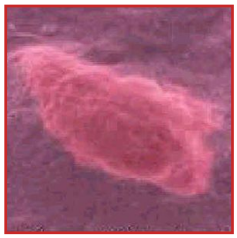
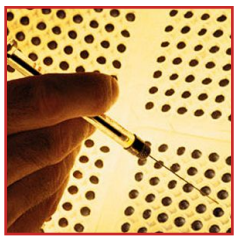
PAGANINI

PARTICIPATORY GOVERNANCE AND INSTITUTIONAL INNOVATION





Participatory Governance and Institutional Innovation [PAGANINI]
Contract No. CIT2-CT-2004-505791 . Deliverable Number 18

FINAL REPORT

June 2007

6th EU Framework Programme for Research and Technology

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FINAL REPORT

Herbert Gottweis (Coordinator) and Kathrin Braun*

June 2007

* The Final Report was drafted by Herbert Gottweis and Kathrin Braun, and discussed and commented on by the PAGANINI Consortium, in particular by Anne Loeber, Yrjö Haila, Bronislaw Szerszynski, Ingrid Metzler, Maarten Hajer, and Maria Kousis, who all contributed greatly to the final version of the report. The report is based and draws on the Work Package reports of the PAGANINI project (see page 3).

This report presents the theoretical framework and the empirical findings of the 6th FP research project on Participatory Governance and Institutional Innovation (PAGANINI).

The PAGANINI project set out to investigate the ways in which participatory practices contribute to problem solving in a number of highly contentious fields of EU governance, areas in which traditional mechanisms of governance can be seen to hamper policy making, as a result of which institutional experimentation is likely to take place. The policy areas studied in the project – stem cell research, genetic testing, food scandals and food scares, genetically modified food and nature conservation – belong to a cluster of policy areas that can be understood as relating to the "politics of life". The project was set up on the premise that a quality exists to the politics of life that links it to civic participation, and the ways in which and the extent to which participatory governance in this domain is becoming a component of the European polity merit empirical investigation.

Part I of this report introduces the theoretical and conceptual framework of the project and its starting propositions, whereas part II summarizes the findings of the empirical case studies. From these findings we extracted the main conclusions presented at the end of the report.

This reports draws on the following Work Package reports:

Anne Loeber, Maarten Hajer & Jan van Tatenhove (with contributions of Bronislaw Szerszynski)
WORK PACKAGE 1:
THEORY AND METHOD: INVESTIGATING NEW PARTICIPATORYPRACTICES OF THE 'POLITICS OF LIFE' IN A EUROPEAN CONTEXT.

Final Report. Deliverable Number 5.

Herbert Gottweis, Ingrid Metzler & Erich Griessler
WORK PACKAGE 2:
DEFINING HUMAN LIFE: HUMAN EMBRYONIC STEM CELL RESEARCH BETWEEN POLITICS AND ETHICS.

Final Report. Deliverable Number 12.

Work package 2 studies the conflict about human embryonic stem cell research and therapeutic cloning in Austria, Germany, the United Kingdom, Italy, on the EU and international level, and against the background of the situation in the United States and Israel.

Susanne Schultz, Kathrin Braun & Erich Griessler
WORK PACKAGE 3:
THE GOVERNANCE OF GENETIC TESTING: A NON-ANTAGONISTIC SETTING, 'AUTHENTIC PUBLICS', AND MOMENTS OF UNEASE.

Final Report. Deliverable Number 13.

Work package 3 sets out to investigate the effects of social controversy in the issue area of genetic testing on the emergence of new forms of civic participation in Germany, Austria, the UK and on the EU level.

Yrjö Haila, Maria Kousis, Ari Jokinen, Nina Nygren & Katerina Psarikidou

WORK PACKAGE 4:

BUILDING TRUST THROUGH PUBLIC PARTICIPATION: LEARNING FROM CONFLICTS OVER THE IMPLEMENTATION OF THE HABITAT DIRECTIVE.

Final Report. Deliverable Number 14.

Work package 4 focuses on the dynamics of the implementation of European conservation policy with an emphasis on the protection of endangered animal species (Habitats Directive, Article 12), specifically on two model species, the flying squirrel *Pteromys volans* (Finland) and the loggerhead sea turtle *Caretta caretta* (Greece).

Anne Loeber and Maarten Hajer

WORK PACKAGE 5:

LEARNING AFTER THE EVENT: ASSESSING THE INSTITUTIONAL ROLE OF CIVIC PARTICIPATION AFTER FOOD SCANDALS AND FOOD SCARES.

Final Report. Deliverable Number 15.

Work package 5 addresses changing patterns in governance with regard to food safety after the outbreak of BSE, the bovine variant of the brain infliction 'spongiform encephalopathy' in the Netherlands, the UK and on the EU level.

Larry Reynolds and Bronislaw Szerszynski with Maria Kousis and Yannis Volakakis

WORK PACKAGE 6:

GM FOOD: THE ROLE OF PARTICIPATION IN A TECHNO-SCIENTIFIC CONTROVERSY.

Final Report. Deliverable Number 16.

Work package 6 examines the role of public participation in the regulation of agricultural biotechnology in Europe, with a focus on GM food regulation in the UK, Greece and on the EU level.

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I. The project's theoretical orientation[1]

1. Participation, governance and life: the intertwining of conceptual and institutional innovation

'Bien étonné de se trouver ensemble'? The policy areas studied in the project – stem cell research, genetic testing, food scandals and food scares, genetically modified food and nature conservation – at first glance may seem a surprisingly random selection of topics on which to build a research venture. Yet when these are understood as areas in which the relations between society, technology and nature are continually redefined and practically given shape in view of very concrete policy issues, such a diverse collection of topics allows the researcher to probe deeply into the dynamics of 21st century politics regarding a rather quintessential phenomenon: life. It is on the basis of this premise that the PAGANINI project was developed, namely to study practices of governance that concern life as a construct of political and scientific discourse.

What is called here the 'politics of life' presents a relevant area for empirical research, as the assumptions underlying the relations among society, technology and nature which characterised the better part of the 20th century seem lately to be undergoing profound changes.

These changes concern

- the assumption that the state is a unified political space;
- the assumption that science presents a universal, certain body of knowledge grounded in the natural world to obtain direction as to know 'what to do next';
- the assumption that there can be a clear boundary between the realm of science and knowledge production, on the one hand, and the realm of the political, on the other;
- the assumption that there a clear boundary exists between scientific knowledge production and other societal processes.

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[1] The 'theoretical orientation' section of this report is derived from the Work package 1 report 'Theory and Method: Investigating new Participatory Practices of the Politics of Life in a European Context' by Anne Loeber, Maarten Hajer and Jan van Tatenhove (with contributions of Bronislaw Szerszynski).

