International Centre for Genetic Engineering and Biotechnology

STARBIOS2

STARBIOS2 Final event 1:
17th – 18th of March 2020
Cape Town, South Africa
Organised by the International Centre for Genetic Engineering and Biotechnology (ICGEB)

Discussion Note

Workshop on "The African and European experiences in responsible research and open science in Health & Biosciences: Towards a common vision?"

This *Discussion Note* is a tool to facilitate participation in the workshop. The note sketches the main objectives and the general structure of the meeting and provides some questions the speakers and the other participants can take into account.

The workshop within the STARBIOS2 project

The workshop is organised by the ICGEB in the context of the project **STARBIOS2** ("Structural Transformation to Attain Responsible BIOSciences"), coordinated by the University of Rome – Tor Vergata and funded by the European Union's Horizon 2020 Research and Innovation Programme.

The **objectives** of STARBIOS2 are:

a. to attain "structural change" – i.e., a change that we assume is comprehensive, inclusive, contextualized and irreversible –, related to **responsible research and innovation (RRI)** in 6 European institutions (in Bulgaria, Germany, Italy, Slovenia, Poland, and the United Kingdom) through the implementation of Action Plans (APs) and to develop APs for 3 international institutions active in the field of biosciences (in Brazil, South Africa and United States)
b. to use the implementation of APs as a learning process for developing a set of guidelines on the implementation of RRI
c. to develop a sustainable model for RRI in biosciences.

The workshop is one of the two final events of STARBIOS2 (the other will take place on the 27th -28th of April 2020 in Brussels, Belgium). The workshop approach is based on open dialogue, the exchange of knowledge and experiences, and the search for forms of scientific cooperation, with particular regard to the disciplinary areas of biosciences and health, and the relations between Africa and Europe.

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1. Science and society: a changing framework and the role of RRI

STARBIOS2 has carried out its activities in a context of profound transformations. Science and society are interconnected entities: they have always co-evolved, but this relationship is changing. In this framework, today, there are some ***trends*** **at the global level**, to be considered *both as opportunities and risks*. For instance:

- the increasing expectation that scientific results have economic, social and environmental impacts;
- the orientation of policy-makers towards enabling, leading and steering the research and innovation process;
- the ever-changing relationship between universities, governments and industries;
- the increasing competition for accessing public funds for research;
- the increasing diversity of the sites where research is carried out (even at grassroots level);
- the diffusion of cooperative practices in scientific production;
- the increasing relevance of transdisciplinarity;
- the emergence on the international economic and technological scene of actors such as India, China, Brazil, South Africa and others.

Other **critical issues of** concern are for example:

- career difficulties for young researchers and women in the scientific sector;
- the cost of publishing and the difficulties for open access;
- the protection of intellectual property rights (above all for indigenous knowledge).

Of course, these trends and issues manifest themselves in different ways and intensities according to the **different political, social and cultural contexts**.

Societies themselves are changing in different ways, becoming more fragmented internally and more influenced by globalization processes. As a result, the ways in which **relations between Science & Technology** (S&T) **and society** have been regulated in the past are no longer appropriate. Various difficulties emerge, including:

- the diffusion or persistence of anti-scientific attitudes;
- a wider demand for an open research process to closer public scrutiny;
- the diffusion and consolidations of stereotypes about science and technology;
- the resistance of many scientists to engage more with society.

Biosciences and health, after the so-called “biological revolution” and within the context of the “Fourth Industrial Revolution”, are at the crossroads in the relations between science and society. Food security, clean energy transition, climate change, new epidemics, are all **challenges** in which they can play a crucial role, while new legal, ethical, and social questions arise that need to be addressed.

The RRI approach deals with these transformations, involving all political, economic and social actors in the governance of Science and Technology and to manage its social impacts. The keys of RRI are public engagement, gender, open access, ethical issues and education, in addition to governance. RRI also has 4 relevant dimensions: anticipation, inclusion, reflexivity and responsiveness. The emerging approach of Open science, for its part, stands as “a system change allowing for better science through open and collaborative ways of producing and sharing knowledge and data, as early as possible in the research process, and for communicating and sharing results.” (EU, 2019).

