will contribute to the creation of a community of OCS in Argentina, and this will foster cross-learning between different OCAS and OCS practitioners, and help the community achieve wider legitimacy and influence.

Development outcome 3: Creating and broadening networks of support for OCAS initiatives: We will help to link OCAS communities with other identified stakeholders, such as policy makers, research funders, science journalists and the open source community more generally. This will be achieved by inviting representatives of all such stakeholders to participate in the final workshops; and by producing outputs for different media, professional and more general audience, and different stakeholder communities.

Development outcome 4: Increasing the visibility and legitimacy of OCAS initiatives within the scientific, policy and other stakeholder communities. Our plans to produce different kinds of outputs for different media, and for specific stakeholder communities will also help enable wider recognition of the development potential of OCAS initiatives.

Development outcome 5: Supporting the creation of specific science policies for OCS initiatives in Argentina: We will use the planned engagement and diffusion activities, along with the final workshop and the production of specific policy recommendations, to put OCS on the domestic policy agenda, and to argue for the creation of public policies to support OCS among science and technology institutions in Argentina.

Development outcome 6: Enhancing the performance of OCS knowledge production practices. One of our outputs will be the development of software tools for data collection, distribution, visualisation and validation. An outcome of the use of those tools by OCAS initiatives will be to enhance the performance of OCS knowledge production practices.

Knowledge Translation & Dissemination

WORD LIMIT: 700. Describe how you will disseminate your outputs. To ensure that the results of your study are applied to address development challenges, explain how you intend to package, disseminate and promote the application of your findings amongst relevant stakeholder groups.

This project will translate knowledge findings and our learning into material suitable for four different audiences: OCAS activists and practitioners, policy makers, Science, Technology and Innovation scholars and the general public. The general aim of our public communication activities will be to support existing OCS initiatives and the promotion of more open practices among government agencies and the wider community.

We plan three complementary strategies: i) stakeholder engagement during the whole implementation of the project; ii) engagement with policy makers and science and technology officials, iii) academic publications and policy briefs for research communities and policy makers; and iv) the communication and dissemination of our research findings to a wide audience by different types of electronic and mass media.

With our primary stakeholders (the two OCAS networks) we will hold four face to face meetings: i. an informal meeting at the beginning with some representatives to tell them about the project and organise interviews; ii) a PIPA workshop at midterm with each network; iii) focus groups for software developers; and iv) a final workshop. The use of participatory methods like PIPA will allow an interactive style of communication during meetings. Research notes and communications will be used to interact with the other stakeholders. Stakeholder engagement during the implementation of the project will ensure that the project evolves incorporating their insights and needs, and that they can participate in the analysis of preliminary findings and are informed of the advancements of the project during the different stages.

The final workshop with representatives of both networks, participants from other OCS initiatives, and policy makers and science and technology institutions in Argentina will help to discuss the relevance of the main findings of the project, present the open tools for OCS and plan future joint actions to assure impact. The event is envisioned as a key moment of communication and engagement with the broader community of OCS, policy makers, the open software community and the public in general.

During the research, we will make use of preliminary findings and insights to write blog posts and newspaper articles. We will translate findings and insights into a short simple style of written material that will be targeting a wide audience. Blogs and articles will aim to raise awareness and visibility of OCAS at the national level. They will also serve to document the evolution of the research process and debate on OCS.

Additionally, we will be taking pictures and videos during workshops and activities organised with the OCAS initiatives. This material will be used to develop visual materials. It will also serve the general purpose of illustrating our blogs and articles. To edit and translate this material we will be supported by the multimedia lab team from the University of Tres de Febrero, to which we are associated. University of Tres de Febrero already has a digital TV

channel and ample experience in the development of scientific and educative documentaries. Building on this experience will be key to creating informative and appealing material.

We are also planning to develop a series of infographics and visual information tools with the assistance of a programmer and graphic designer.

The publication of notes, blogs, infographics, audios and videos will be shared by using different platforms, including social networks. Our website will be used to diffuse the results and to receive feedback. A communication officer will be hired as a consultant to assist with these tasks.

Finally, we aim to diffuse the academic results of the research in various ways. First, through papers targeting high quality open access journals to which we plan to submit research outputs from the project. Second, by presenting our work at several conferences. Third, by introducing the research area of OCS into networks about Science, Technology and Development where we already have an important participation, such as the GRIID (Group for Research on Innovation for Inclusive Development), GLOBELICS (the Global Network for Economics of Learning, Innovation and Competence Building Systems), LALICS (the Latin American network within Globelics), the Grassroots Innovation Network in the UK, and the STEPS International Network of hubs on Sustainable Development.

Network Connections & Interactions

WORD LIMIT: 500. Illustrate how you will contribute to the overall OCSDNet framework and themes. Draw on other initiatives and approaches discussed at the OCSDNet workshop, if applicable.

We are committed to interaction and learning with/from other researchers and partners. We expect to foster communication with other researchers in the OCSDNet. As would be expected, we may have more interest in linking and learning from projects with whom we share themes, for instance on pollution monitoring, forestry conservation, science shops and digital fabrication. We have already established a connection with the research group led by Najat A. Saliba at the American University of Beirut.

Moreover, we will use network tools provided by the OCSDNet and also share information through other social media like Facebook groups on science, technology and development, etc. to share our outputs and research processes more widely. Open repository tools will be especially important to keep track of common readings and threads emerging from our common research in the OCSDNet. Additionally, in those cases that are relevant for the network, we are planning to translate blogs and articles that we will post regularly in our webpage at STEPS América Latina and GENIT webpage into English, and share these more widely. Through the former, there is also a regional opportunity to create links amongst researchers from OCSDNet in Latin America. This possibility will be explored at the regional workshop organized by the OCSDNet.

In relation to external networks, our team will give impulse to the themes of OCS within

regional and international networks where we already have an important participation as mentioned in the previous section (i.e. Knowledge Translation & Dissemination section)

Finally, we are planning a series of open engagement activities as part of this project and a sister project presented to the Ministry of Science, Technology and Productive Innovation in Argentina. These events include a final workshop on OCS. We expect to raise further awareness of the practice and benefits of OCS within the scientific community in Argentina and beyond.

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