Rather than treating public concerns about, say, the safety of genetically modified food crops (for both the environment and human health) or the desirability of developing and using prenatal screening technologies as a random collection of contemporary disturbances between scientific expertise, political institutions and citizens, these phenomena are here considered manifestations of an ongoing fundamental challenging of the assumptions outlined previously.

As a consequence, the kind of state-initiated social engineering that dominated the better half of the last century (what James Scott [1998] calls "high modernist statecraft") is unlikely to present a viable option for governing life-political issues. Both empirical research and recent theoretical sophistication seem to underscore these doubts, as they bear witness to

- A *conceptual* transformation of the notion of 'politics': The social sciences, and in particular the political sciences and the social study of science, increasingly acknowledge the political nature of any act that holds public consequences. This recognition implies that politics involved in actions that take place outside formal institutions traditionally considered the exclusive centres of political power are now viewed as valid potential objects of political research. Attention is drawn to the sites where and the practices in which politics are being enacted through the articulation of and the struggle over meaning and morals and their inscription in analyses, plans and material objects (e.g., Beck 1992, 1999; Gomart & Hajer 2002; Mol 2002; Dean 1999:11; Gottweis 2003:255).
- A *practical and institutional* transformation of politics: New arrangements of governance are developing in which non-state actors (that is, anyone not employed as an elected representative or in the civil service) are actively participating in processes of policy analysis, policy formation and implementation and political decision making.

'Participatory governance' in state-initiated institutional designs can be defined as "the practice of consulting and involving members of the public in the agenda-setting, decision-making and policy-forming activities of organizations or institutions responsible for policy development" (Rowe & Frewer 2004). Yet it must be stressed that the institutional transformation of politics is not restricted to state-initiated designs. Rather, the effects of changing relations between science, states and non-state actors owing to such dynamics as EU integration, globalisation of economic relations and an increasing privatisation of public regulation become manifest in myriad forms, for example, governance networks that provide space for the participation of non-state actors, including those that are *not* state-initiated.

Taking the *conceptual* transformation of politics seriously, the question of public participation, then, needs to be rethought. Participation can no longer be conceptually restricted to state-actors in processes of formal political decision making or policy formation. Instead, the question of inclusion or exclusion must be transformed into questions such as the following:

- What precisely counts as 'public participation'?
- What is it exactly that a public participates in?
- How is 'the public' constructed, in relation to what and by whom?
- How are 'publics' and the objects and issues that trigger their coming into existence mutually constructed and transformed in concrete practices of participatory governance?

Taking this line of reasoning as a point of departure, the object of research in the PAGANINI project was designated to be a broad range of contemporary forms of participation, spanning the conventionally defined, formal participatory arrangements as well as institutionally less articulate new practices of governance. Furthermore, to fully appreciate the identified forms of participatory governance, the project partners agreed to adopt a 'double focus' in the inquiry process: on the one hand, the participatory practices of governance that form the object of research should be understood in relation to the broader societal – political, economic, technological – dynamics of which they are a specific expression; on the other hand, the researcher should have an eye for the micro-politics of meaning that take shape in the practices under scrutiny.

We shall first elaborate more in-depth the premises regarding the notion of participation that shaped the focus of the PAGANINI project (sections 1.1. and 1.2). From these considerations, we derive a series of propositions that have informed and guided the empirical research (section 2). Subsequently, we shall sketch out the thematic focus of the PAGANINI project, namely 'the politics of life' and the new challenges it poses to research on governance and participation (section 3). Part I will conclude with a list of research questions that has guided the empirical research (section 4).

1.1 The concept of 'participation' in the conventional view on politics

Governance in the political sciences that crystallised in the 20th century has long been defined in terms of the formal, centralised political institutions by which the intent to govern materializes. Governing is defined here as the public handling of a problem issue in a way that respects the interests of a community. In this perspective on politics, the government of a nation-state was conceived of as the apex of power and authority and the centre of political will formation and steering activities. Three assumptions underpinned this depiction of what now is known as the "orthodox understanding" of governance (cf. Fox & Miller 1996:14-19):

i) the idea that there was – or at least should be – a clear caesura between norm-driven politics and a neutral public administration to 'technically' implement political decisions,

ii) the idea that the relation between the realms of the political and of administration was one of a hierarchical control, and

iii) the assumption that science, when properly exercised, could inform political decision making with "judgements that are beyond question" (Collingridge & Reeve 1986).

It is against the backdrop of this conceptualisation of government that David Easton formulated his much-cited definition of politics as "the authoritative allocation of values for society as a whole" (Easton 1953). Of course, values are also allocated by and within other systems or institutions, such as families or firms, but it was the formal political system, Easton posited, that allocates values for society as a whole (cf. Van de Graaf & Grin 1999). The policy process by which that function was made operational was portrayed in Easton's (1953, 1965) system theory more or less as a "conveyer belt" (a metaphor used by Stone 1998). Pressures from society are turned into inputs (in the shape of demands and supports) for the political system, within which politicians authoritatively order and translate the societal pressures and requests into problems to be processed by policy makers. It is the latter's task to thereupon transform these into policies that, after having been politically sanctioned, are to yield policy outputs that resolve the problems. Subsequently, governmental administrators implement these policies. In return, society may respond by a new round of demands and pressures (Grin & Loeber 2006). Thus, for conventional political science, its research objects were delineated by the organisation and operations of government, comprising elections and centralized decision making on issues of collective interest via councils of elected representatives and the dynamics at the boundaries of

'the political system'. Political science thus referred to what may be called the "classical-modernist" topography of politics (Hajer 2000; cf. Wagner 2000).

Today's practices of governing have long ago gone beyond the scope of the classical-modernist topography of politics. New 'government technologies' have been developed to overcome the capacity deficit (Mayntz & Scharpf 1975; cf. Mayntz 1980) that stems from imperfect information flows between public policy actors and 'policy target groups', and the so-called legitimation deficit – the lack of public trust in and commitment to traditional democratic institutions.

The trend to experiment with new forms of participatory or 'interactive' policy making or 'interactive policy analysis' has been widely covered in the literature (e.g., Chandler 2000; Joss & Bellucci 2002; Akkerman et al. 2004). On a conceptual level, the literature has largely focused on developing taxonomies and systems of classification to assess and analyse the participatory practices found (e.g. Fiorino 1990; Laid 1993; Collin & Evans 2002; cf. Rowe & Frewer 2000). Central criteria in the assessment of these practices are those concerning *access* (who is allowed to participate; by whom is that determined) and *autonomy and influence* of the participants vis-à-vis formal political institutions. The exemplar case for the political sciences is the "Ladder of Citizen Participation" by Arnstein (1969), which distinguishes between eight levels of participation in political decision making, ranging from 'manipulation' to 'citizen control'. In the latter case, citizens fully control all stages of decision making, having been granted total sovereignty in reaching decisions. In the field of policy *analysis*, a landmark classification system is Durning's (1993), which distinguishes between four types of participatory policy analysis.