In the various continental, regional, national and local realities, there are **different ways of interpreting and implementing forms of RRI** (in whatever way they are called) and of Open science, to respond to the social and economic challenges that exist in various contexts. The solutions developed in these different contexts can be shared and discussed as experiences and lessons learned, with a view to mutual learning, and scientific and technological cooperation.

Numerous, strictly *scientific*, challenges arise as regards epistemological, theoretical, methodological, empirical and experimental research aspects, for example:

- the collaboration between different scientific disciplines within the biosciences, and between biosciences and other disciplinary fields;
- dialogue between different knowledges (scientific, those related to professional know-how, those related to traditional or local knowledge, etc.);
- the use of advanced calculation tools;
- exchanges of services between research centers;
- technology transfer at various levels, etc.

There are also numerous *political challenges*, such as:

- the achievement of the Sustainable Development Goals;
- the governance of research and innovation at regional and national levels;
- the development of universities and research centers, and the strengthening of networks and regional and international partnerships;
- public investments for Science, Technology and Innovation (STI) and research infrastructures;
- the creation of regulations and environments conducive to research and the development of capabilities;
- the support to a science-literate and science-aware society, etc.

2. Objectives and general structure of the workshop

Within this general framework, the main **objectives of the workshop** are:

a. to **exchange** studies, viewpoints and experiences about the relationship between science, innovation and society in Africa, Europe and other international contexts;
b. to present and discuss the final **results** of STARBIOS2 project, both from its European partners, and from its South African, Brazilian and US partners;
c. to identify possible scientific **networking and cooperation** paths, with particular references to European-African partnerships (Erasmus Plus, Intra-Africa Mobility, EDCTP, etc.), and to an International Network for Responsible Bioscience to be launched next year[1];
d. to single out the content of a **policy brief**, to be drafted after the workshop, providing insights for the governance of RRI in biosciences and health.

[1] This network will be created within the framework of the RESBIOS project ("Responsible research and innovation grounding practices in Biosciences"), started in January 2020, coordinated by the University of Rome Tor Vergata, with the participation of ICGEB.

The program is as follows:

Session 1, morning of 17 March 2020
"The RRI experiences, models and guidelines in Biosciences by the STARBIOS2 EU-Horizon 2020 Project".

Session 2, afternoon of 17 March 2020
"African experiences of responsible research in Health & Biosciences, within the international context".

Session 3, afternoon of 18 March 2020
"Responsible research: A common vision between Africa and Europe?".

Special Public event, evening of 18 March 2020
"Biosimilars: The benefit for Africa".

3. Some questions for potential discussion

The workshop focuses on the relationship between science, innovation and society, with particular attention to biosciences and health, taking into account the approach of RRI and the emerging approach of Open science. The basic idea is that these and other similar approaches are not an additional burden on the research activity, but a way to ensure the research itself operates in an enabling environment and to make science better (i.e. more effective and appropriate to the context).

Approaches such as RRI and Open science can represent a means to prevent or avoid scientific and technological research detached from the needs of human societies. In certain aspects, **African science** is closer to society than in Europe. There is a rich tradition in the African continent, deeply rooted in the community fabric and expressed in philosophies such as Ubuntu, which in recent decades has produced important visions (for example, "The African Manifesto for Science, Technology and Innovation", ATPS 2015)[2], strategies and policies, on regional and continental level (see among others the "Science, Technology and Innovation Strategy for Africa - STISA-2024")[3], or on national level (for example, the South African "White Paper on Science, Technology and Innovation", 2019)[4].

