Civil Society and Politics should start debating SynBio
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Synthetic biology (SynBio) is developing rapidly, but so far scientists and industry have been in the driver seat. The time is right for civil society and political organizations to start steering along in the development of SynBio.

Mankind has been striving to control the building blocks of nature for centuries and the discovery of DNA in 1953 certainly gave a crucial helping hand. Ever since, scientists have been reading, cutting, pasting and copying the ‘software code of life’.

Due to the emergence of SynBio, biology is by now turning into a true design discipline. Synthetic biologists are able to use the software code of life to design ‘new’ organisms with new characteristics. In doing so, they hope to contribute to coping with the grand challenges of the twenty-first century, such as climate change, energy consumption and public health. So far, synthetic biologists for instance have created micro-organisms that are able to produce malaria medicine substances and biofuels, or ‘new’ bacteria that enable ‘flying window cleaners’: pigeons spreading biological soap instead of faeces.

Next to the possible benefits, SynBio also raises tough ethical and social questions, and is certainly not without risks. Many organisations, such as the Rathenau Instituut and KIT have been mapping the opportunities, risks and ethical, legal and social questions SynBio raises, which has led to an considerable amount of reports.

Does this mean that the job is done? On the contrary, for In the end, society and politics need to come up with answers to these questions

However, in contrast to unexpected breakthroughs, such the cloned sheep Dolly and Herman the bull (the world’s first transgenic bovine), society politics do not need to be caught off-guard in this case: a lot of issues SynBio raises are already on the table.

SynBio can for instance, contribute to the bio-economy, but this will require drastic redesigning of crops and micro-organisms: naturalness sacrificed for sustainability. Is this kind of intervention in nature appropriate? Aren’t we trying to play God too much? Do the benefits outweigh the risks?

Furthermore, SynBio might be important for developing countries, but also raises issues in this regard, as can be illustrated by the aforementioned living malaria medicine factory. The whole idea of this new micro-organism is to allow for cheaper drug production, in order to make them more accessible for people in need of them, unintentionally threatening the livelihoods of farmers in developing countries that harvest crops that are currently used for producing malaria medicines.

So where is the SynBio train heading and under what conditions? As representatives of the pluralism of stakes and values, civil society and politics should start debating these issues with synthetic biologists, government and each other.

In the Netherlands, representatives of Dutch political youth organizations have made a remarkable first step by contributing to the ‘Meeting of Young Minds’, the youth debate on SynBio organized by the Rathenau Instituut and iGEM, the world’s biggest international SynBio student competition.

For the first time, we could get a glimpse of how the pluralistic Dutch political landscape might respond to issues in SynBio.

Seeing these future politicians enter into debate with future synthetic biologists, surely was inspirational, but particularly also demonstrated the sensitivities that might lead to a heavily polarized debate. If other originations follow in their footsteps, such a debate might still be prevented.

I have strong hopes that there will be seats available at the negotiation table, for governments and scientists are growing more and more aware of the importance of a timely debate on an emerging technology.
GED Project
Workshop in India on
28th January 2013 in
New Delhi: A Brief
Report

As a part of GED project, RIS has been making a point in Indian policy circles to widen the concept of ethics in S&T and bring in the concepts associated with access, inclusion and equity. At the 99th Science Congress, RIS had organised special event to disseminate ideas on GED with the participation of some members from GED team. Recently the Science, Technology and Innovation policy of Government of India was announced at the 100th Indian Science Congress held in Kolkata from January 3rd to 7th 2013. The policy was a successor to the policy announced in 2003. This policy explicitly mentions access, equity and inclusion. To contextualize this and to bring together academics, policy makers, and other stakeholders RIS organised a day long workshop titled as, ‘Science, Technology and Innovation in India: Issues in Access, Equity and Inclusion’, on January 28th 2013.

Nearly 60 persons participated at the workshop which included academics, students pursuing PhD programs, representatives of stakeholder organizations, policy makers and officials from Department of Science and Technology and scientists of laboratories of Council for Scientific and Industrial Research (CSIR).

The Key Note Address was delivered by Dr. T. Ramasami, Secretary, Department of Science and Technology, Government of India. In his address he highlighted the key objectives of the ST&I Policy 2013 and the overall thrust in the S&T planning in India. This was followed by a Panel discussion ‘Perspectives on S&T and Innovation Policy in India’ which was chaired by Prof. N.S. Siddharthan and the panelists were Prof. V. V. Krishna, Prof. Ashok Jain and Dr. Amar Jesani. The next session was on Food Technologies, chaired by Dr. S. R. Rao, Advisor, Department of Biotechnology, Govt. of India. The speakers were Dr. Rana Ghose, Dr. Sachin Chaturvedi, Dr. T. Hymavathy and Dr. Sangeeta Bansal.