However, as previously stated, the sole objects of investigation in the PAGANINI project are not state-initiated arrangements for formally organised public participation. Other – not necessarily 'new' – types of participatory practices may be discerned when we review the conventional notion of what counts as politics.

1.2 Participation in the light of conceptual critique: rethinking political space

It was notably through the social studies of science and technology literature as well as through macro-sociological studies that the idea of power not being constrained to classical-modernist state institutions but instead being dispersed in polycentric networks gained a foothold in political science, changing the perception of what counts as political space. The underlying concept here is that power is not to be considered a commodity, so to speak, to be shared or not shared with members of an a priori given public, but as the product of the interactions that take place between diverse groups of people struggling over meanings, values and, indeed, the legitimation of action.

In particular, the literature that focuses on the social construction of technology (e.g., Latour & Woolgar 1979; Latour 1987; Callon et al. 1992) has drawn attention to the generation and dispersion of power in a wide range of sites, including those for the production of scientific knowledge. This literature indicates that the boundaries between a 'political system' and society as a whole are much more fluid than the conventional political science would interpret it.

A similar conclusion is drawn by authors working from a macro-sociological point of view. Authors such as Castells (1996, 1997), Giddens (1990, 1991), Albrow (1996) and Beck (1994, 1997, 1998) all posit that the nation-state model of politics erodes and transforms into patterns of governing practices that thrive on flexible networks of actors. Beck clearly states that we look for politics in the wrong place when formal governmental institutes are solely the object of research. In his opinion, equally political are the loci of what he calls "subpolitics," such as the boardrooms of business and industry, or knowledge institutes. Castells makes a similar yet more sophisticated argument about the "displacement of politics" and the emergence of a "network society". According to Castells, in the network society power is no longer concentrated in modern institutions, such as the state, capitalist firms and corporate media, but is also diffused in global networks of wealth, information and images, which circulate and transmute in a political system best described as a "variable geometry" and dematerialised geography (Streeck & Schmitter 1986).

The emergence of a European multi-level framework for governance furthermore has highlighted that policy arrangements often comprise actors on the local, regional and global level (Kickert et al. 1997; Hanf & Jansen 1998; Van Tatenhove et al. 2000). Processes of 'trans-nationalisation' of

economic, cultural and social relationships and the 'horizontalisation' of the accepted authority of the nation-state between firms, NGOs and citizens are here seen as concurrent with the process of European unification.

In sum, characteristic of post-conventional views on governance is that 'the polity' is not necessarily co-extensive with the territory of the nation-state (Hajer 2003). The loosening (conceptually and practically) of the ties between the territory and the act of governing has far-reaching implications for the notion of participation, for if the political community does not necessarily coincide with the nation-state, then membership in a political community does not coincide with formal citizenship. Participation, then, may refer to a number of different, possibly overlapping, 'polities' – and not only to the state. In a world where not only the organisation of politics but also the construction of identity and a sense of 'belonging' are no longer self-evidently coupled to territory, 'the citizen' has become plural: he or she is characterised by a diffuse identity or, rather, can adopt multiple identities and roles depending on the concrete settings in which he or she operates (cf. Fox and Miller 1996). Moreover, with the territorial bind the notion of the 'common good' becomes ever more problematic, as not only the content of the 'common good' is politically contested – that has always been the case in democratic states – but also the group to which the adjective 'common' refers; it cannot simply be presupposed that this group coincides with the members of the nation-state. Consequently, a relevant empirical question emerges: What is it that brings people together in the intentional 'production of politics'?

2. Implications for the project's organisation of empirical research

The increasing interdependencies between states and their inhabitants worldwide in the second half of the 20th century render the concept of the nation-state as the organising principle in politics increasingly problematic. Phrases like Castell's 'displacement of politics' or the 'dispersion of politics' (cf. Hajer & Underhill 2003) are part of a new, emerging vocabulary in the policy sciences. New concepts have been coined to describe the sites of politics and notably the *changing topography of politics* such as "nodal points" (Gottweis 2003:260) and "public energy fields" (Fox & Miller 1996:100–110). The PAGANINI project considers such new vocabulary useful in order to move beyond the conventional conception of politics – and accordingly of participation.

To guide the empirical focus, the project postulated to at least take into considerations 'new political spaces' (Hajer 2000) as an object of research, in addition to formally arranged participatory practices. New political spaces in the PAGANINI project are sites where processes of political judgment and decision making take place that exist *next to* or *across* the institutions that are traditionally considered the exclusive centres of political power. These new loci of political activity are considered to present sites of 'participatory governance' *by definition,* as they entail the involvement of non-state actors.

New political spaces provide the settings where 'reality' is re-created and rewritten as the outcome of new processes of discursive construction. These processes are both inherently political and inherently social. They are *social* in that, as an ensemble of ideas and concepts, they are being "produced, reproduced, and transformed in a particular set of practices" (Hajer 1995:44). They are *political* in that such discourses do not merely disclose some underlying reality but "actually constitute it" (Gottweis 2003:251). The inextricability of discourse from social practice and the political nature of discursive construction make all practices in which meaning is articulated the *loci* of politics. In contrast to the conventional understanding of 'the political system' the notion of site or 'space' is constructed here without any territorial reference. Governance hence, in the PAGANINI vocabulary, refers to a regime of practices.

On the dynamics in governance practices, the PAGANINI project formulated three propositions derived from the literature as well as from former empirical studies by PAGANINI researchers, to help focus the empirical research:

> *Proposition 1: new political spaces can be seen to come into being in relation to the formal codified, 'classical-modernist' political institutions, for example., institutes for representative democracy, when the latter are unable to cope adequately with unruly societal problems.*

New political spaces in those cases may emerge as a historical product of an institutional ambiguity. The concept of 'institutional ambiguity' indicates a situation in which the 'rules of the game' – the way in which a problem issue can and should be legitimately framed and publicly handled – are themselves the subject of political deliberation and struggle. Institutional ambiguity, we assumed, appears when on the one hand, the existing rules and norms that shape politics and policy making with regard to a specific issue are considered problematic and/or unacceptable, while, on the other hand, clear rules are considered indispensable by the parties involved to determine who is responsible, who has authority over whom and what sort of accountability is to be expected. Sheila Jasanoff (1997) speaks of a "civic dislocation", denoting "a mismatch between what governmental institutions were supposed to do for the public and what they did in reality", causing citizens, at least temporarily, to "disengage from the state".