Cooperative/collaborative efforts (themed around the relationship between science and society) between the European Union and the African Union as well as with individual African countries have long been strongly present. In the biosciences and health fields, these efforts are relating to topics such as neglected infectious diseases, chronic diseases, food and nutrition security, marine research, etc.[5] HLPD is short for EU-Africa High Level Policy Dialogue Platform on Science, Technology and Innovation (STI). Senior officials from African and EU countries use this platform to discuss research and innovation policies. They aim to formulate and implement long-term

[2] https://atpsnet.org/wp-content/uploads/2017/05/the_african_manifesto_for_sti.pdf
[3] https://au.int/sites/default/files/newsevents/workingdocuments/33178-wd-stisa-english_-_final.pdf
[4] https://www.dst.gov.za/images/2019/WHITE_PAPER_ON_SCIENCE_AND_TECHNOLOGY_web.pdf
[5] https://ec.europa.eu/research/iscp/index.cfm?pg=africa

priorities to strengthen bi-regional STI cooperation, in the framework of the Joint Africa-EU Strategy (JAES). Marie Skłodowska-Curie actions and Erasmus Plus aim to support researchers and facilitate cooperation between industry, academia and innovative training. The goal is to trigger new dynamics for cooperation between Africa and Europe and build on existing initiatives, such as the EU and Developing Countries Clinical Trials Partnership (EDCTP) for the fight against Tuberculosis, Aids and Malaria, or the EU-Africa Partnership on Food and Nutrition Security and Sustainable Agriculture (FNSSA).

Taking this framework into account, it is possible to identify, by way of example, some specific **open questions** on which to reflect in the different sessions of the workshop, which are briefly presented below. Some general issues have conventionally been placed within a given session, however, they can also be discussed in other sessions.

Session 1: *"The RRI experiences, models and guidelines in Biosciences by the STARBIOS2 EU-Horizon 2020 Project"*.

In this session, a specific contribution to reflection on responsible research in the field of biosciences will be presented and discussed: that of the STARBIOS2 project. The project had a European focus with an international component. In this session, some outputs (a model and Guidelines on RRI in Biosciences) and a series of experiences of European STARBIOS2 partners in this field will be presented.

Among the issues to discuss are the following:

- Which 'lessons learned' emerged in the STARBIOS2 project regarding the application of responsible research in the field of biosciences?
- What has emerged about the possibility of producing lasting changes and impacts on this subject in research organizations?
- To what extent has the mutual learning activity carried out within STARBIOS2 affected the project?

Session 2: *"African experiences of responsible research in Health & Biosciences, within the international context"*.

In this session, contributions on African reflections and experiences about responsible research in biosciences and health will be presented, taking into account that these experiences, as well as European ones, take place in a highly dynamic global context. In this sense, STARBIOS2 international partners will also participate alongside African scholars, researchers and experts.

Among the issues to be discussed are the following:

- How does inclusive science stand in the South African context?
- Internationally, what are the emerging issues and solutions regarding health data protection?
- How can technology transfer be considered a fundamental element of RRI?

Session 3: *"Responsible research: A common vision between Africa and Europe?"*

During the session, the possibilities of a common vision on responsible research between Africa and Europe, on the governance of science policies and scientific cooperation, at various levels will be discussed, with a particular focus on biosciences and health.

Among the issues to discuss are the following:

- At what level (scientific and political) can we speak of a common vision between Africa and Europe about responsible research?
- How can policies related to this vision be implemented and made sustainable over time?
- What instruments of cooperation and scientific exchange can be identified?
- Does the diffidence towards science manifesting itself in the African context present similar aspects to that which occurs in the European context? And what are the elements of difference?
- How on-going international projects (UNESCO chairs, Erasmus Plus, etc.) are structured to be sustainable in Africa?

4. Special public event on "Biosimilars: The benefit for Africa"

With this special event, we are introducing the ICGEB public engagement model "Science & the City" to Cape Town. We will have a panel of experts that will be discussing the topic "Biosimilars: the benefit for Africa". The audience will have the opportunity to ask questions and engage with the experts.

Biological drugs are often used to treat cancer, diabetes, anaemia, rheumatoid arthritis, multiple sclerosis and other life-threatening and rare illnesses. Insulin, growth hormone, erythropoietin, monoclonal antibodies are biotechnological products produced from living cells. Original biologic medicines are often expensive. However, it is now possible to produce **biosimilar drugs**, at a much lower cost, which would reduce the price and give more patients access to medicine. To ensure patients on the African continent have access to treatment, there is a tremendous need to develop our ability to produce biologics. Come join us to hear how we can foster domestic capacity for the production of biosimilars on the African continent.

Promoting and creating a culture for biosimilars together!