

Daniel Barben: The Generation and Shaping of Biotechnology: The Neo-liberal Configuration of Functions and Forms of Technological Regimes in Comparative Perspective (USA-Germany/EU)

- General background:

The project is based on several years of research carried out at the Social Science Research Centre Berlin and at the Technical University of Berlin. It will be my “Habilitation” thesis and is intended to be completed during the next two years.

- Inter-/disciplinary focus:

The subject and analytical perspective of the project is constituted by social science, but it contains also interfaces with science and engineering.

Within social science, the project links especially sociology and political science. It contributes to the broad field of STS-studies emphasising the relevance of society (the second S-element) and combining theoretical and empirical work related to a particular techno-science (biotechnology). It is directed against technological as well as against social determinism or reductionism (“Technikdeterminismus”, “Soziologismus”) – that means, both dimensions have to be considered in their connectivity.

- Subject and analytical perspective:

The *overall task* of the research project aims at a better understanding of the patterns of the new biotechnological revolution – patterns that comprehend technological, social and political change. Thus, the development of biotechnology has to be observed with regard to its institutional framing and its social appropriation. In the final analysis, the social configuration of biotechnology can be evaluated concerning the coherence and tensions of an emerging technological regime – in other words, in terms of efficiency, legitimacy or hegemony.

Explaining the first part of the title – “the generation and shaping of biotechnology”:

→ The history and concept of *biotechnology* (and their relevance in the project).

[Figure]

→ The importance of the *institutional framework* that has evolved together with biotechnology and has been a source of manifold conflicts.

→ Outlining the basic elements of an analytical model considering the fact that the importance of biotechnology is determined by a set of factors which effect in different dimensions and stages; they are described as generation, implementation, and

appropriation; or as innovation, regulation, and enculturation.

[Figure]

Explaining the second part of the title – “the neo-liberal configuration of functions and forms of technological regimes in a comparative perspective (USA-Germany/EU)”:

Generally, to analyse the configuration of functions and forms of technological regimes means to analyse *the relationships between technology, institutions, discourses and practices*.

→ The basic idea of a proposed *regime analytic approach*: the mutual determination and re-shaping of institutionalised social structures and practices (in other words, regimes are arrangements of regulating practices). Since regime analysis is dependent on the subject of inquiry the design of the theory has to be outlined according to its peculiarities.

[Figure]

→ The analytical use of *comparative perspectives* – with regard to science and technology, and with regard to politics or social institutions.

→ The project is designed as an international comparison between the US and Germany respectively the EU (insofar necessary), and as a reconstruction of the international or transnational developments (under the condition of a globalising economy, this seems to be a necessary complement).

→ Why “neo-liberalism”? – In the mid-1970s, biotechnology as well as neo-liberalism experienced an upturn. In my view, this is not just a contingent simultaneity, but the condition of interdependent effects. Regarding the state-of-the-art, the relationship between the developments in biotechnology and neo-liberalism remains significantly under-researched; that is surprisingly enough, since business orientation or deregulation – both associated with neo-liberalism – have been prominent issues not only in the public debate. Of course, an appropriate understanding of neo-liberalism as well as of its impacts on the social configuration of biotechnology is not self-evident at all. To mention just one crucial point: neo-liberalism has to be understood in a non-essentialist way (otherwise it works as an over-simplifying concept). Instead, it has to be observed, how neo-liberal principles centred around the “free market society” are constituted and articulated under specific historical and political circumstances. Therefore, the meaning of neo-liberalism varies with different contexts of space and time, policy fields and actors etc.

To summarise: The social and historical configuration of biotechnology describes a set of different social functions and institutional forms. It constitutes the biotechnology regime which shapes biotechnology and, at the same time, is shaped by it. The generation and shaping of the biotechnology regime will be analysed against the background of specific national traditions and political systems in the US and in Germany by giving particular attention to neo-liberal political strategies. (This includes their interaction with the opposing, ethically or ecologically motivated

strategies of the new social movements or – since the late 1980s – the strategies of sustainable development.)

- Biotechnology regime

In principle, investigating the biotechnology regime means to outline the *biotechnology development as a whole*.

→ The areas constituting a biotechnology regime: *innovation, risk management, patenting, bioethics, biodiversity, and acceptance policy*.

→ Reconstructing how these areas contribute to the innovation, regulation and enculturation of biotechnology. It is an empirical question concerning the way they are organised and working.

[Figure]

→ The area functions of the biotechnology regime in terms of social theory: with regard to innovation, risk management, patenting, biodiversity, bioethics, acceptance policy.

A basic idea is that there are *primary functions* articulated in the *areas* of the biotechnology regime, and that there are also *functional interdependencies* between the different areas.

To summarise: → Outlining elements of a comparative frame of analysis regarding the specific configuration of functions and forms of the areas constituting the emerging biotechnology regime.

[Figure]

- Elements of an integral frame of regime analysis

With regard to regime analysis, the approach of theory building is to *generalise and specify* “regime” analytic concepts. Concerning the subject of inquiry, useful research traditions and theories to refer to are the following:

- evolutionary and institutional economics: “technological regime”, “techno-economic paradigms”, “national systems of innovation”;
- actor-centred institutionalism: “regulatory regimes”, “regime competition”;
- international politics/relations: “international regimes”;
- international political economy: “varieties of capitalism” and global change;
- regulations theory: “regime of accumulation”, “mode of regulation”;
- Foucault: the “governmentality” of regimes; regimes as technology, technologies as regime.

A basic methodological orientation is to unfold a *functional analysis without functionalism* (i.e. to reconstruct the functions and their realisation instead of presupposing and deducing them).

- Methods

Part of the project is the following empirical basis (which will be investigated by *discourse and institutional regime analysis*): analysis of secondary literature (area studies and in-depth-analysis); analysis of primary literature like legal texts, political documents, and statements of relevant actors and organisations. Expert interviews. Bio/Technology or Nature Biotechnology as a most important source of information and comment on the many relevant issues of the emerging biotechnology industry.

- Problems

→ Regarding *the relevance and notion of neo-liberalism*.

- General hypothesis

Concerning biotechnology, *the regime of innovation* has been shaped in a predominantly neo-liberal sense; *the regime of regulation* (or institutional framing) is, in general, characterised by fundamental compromises – it has been shaped by neo-liberal as well as by ecological tendencies; *the regime of enculturation* is still quite undetermined in its quality, since biotechnology is still in a early stage, and since the future of neo-liberalism is quite open – biotechnology itself has the potential to support either neo-liberal or sustainable social projects.

- Wider context of debate/Interfaces:

“Globalisation and democracy”, “global governance” and “the reorganisation of statehood”; public policy and “the role of neo-liberalism”; “sustainability” and “global technology policy”.

- Public use

Showing the specific making of biotechnology as well as of the social and political contexts – their contingency and possible or thinkable alternatives – can be one of the public uses (besides the sociological) of this project.