> *Proposition 2: institutional ambiguity or 'civic dislocation' and subsequently new political spaces may occur in reaction to either sudden disrupting events or, alternatively, as a result of more pervasive, lasting perceptions of scepticism and alienation (cf. Jasanoff 2004a).*

Referring to Laclau's (1990) concept of "dislocation", we coined the notion of 'dislocatory moments' , indicating the "emergence of an event, or a set of events, that cannot be represented, symbolized, or in other ways domesticated by the [dominant] discursive structure – which therefore is disrupted" (Laclau 1990:41). In those moments, the apparent consensus on meanings, roles and identities between actors is fundamentally shattered. Please note that such a dislocation may not only refer to a 'traumatic event' of chaos or crisis but can also be triggered by lasting scepticism and uncertainty, resulting, for example, from 'conflicting state imperatives'.

In other words, dislocatory moments, or series of dislocatory moments, may cause a sense, and a situation, of institutional ambiguity and impel a need for 'reordering'. In so doing, they may be

seen to trigger the emergence of new political spaces where framings of the problem as well as the rules of the game are being (re)articulated.

> *Proposition 3: Moments of dislocation may bring along unprecedented crises in regard to the credibility of formal political institutions and associated knowledge institutes, and notably disrupt the 'passive trust' which is presupposed in the formal organisation of government, and which is derived from the classical means of political participation and representation such as elections, representation of political leadership and the enactment of scientific expertise.*

Essential for situations of institutional ambiguity is that the component parts of trust (which according to Weinstock [1989] comprise unity, stability, cohesion and cooperation among members of a collective) are not self-evident, and that therefore one-way communications from classical-modernist institutes to 'the citizen' no longer suffice. Such communication, which generally consists of information flows in which a particular framing of the problem is conveyed, no longer serve to arouse feelings of commitment. In those moments, trust will have to be *actively* re-created in and through the actual interaction between human beings.

In cases of institutional ambiguity, the 'silent contract' between citizens and formal political institutions, including those operating through the enactment of scientific expertise, is broken, and the state's licence-to-operate may be withdrawn.

In some cases, feelings of unease may find an expression in public turmoil and visible protest. A case in point is the 1980s example of the wrecking of test plots with GMO crops in the Netherlands by 'action groups' calling themselves the 'Raging Potatoes'. In other cases, unease may be expressed individually, for example, by a patient or pregnant women in the doctor's office faced with conflicting imperatives of self-determination and responsibility on the one hand, and the impossibility of reducing uncertainty about health risks for oneself or one's offspring to a 'manageable' level on the other. Moreover, institutional ambiguity may be experienced not only by non-state actors but by actors operating professionally in formal political institutions. To them, social, technological and political dynamics may cause regulatory practices to come across as 'conflicting state imperatives'.

In the PAGANINI project, thus, the notion of 'participatory governance' denoted the emergent, iterative and fluid performance of governance in which varieties of actors, who can be identified not only in relation to the state as pre-given entity but also in relation to attempts to align problem framings, articulate roles and generate trust, deliberate their problem definitions and solutions. The practices in which this kind of governance become manifest may include formal 'participatory arrangements' but may also take different shapes.

3. The new politics of life: disruption of dominant structures and the need for reordering

As said, the project *thematically* focused on policy areas that cluster in what is designated here as 'the politics of life'. The reason for this thematic focus is that in the closing decades of the 20th century and at the brink of the 21st, we witness the loss of what was once assumed a universally valid teleological orientation: the mastery of nature. As Ezrahi (1994:29) writes in regard to the past age:

> It is on the basis of [the premise that nature and society are two separate and distinct domains] that the mastery of nature . . . could appear as a universal human goal, as something common to all members of human society, thus removing from the idea of technology the problem of harsh normative choice.

For the reasons described above, the belief in the distinction between the 'ontological real' of nature and the social reality of politics and other practices of sense making is faltering. That has consequences for the way in which the risks involved in life-influencing developments (such as life-threatening diseases or life-generating technologies) are being handled. With the loss of a potentially 'unifiable' community as described above, the element of normative choice in attempts at mastering nature, or life, is inherently complex. In regard to life-political issues, therefore, situations of institutional ambiguity are bound to occur.

The PAGANINI project raises the question how in the newly developing setting of 'blurred boundaries' between science and politics, and between nature and society the approaches to risk control and risk management are affected.

Within classical-modernist modes of governance, 'risk' was conceptualised as being calculable in terms of statistical probability, as being collective in that it refers to a population, not to the individual, and as being economic in nature and expressed in terms of the loss of financial value involved (Ewald 1991). In the new politics of life, the relation between mind, body and non-human nature is being reframed: risk may involve uncertainty about the information necessary to assess nominator and denominator in statistical calculations, risk may be experienced predominantly on the level of the individual, and risk may involve non-economic assessments of damage and responsibility.

In addition, the very notion of risk and the possibilities for risk control and management in certain issue areas are contested.

While some contemporary analysts of modern society such as Beck (1997) or McNeill (2000) concern themselves with what they perceive as 'real crises', that is, crises in the ontological real and that are brought to the fore in "risk" and "uncertainty" that have to be managed or handled (e.g., Wynne 1992; Mol & Bulkeley 2002), other authors identify late-modern society's core problems in terms of crisis in the production of scientific and political authority. Instead of taking crises of "invisible, elusive, fearful, yet wholly 'real' entities" at face value, Jasanoff (1990, 2004b) directs attention to the relationship between the modern state's capacity to produce and maintain political order and its capacity to produce and use scientific knowledge. The dynamics in the various 'spheres of action' in society influence one another, Jasanoff argues, in such a way that developments in, say, environmental science and its outputs are supported and legitimated by other social practices such as policy-making processes and vice versa. This perspective she refers to with the phrase 'co-production':[2]

> [C]o-production is shorthand for the proposition that the ways in which we know and represent the world (both nature and society) are inseparable from the ways in which we choose to live in it. Knowledge and its material embodiments are at once

[2] Please note that in the following, the word 'co-production' will refer to this interpretation of the concept and not to Whitaker's (1980) interpretation, common in public administration literature, that denotes the co-operation between target group and public officials in implementing policy objectives.

> products of social work and constitutive of forms of social life; society cannot function without knowledge any more than knowledge can exist without appropriate social supports. Scientific knowledge, in particular, is not a transcendent mirror of reality. It both embeds and is embedded in social practices, identities, norms, conventions, discourses, instruments and institutions – in short, in all the building blocks of what we term *social*. The same can be said even more forcefully of technology. (Jasanoff 2004b:3; italics in the original)

It is from this perspective that practices of participatory governance concerning life-political issues are approached in the PAGANINI project. This perspective enables us to analyse the reasons why and the ways in which normatively laden epithets are used at all in debates on nature. It also allows for an analysis of why and how nature as such 'causes' a range of social, scientific and political practices to emerge, and how in turn nature is constructed there. In addition, it helps shed light on the reasons why notably at this juncture, in the closing decades of the 20th century and at the beginning of the 21st, the way society, politics and science were organised and conceived of in the course of the past century is time and again called into question, and why institutional uncertainty is common .