The next session was on Nanotechnology, chaired by Prof. E. Haribabu, Pro-Vice Chancellor, Central University of Hyderabad and the speakers were Dr. Kalpana Sastry, Dr.Sujit Bhattacharya and Dr. Krishna Ravi Srinivas. The following session was on Synthetic Biology chaired by Prof. Indira Ghosh, Dean and Professor, School of Informatics Technology, Jawaharlal Nehru University and the speakers were Dr. Archana Chugh and Prof. Pawan Kumar Dhar. The final session was a Panel Discussion on Access and Inclusion in the Indian Context. It was chaired by Prof. Pranav Desai, Professor, Center for Studies in Science Policy, JNU and external advisor to GED Project in India. The speakers were Dr.Dinesh Abrol, Dr. Rajeswari Rana and Dr.Saraindu Bhadury.

RIS is uploading the presentations and a report on the event in RIS website. This Workshop was also used to disseminate information on GED Project. The speakers and other experts were also informed about the Project and an informal consultation was held with selected experts on the Project. Thus the Workshop helped us to take forward the GED Project.

Nuffield Council on Bioethics’ new report on emerging biotechnologies

The Government and industry should take steps to ensure that research and development of new biotechnologies takes account of social and ethical values, says the Council’s latest report, Emerging Biotechnologies: technology, choice and the public good, published in December 2012. It concludes that there is a significant public interest in biotechnologies but that current decision making does not give enough consideration to the values and priorities of wider society, or to other technological or social alternatives that might better promote the ‘public good’.

The report proposes a ‘public discourse ethics’ approach to governance of emerging biotechnologies and makes recommendations as to how this approach could be applied across several key contexts in which pathways of biotechnology development are shaped, including policy, public engagement, research and business. This approach, and other aspects of the report will be explored in more detail at three workshops to be held in spring 2013, which will bring together representatives from across science, innovation and governance. More information about the workshops will be available nearer to the time.

You can find out more and download the report at http://www.nuffieldbioethics.org/emerging-biotechnologies
Joint Project Workshop

The European Commission is keen on improving exchanges between funded projects of similar themes. There are two more running projects funded by the same Unit as GEST and having similar themes: EST-FRAME and EPINET. Miltos Ladikas had a series of Skype calls with the coordinators of these projects and the European Commission in order to identify possibilities for a common workshop. He also attended an EST-FRAME project meeting in Karlsruhe on 15 January 2013. As the talks on the joint workshop are going on, here is some basic information about the two projects.

EST-Frame

The aim of the EST-Frame project is to contribute to socially robust and ethically sound research and technology development by providing further methodological development of appropriate tools for social impact assessment and technology evaluation. The project will appraise current assessment methods for evaluating emerging science and technology with the objectives of mapping their strengths and weaknesses and determining their appropriate application domains. It will examine the current policy context for emerging science and technology (EST) policy advice and will identify future trends and needs that should be considered. The project will also identify to what extent - and in what contexts - a framework of a more integrated nature can be applied, and it will examine the appropriate position that such an integrated framework can operate in, within a context characterised by internationalisation, market politics, and new forms of public-private partnerships in technology governance. Finally, this work will result in the design of a flexible, integrated framework that is intended to facilitate holistic societal dialogue and reflection as well most significantly, policy advice on emerging science and technologies. The main output of this project is an integrated framework that can be applied by policy forming actors (economic councils; ethical councils; technology appraisal institutes, government technology assessment boards, etc.) who are involved in the process of conducting analyses and coordinating policy deliberations on the broad range of science and technological developments. The project will use four examples of emerging science and technologies - (1) nanotechnology in food production, (2) synthetic biology, (3) biofuels and (4) security in emerging ICTs - to determine how current frameworks are applied to assess social impacts and then interpret these assessment procedures in the context of the integrated framework that will be developed within this project. An added value aspect of the project is the policy relevant outcomes that will result from the assessment of these four technology case studies.

http://estframe.net/

EPINET

The EPINET project will investigate conditions for the development of more integrated technology assessment (TA) methods. It will develop methods and criteria to be used for more socially robust and efficient practices on the interfaces between TA and the world of policy makers and innovators. At present, a large number of TA methodologies and practices exist. Many of these are based on varying and sometimes conflicting, unclear - values, presuppositions, interests and commitments. This is problematic, insofar as differing conclusions and recommendations will follow from different methodologies and disciplines; hence the need for more integrated approaches. However, the irreducible difference of perspectives and plurality in the field of TA needs to be recognised and used as a resource. EPINET introduces the concept of epistemic networks as a way of conceptualising complex developments within emerging fields of sociotechnical innovation practices. It establishes a weak or soft framework within which the plurality of different TA practices can be explored in a concerted and holistic manner; EPINET uses this to study four cases: wearable sensors, cognition for technical systems, synthetic meat and smart grids. Integrating TA, it is claimed, is a task for empirical investigation in which implicit values of TA methodologies, disciplines and practices are spelled out and placed in relation to the practices they are meant to assess. This is the context of innovation conceptualised through the concept of emerging and future epistemic networks. EPINET develops a holistic framework for integrating assessments through gradual co-production of methodologies and concepts (centrally that of responsible innovation) together with innovators and policy makers. The challenges of integrating assessments, we claim, can only be gradually worked out within such a holistic view of complex intersecting networks and practices.