Research within the PAGANINI context started from the hypothesis that current dynamics involve a dislodgement of the very fundaments of current institutions and thought in science and politics and in nature and society, and that the basic assumptions with regard to science and those with regard to politics are being re-examined. As a result of this review, the two spheres of action are increasingly perceived as *not* being separated at all.

From this perspective, when life enters our human understanding and attempts at ordering, there are politics of life. New to the life-political issues of late modernity is that they entail novel constellations in the constructed relation between mind, body and non-human nature. As a consequence, they challenge the very institutional arrangements that political and scientific communities produced in the course of the past centuries to deal with nature as a resource or a threat to social order and human life, and to eradicate associated uncertainty.

The 'new politics of life' of the 21st century thus concern those issues regarding life in both its somatic and environmental interpretations and their associated constructions of human identity, selfhood and individual and collective responsibility, for the ordering of which modernist forms of governance are found no longer viable and legitimate. Hence, a further hypothesis of the PAGANINI project has been that life-political issues in late modernist times tend to expose the

built-in tensions and implicit assumptions underlying modern governance in such a way that this mode of ordering is called into question in acute, concrete political and scientific practices. Inherent to new life-political issues is that there cannot be, at least not self-evidently, a 'binding, authoritative allocation of values for society as a whole' by the centre of formally institutionalised state power. The ensuing situations of institutional ambiguity imply the need to develop, in situ and ad hoc, new modes of governance by which actors can deal with the issues at stake effectively and legitimately, in a context where no a priori unity or an implicit notion of 'the common good' as a motive for political action may be assumed, nor a possibility of taking recourse to an 'objective truth' for knowing what to do as a community. Society thus is faced with the need to produce modes of reordering which can accommodate for feelings of distrust, uncertainty and a diversity of values, particularly concerning the teleological orientation of social, political, or scientific action. Therefore, continuing our hypothesis, it is likely that in the domain of the politics of life in late modernity, participation and governance become intermingled to an unusual extent.

4. Implications for the organisation of empirical research in relation to the 'new politics of life': propositions and research questions

Although cases of 'the new politics of life' may be empirically diverse, they all may illustrate a number of themes which are of particular research interest on the basis of the conceptualisation of governance in late-modernity. Together these themes set an initial agenda for research in particular case studies:

- *There is a mismatch between a life-political issue and dominant modes of governance that triggers situations of institutional ambiguity.*
  How is this mismatch brought out in the different politics of life areas? How is it expressed and who perceives it?
- *Science and politics are co-produced in public, political and scientific discourses.*
  How do public and political discourses influence what counts as 'scientific truth' or as a 'fact'? How do non-scientists participate in scientific knowledge production? How do, on the other hand, assertions about alleged scientific facts channel and shape policy making? Who can say what on which grounds about 'matters of fact' and 'matters of concern' in a

specific situation? What argument carries force, and what can be said by whom legitimately? Who and what is decisive in determining who is 'in' and who is 'out'?

- *In the new politics of life areas, the dichotomy of reason (logos; facts) on the one hand and morality, ethics, and emotions (pathos) is untenable.*

  Which role do morality, ethics and emotions play in the attempts at reordering reality in politics of life areas? How do they interact with attempts to formulate 'truths' about the natural world and justifications about political judgments?

- *In the new politics of life areas, a mismatch may be perceived between political regulation on the one hand and problem perception on the other (e.g., between the 'universalistic' claim that some species need protecting and the locally perceived need not to bother). Responsibility for ordering and regulating cannot be presupposed to rest with the nation-state but may be divided or floating between the national, the European union, the regional, the local level, or between collectives and the individual.*

  How are such mismatches being addressed in practice?

  Who is considered to legitimately take up responsibility for the control of technologies that might affect the personal, individual life of people (e.g., the state, the individual, the producer, or the consumer)?

In short, the politics of life may be understood as involving a broad range of issues that concern the relation between the mind and the body, and between humans and external nature, that acutely challenge central assumptions in the dominant modernist modes of ordering such as the dichotomy between facts and values, science and politics, logos and pathos.

Due to the complex relations between science and politics regarding life-political issues, artefacts and subjects, it is in this policy domain that the inadequacy of dominant, modernist modes of governance may be urgently felt, and may result in institutional ambiguity. Attempts at reordering the unruly issues in the face of such ambiguity may therefore well entail the participation of varieties of actors and new forms of governance that build on and know how to deal with the 'unruly' publics involved. If only for their suggestion to be manifestations of a newly emerging social order, the politics of life of late-modernity and the practices of participatory governance through which they become manifest are well worth investigating empirically.

II. Case Studies

1. Dislocations, institutional ambiguity and the resilience of the state

As discussed in Part I, our theoretical debate led us to posit that in the life-political areas that we investigated, institutional ambiguity was likely to occur. Institutional ambiguity comes out when the existing rules and norms that shape politics and policy making with regard to a specific issue are considered problematic and/or unacceptable, while at the same time evidence exists that clear rules are considered indispensable by the parties involved to determine who is responsible, who has authority over whom, what sort of accountability is to be expected and so on. We expected such ambiguities to occur in the policy areas under investigation, as we argued that in those fields the dominant and institutionalised governance structures might be found insufficient or even at odds with the requirements posed by, for example, new technological developments, changing attitudes towards the manageability of life, or the desirability of preserving nature. Those feelings of unease or even dislocation, we argued on the basis of theoretical explorations of the issue, could either manifest themselves after sudden disrupting events (dubbed here 'dislocatory moments') or in more pervasive, lasting perceptions of skepticism and alienation.

The empirical research shows that in some cases dislocatory events in the Laclauian sense have indeed occurred which triggered processes of discursive and institutional reordering. In other cases, we found that institutional ambiguity and the emergence of new political spaces and governance patterns have emerged not so much in response to identifiable moments of dislocation but instead in the context of crisis, lasting skepticism, a creeping awareness of uncertainty, or 'conflicting state imperatives'. Yet, what was perhaps a more surprising finding was that in many instances existing institutional designs and dominant discursive structures gave witness of a remarkable resilience. As a result, also in the face of dislocation and/or lasting perceptions of unease and alienation, rather than fundamental and radical changes and overhaul, we noticed the emergence of mixtures of old and new institutional patterns and the persistence of, 'high modernist' modes of governance.

In part, our case studies bear witness of dynamics that have been set into motion by dislocatory events. A key dislocatory event in the field of **embryonic stem cell and cloning research**, for instance, was the announcement of the birth of Dolly the sheep in March 1997. The announcement led to intense sense making, ordering and soul searching. It was met with shock and horror in Germany, Austria and Italy. And it incited regulatory activities, both on the level of the countries under study and on the level of numerous international organizations such as the United Nations, the European Union and the Council of Europe.

What rendered things complicated and unruly, however, was that Dolly was not universally damned as a nightmare. The birth of Dolly the sheep also generated a great deal of excitement on the potential benefits of the technology that helped to give birth to the globe's first cloned mammal. Dolly proved that somatic cell nuclear transfer (SCNT) did indeed work, thus demonstrating that an adult cell could be 'reprogrammed' and go 'back in time'. A somatic cell that fulfills a very specific function could be rebooted into a very early stage and give rise to an embryo and, progressively, to a foetus. Some scientists and policy makers argued that while this technology should not be used for human reproductive purposes, the technology as such should nevertheless have its place in the range of permissible practices. SCNT, so the argument went, could be used to generate cell lines that are perfectly compatible with patients. The combination of human embryonic stem (hES) cell and cloning technology gave shape to a whole set of new medical-therapeutic expectations that promised to offer unprecedented possibilities for dealing with serious ailments and diseases for which there existed no alternative treatments. However, while some framed these prospects as unprecedented opportunities, others regarded them as the crossing of "fundamental moral boundaries" and as the beginning of a public-health nightmare.

Somatic cell nuclear transfer (SCNT, "therapeutic cloning") involves the injection of a nucleus from a differentiated body cell (a somatic cell) into an oocyte (egg cell) from which the nucleus has been removed. Then, the oocyte is mechanically induced to behave like an ordinarily fertilized oocyte, i.e., an embryo, and starts to divide and develop like normal embryos. The feasibility of this technique has been first successfully demonstrated by Ian Wilmut, Keith Campbell and colleagues, when they produced Dolly the famous sheep. They removed the egg's nucleus with its DNA and replaced it with the DNA of a donor cell. Then, they "found a way to fool the egg, by a shock of electricity, into thinking that it was a developing embryo" (Wilmut & Highfield 2006:93). The oocyte provided signals that reprogrammed the somatic cell DNA, redirecting it to divide and develop like early-stage embryos. Subsequently, the embryo was transferred to a surrogate ewe. The resulting sheep – Dolly – had the same nuclear genome as the sheep that was the source of the somatic cell (Bonnicksen 2002:2).

One could argue that the birth of Dolly the sheep developed such a strong dislocatory power because of its "ontopolitical implications".[3] With ontopolitics we refer to political contestations in which questions about "what to do with an entity" are related to or translated into struggles and debates on their categorization. Struggles on what to do with entities are related to struggles on their very labeling, their categorization and, consequently, their very ontological status. A cloned mammal, a vital human embryo outside the woman's body, a blastocyst derived not through fertilization but through SCNT, all confront actors with the question of what these entities actually *are* and how they can be represented within the moral and epistemological order (see chapter 3 on risk and uncertainty).

Another case study, in which we can identify a moment of dislocation that set off a series of institutional responses is the case of BSE and **food scares**. It was not so much the first clinical signs of BSE in cows in the UK in 1986 – although quite disruptive of the dominant understanding of spongiform diseases in mammals – that came to upset standing practices of risk control, but the concern that the disease might afflict humans too. In 1995, public concern proved justified when three young people died from what was apparently a new human variant of the brain infliction Creutzfeldt-Jacob Disease (nvCJD). Public turmoil in Britain arose when on March 20, 1996, UK Health Secretary Stephen Dorrel publicly announced the likelihood of a link between the cattle disease and the newly found variant of the human equivalent. These developments had a strong impact in various policy fields, among them trade and internal relations within the EU. The same year, the EU imposed a ban on the export of British beef, forcing Germany to replace the unilateral ban it had set in place in a first reaction to the British veterinary problems.

In November 1989, the central government asked the German States (*Länder*) to restrict trade in British beef, permitting only certified BSE-free meat of which the spinal cord was removed (a

[3] Here, we borrow the name of a concept from John Law (xxxx) and Annemarie Mol's work (xxxx, xxxx), without, however, drawing on its intellectual content.

measure preceding the worldwide ban on UK beef). When eventually the EU ban was installed, Germany adopted the EU controls and ceased its own unilateral action (Dressel 1999). Other measures taken in EU countries among which the Netherlands and Germany included strict controls on a separate handling in the compounding industry of feedstuffs for ruminants on the one hand and for poultry and pigs on the other, so as to prevent cross-contamination. The use of meat and bone meal in feed was banned, and a registration system for cattle was installed in both countries in 1994. After the British had formally confirmed the possible link between BSE and nvCJD, more stringent measures were taken. The Dutch Minister of Agriculture decided in March 1996 to have all British calves in the country killed and their carcasses destroyed (Van der Most & Smit 1999). In addition to control measures regarding live animals, measures with regard to beef and beef products of British origin also were reviewed. Already from August 1990 onward, in response to a ruling of the European Commission, imported British beef attached to the bone was submitted to specific inspections. Initially the import of British meat from farms that had been free of BSE for at least six years was allowed. By 1996, however, trade and transport of beef and beef products from the UK to other member states were prohibited altogether, and a total ban was a fact.

The reasons why BSE proved, in hindsight, a powerful dislocatory event (also in comparison to other food scares) are manifold. First of all, the assertion that BSE was a zoönosis, that is, an animal disease that may affect humans, strongly disrupted the institutional organisation of both policy areast involved: agriculture and public health. Both fields of old had been organised largely in relative isolation from one another in all three countries under investigation here. The institutional design that was characteristically divided into a series of arrangements set up to deal with agricultural production and veterinary care, on the one hand, and a set of arrangements for dealing with human health, on the other, made it possible that the human risks involved in BSE went unnoticed for a long time (cf. Van Zwanenberg & Millstone 2005). The landslide that BSE set in motion once it was identified as a zoönosis included more than mere organisational rearrangements. BSE cut through the classificatory schemes that modernist institutions use to routinely separate the realm of the animal from that of the human. BSE presented a clear and unavoidable incentive to reconsider the boundaries between the two spheres. As a result, the institutional arrangements for governing the public consequences of food production and consumption themselves became the object of political conflict, which culminated particularly in a redesigning of food safety regulatory settings.

BSE could have this strong implications, notably in the UK and on the level of the EU, because of the sheer costs involved in its abatement and its impact on the EU internal market, as well as its costs in terms of loss of political goodwill in view of the principle of freedom of movement for animals and goods. A second decisive development was that the BSE-nvCJD turmoil in the UK developed at the time the Labour opposition began a serious challenge against the conservatives' long-term hegemony and made the 'mad cow disease food scare' into an election issue. For this reason, and because Britain was hit more severely than any other European country, it is possible to observe the most extensive institutional responses in the UK (see chapter 2).