1. SHORT SKETCH OF THE POLITICAL SYSTEM

The political system of Germany is a representative parliamentary democracy containing elements of both majority and consensual democracy. It is characterised of a strong federalist structure. At national level there are two central legislative organs, the Bundestag and the Bundesrat. The Bundestag as the national federal parliament is composed through nationwide elections whereas the Bundesrat is charged by members of the governments of the federal countries (Bundesländer) which have a relatively far reaching legislative power from an international comparative point of view. Furthermore in the political system of Germany pluralism of the societal interest groups is constitutionally enshrined. Germany's landscape of interest groups is very different sedated and altogether relatively stable. At the same time, in many policy areas we can find very foreclosed policy networks and a sectoral neo-corporatism that is privileging specific interests. Interest groups act together in various ways with the institutions of the political and administrative structures on every level of the federal system. The inclusion of stakeholders plays a certain role in German politics. However one cannot really speak of a strong classic corporatist structure when compared with some other European countries like the Netherlands or Austria. Elements of direct democracy or institutionalised forms of citizen participation cannot be found at the national level in Germany, on the regional level however they are gaining importance.

2. PUBLIC ENVOLVEMENT IN S&T POLICY

The Federal Ministry of education and research as well as the committee on education, research and technology assessment of the Bundestag are the key institutions in which S&T policy decisions are made. The former commissions many research projects containing focus groups analysis and is currently sponsoring citizens' dialogues on technological challenges, which can be seen as a possible chance of opening up the entrenched neo-corporatist participation structures. The latter is performing research studies for the Bundestag also containing focus groups analysis.

Among its diverse key functions the German Bundestag also has a representation and communication function in articulating public opinions and interests of the population, policy forming, and participating in public discourse. That means that it has to respect, articulate, and mediate the various political positions and specific interests of citizens and stakeholder groups in decision making processes in order to refresh its legitimisation beyond elections.

It can be accurately stated that most of the major public debates on ethical aspects of S&T in Germany have been mirrored by Study Commissions of the parliament, made up by representatives of the parliamentary groups and by denominated experts consulting as equal partners about the problems at hand. In recent years a tendency to open up the process of consultation between science and politics for the general public or for civil society organisations as a third partner is observable.

Another actor in the science policy area is the German Ethics Council, whose members are appointed half on the proposal of the German Bundestag and half on the proposal of the Federal Government. It pursues questions of ethics, society, science, medicine and law and probable consequences for individual and society that result in connection with research and development, in particular in the field of the life sciences. Its duties include, among others, to inform the public and encourage discussion in society and to prepare opinions and recommendations for political and legislative action.

In contrast to countries like Norway, Denmark, or the Netherlands there are no key players or key institutions for the sphere of participatory processes at national level in Germany. Currently, like in many other European countries, there is an ongoing discussion on how to increase citizens’ involvement in politics. None of the pTA procedures which have been conducted since the 1990s in Germany has so far been linked to the legislative power at either national or regional level. However, several participatory exercises have been initiated or promoted by executive powers, even at the national level (e.g. discourse on green genetic engineering, citizens’ conference on genetic diagnostic).
3. COMMUNICATION FLOWS: INFORMING, EXPRESSING, AND PUBLIC PARTICIPATION

In the German S&T policy area we can find several forms of public communication or informing, which means that there are communication flows from state institutions, advisory bodies, or research organisations to the public via different kinds of media. Examples are discussions in the Bundestag, public deliberations of the German Ethics Council or free accessible reports by the Study Commission of the parliament or technology festivals etc.

We also find established forms of public consultation or expressing, which means communication flows from the general public – e.g. Eurobarometer and other surveys or focus groups organized by research organisations – and from affected parts of the public or civil society organisations (CSOs) – e.g. inviting CSOs to meetings of policy advisory bodies, to stakeholder discourses or other participatory activities as well – to science policy institutions.

Concerning modes and forms of bidirectional communication or public participation in a narrow sense Germany is still in conservational experimentation period for over 20 years now. Key problems are an unclear positioning of participatory procedures within the political system and political processes as well as a lacking anchoring and permanence in the public sphere. Consequently often visible implementation of outputs in policy processes as well as fostering a broad public debate fails – to name just two crucial points.

Despite all criticism one has to take in consideration that Germany has a far greater population compared to most European countries that are performing better in terms of public participation. Furthermore establishing new structures in a highly differentiated and complex democratic system needs time and careful approaches, since implementing new forms of public participation means that we are handling with societal real-world experiments.