Another reason why BSE may be considered as fundamentally upsetting the dominant food safety control regimes was that its pathogen agent seemed to escape the analytic tools available for assessing and managing food-borne diseases. As BSE was constructed as a scrapie-related brain infliction, the cause of the disease was identified in terms of the 'protein only' hypothesis (Prusiner 1982; see chapter 3). Problematic to the governing of BSE was that the prion (or protein only) hypothesis provided almost no clues as to how to proceed. It is inconsistent with animal disease and zoönoses control protocols which are used in determining which national measures must be put in place in case of an outbreak of some disease.

The dislocatory power of BSE, respectively nCJD, partly spilled over to the area of **GM (genetically modified) crops**, in fact contributing to the emergence of a public energy field around this issue too. When in 1996 the first GM crops came to the European market, they soon became the centre of contention. This contention was considerably fuelled through the announcement by the UK government in March 1996 that a probable link had been established between the human brain disease of vCJD and BSE, after years of assurances by government scientific advisers, politicians and the industry that "British beef is safe to eat". Following this admission 1996 public trust in the regulatory and scientific advice system along with the food and agriculture industries plummeted. The years 1996–1999 became a period of serious crisis for the existing European regulatory regime which had been established by the DRD (1990/220). By the end of 1998, the crisis of legitimacy for those trying to promote GM agri-food in Europe had become critical. An institutional void around the governance of GM crops had become visible to all. The 1990/220 deliberate release directive had attempted to govern the release of GM crops as a separate and distinct category. However, it had provided no machinery for post-market regulation, assuming that its responsibility ended once the new varieties were released into the

fields or supermarkets. Yet now retailers found themselves on the frontline of a new cultural and political battle that threatened their sensitive and elaborate system of negotiations with consumer consciousness, based on trading with symbols of naturalness, purity and health. Within this meltdown of public trust a growing series of improvised measures proliferated, ranging from national bans by EU member states to boycotts by powerful supermarket chains. Activists arrested for sabotaging GM test fields escaped punishment, when some courts refused to convict them, demonstrating the wider lack of cultural legitimacy of the GM project.

This political, cultural, epistemic and regulatory logjam intensified in the following years.

In October 1998, Greece invoked Art. 16 of Directive 1990/220 in order to ban previously authorized GMO from its territories. In June 1999 five EU member states – Denmark, France, Greece, Italy and Luxembourg – successfully proposed a de facto moratorium on any new Part C consents to the European Environment Council. The motion at Council said that, given concerns about risk, the specificity of European ecosystems and the need to restore the confidence of public opinion and the market, the Commission should suspend new authorisations until it had strengthened and widened its risk assessment procedures and put in place a system allowing the complete traceability of GMOs and products derived from them.[4] Thus the last two GM crops given Part C Consents in 1998 – AgroEvo/Aventis/Bayer's HR Maize (T25, import only) and Monsanto's bt resistant maize (MON 810, import and cultivation) – were to be the last under the old directive 90/220. In addition, the countries of Austria, Belgium, Finland, Germany, Netherlands, Spain and Sweden stated they would take a "thoroughly precautionary approach" in dealing with marketing applications, urging the Commission to make proposals for the traceability and labelling regulations as soon as possible.

Hence, what we see in the case of the GMO conflict is less the dislocatory power of a certain identifiable event, or a series of events than an institutional void created by the clash of two contradictory imperatives, built into the EU's original GMO regulatory framework of the 1990 Deliberate Release Directive (DRD): on the one hand an imperative to foster a climate of innovation and economic growth, on the other an imperative to address the precautionary concerns around the potential impact of these innovations on health and the environment. Thus while being committed to the free movement of GMOs within European space, the DRD created a special regulatory category of the GMO, with each variety being required to go through

4 Official minutes at http://register.consilium.europa.eu/pdf/en/99/st09/09433en9.pdf, p. 14.

a process of approval before gaining admission to this space. However, having highlighted these precautionary concerns, the 1990 DRD then made no provisions for post-release monitoring, labelling, or traceability of these products once admitted into the European regulatory space. This tension shaped the dynamics of the ensuing conflict within the EU, creating a regulatory void that drew in new participants and which allowed various parties including food retailers, nature conservation bodies and member states to demand a moratorium and push for a new round of regulation.

Competing imperatives also contribute to the existence of an institutional ambiguity in the case of **conservation** policy. In both the squirrel and the turtle cases, the aim of the conservation management is to integrate the strict protection of the species within the *ongoing activities* of forestry and tourist services, respectively. The conflict between these imperatives in both countries increased in the late 1990s.

In the turtle case, although failure of implementation tied to the local economy has been visible since the late 1970s, conflicts over the implementation of presidential decrees and land-use restrictions intensified because of conservationist pressures to protect the sandy nesting beaches on Zakynthos which attracted both tourists and loggerhead turtles. Things became worse in 1985 when the conservationists and the relevant NGOs suddenly appeared on the island, attempting to impose measures and restrictions, without discussing them with the local people and explaining their motives.

Flow of events: The Turtle

Before the 1970s, scientists in Greece were not directly concerned with conservation issues (Interview 11b-4, 060406). The first systematic recording of *Caretta caretta* nests was started in 1977 by Dimitrios Margaritoulis (Warren & Antonopoulou 1990:19), who co-founded a few years later the Sea Turtle Protection Society (STPS), Archelon. He "discovered the first turtle nesting areas on Zakynthos and turned to American expertise, to the Hellenic Society for the Protections of Nature as well as to the National Council for Physical Planning and the Environment for help. Scientific research collaborations were set up with the Department of Biology at the Aristotle University of Thessaloniki and the Goulandris Natural History Museum" (interview 6b-4 180705; Warren & Antonopoulou 1990:19). In 1980, when Greece became a member of the EEC, a new

Department of the Environment was formed, the first presidential decree for the protection of marine turtles was signed5 and a research initiative by the Council of Physical Planning and the Environment was established to fund the monitoring of the nesting sites. A nationwide survey during the 1980s identified the areas of densest nesting and led to the establishment of permanent monitoring and nest conservation projects in the six most important areas which are located on the island of Zakynthos, on Kiparissia and Lakonikos in Peloponnesus, and on the island of Crete, on the beaches of Rethimno, Chania, and Messara.

The 1982 Red Data Book (Groombridge 1982) refers specifically to the *Caretta caretta* population in Zakynthos as likely to become endangered and classifies it as vulnerable. In the late 1980s, several nesting beaches in West Laganas had developed into popular tourist sites. In 1988 scientists pointed out the lack of nesting data for comparative studies, and in 1990 Groombridge confirmed the importance of the Bay of Laganas for the Mediterranean Sea Turtle. The Mediterranean Association to Save Sea Turtles (MEDASSET) was founded in the same year (Venizelos & Corbett 2005:11). Concern over the spread of tourist-related development on nesting beaches led WWF to purchase land in 1994 for $2.6 million (75% from donations and 25% from EC funds).

Since the 1990s, persistent struggles continue involving conservationist NGOs, local interest groups, EU agencies. and the Greek state. Although a series of presidential decrees, laws and marine regulations including the creation of the National Marine Park of Zakynthos (NMPZ) were established, the persistent obstacles in implementing them exert continuous and increasing pressure on the local ecosystem thus creating a durable issue for the affected local and nonlocal groups (MEDASSET Update Report 2006).

In 1998, the Habitat Directive was transposed into national law in Greece. Local reactions further intensified. In 1999 the establishment of a national marine park in Zakynthos was announced. On the 3 July 1998, the European Commission sent a letter to the Greek authorities requesting information about the measures enforced for the protection of the loggerhead turtle in Zakynthos. In addition, on the 16 and 17 July 1998, EC officials went on a mission to Zakynthos and found the measures implemented as inadequate. In 1998 the EC commenced infringement procedures against the Greek government and blocked EU Structural Funds to the area (Dimopoulos 2001). As a result, under Article 69(2) of the rules of procedure, the unsuccessful party, that is the Hellenic Republic, had been ordered by the European Court of Justice to pay the costs, a decision finally published on 30 January 2002.

[5] Government. Gazette -G.G.- No 163A/18.7.1980.

Presently, in the bay of Messara of south-central Crete, heightened concern over *Caretta caretta* and the wider local ecosystem is expressed by local NGOs and local community groups but also by groups at the EU and international levels. In December 2006, local groups including tourism entrepreneurs, established a 'Citizens' Initiative'[6] aimed at protecting the local environment and economy from the huge transit port project.

In Finland, the Habitats Directive had been in place before the country had become an EU member; it had been established three years before Finland joined the EU in 1995. Since about 1998, local controversies have sprang up in increasing numbers and have reached the national level in publicity. Around 1998, conservation NGOs began to complain to the EU Commission about the neglect of the flying squirrel in land-use plans. And in that year the first case of a squirrel dispute went to the court in the case of Konikallio in Forssa.

Flow of events: The Squirrel

The flying squirrel was included in the list of protected species which was appended to the first Finnish Nature Conservation Act of 1923. In a handbook on Finnish mammals of the mid-1950s (Siivonen 1956:444–445) the flying squirrel, "a resident of large forests," was assessed as having become threateningly rare. In 1975 the species was classified as "vulnerable" in a list of Finnish endangered species published by WWF Finland. The first national-level systematic conservation measure focused on the flying squirrel took place in 1984, when WWF Finland founded a working group to assess causes of the population decline. The first Finnish Red Data List put together by the Ministry of the Environment was completed in 1985, and the flying squirrel was classified as a near-threatened, declining species in need of monitoring.

The conservation status of the flying squirrel remained the same in the second Red Data List in 1992. In the third round completed in 2000, the classification criteria were slightly changed, and the flying squirrel was placed among vulnerable species; the ground for this decision was that its population was estimated to have declined by 30%.

[6] http://www.no-container-port-in-timbaki.net/facts_en.php accessed on January 22, 2007.

Two national-level conflicts over the routing of traffic infrastructure rose into broad publicity in 2002. The first of these was the construction of the motorway E18 between Turku and Helsinki as a part of a European transport scheme. Altogether 47 home ranges of the flying squirrel were found in the construction zone of the original plan. The Regional Environmental Centres conceded the Road Office the right to derogate from article 12 of the Habitats Directive, on the grounds of article 16, but environmental NGOs appealed to court and the Commission. The motorway was rerouted with an extra cost of seven million euros (the decision of the Supreme Administrative Court: KHO:2003:99). The second case was the construction of a new main railroad line in southern Finland (connection line Kerava – Lahti): a private citizen appealed to the Commission because flying squirrels were living in the construction zone. Similar smaller local conflicts followed.

One of the first flying squirrel conflicts in land-use planning in Finland took place in Tampere in 2000-2002 (Nygren 2005). The conflict was about the planning of a new suburb in Ojala, at the eastern border of the city of Tampere. Initially one of the planners had proposed an institutional innovation to solve the conflict between the competing imperatives of land-use planning and conservation, proposing to set aside suitable forests for the flying squirrels in the vicinity of Ojala, but the suggestion was turned down.

The *present situation* in flying squirrel conflicts in the Tampere City Region can be summarized as follows: The Tampere City Region is among the fastest growing urban areas in Finland in terms of population increase. According to the city planners (Ritva Kangasniemi in a seminar on forest protection, 15 September 2004), about 200 hectares of new land are needed every year for housing and workplace development. The flying squirrel is fairly common in the region, some territories are located at a distance of 2–3 km from the centre of Tampere. Consequently, the protection of the squirrels gives rise to a broad spectrum of conflict situations.

In addition to the problem of competing imperatives, conservation policy is characterized by an built-in conflict between multi-level governance and local implementation. We can speak of an implementation ambiguity here. What makes a successful conservation policy tricky, among other things, is that the deterioration of biodiversity is caused by various activities in sectors of production, transport and energy that deal with land-use management – that is, basically, all sectors. This is also implied by the ambitious coverage of the EC Biodiversity Strategy. The EU Commission, however, lacks competence in the field of land management which has caused a "capability—expectation gap" (Baker 2003:36).

The conservation policy of the EU is bothered by this kind of a heavy historical burden. Originally, the member states were reluctant to give the Commission competence in matters that

extend to land-use management which is a necessary condition of any conservation policy worth the name. It was the international normative pressure which broke this deadlock. The member states, however, are poorly equipped to respond adequately to the tasks defined to them by the Habitats Directive. The point is, though, that conservation policy *has to be* context-specific in detail; it cannot be successfully implemented without taking local circumstances into account. In the case of the Habitats Directive, in order to successfully implement the law, which has been adopted on the European level, interactions between three different levels are required:

(1) The local level at which public understanding of and respect for the species arise (we might call this 'companionship');
(2) The regional level at which population trends are monitored. Local decisions have to be evaluated against regional population trends;
(3) The national and EU level at which conservation policy is formulated and codified.

For a successful interactive process of policy formation and implementation across these different levels, new political spaces need to be opened up because there can be no simple top-down solutions to conservation conflicts.

In contrast to the issue areas discussed previously, **genetic testing** has had a *de-escalation* of public controversy and public unrest within the past two decades, although important differences exist between different fields of controversy concerning the issue. Prenatal diagnosis has become a widely accepted practice in antenatal care in the countries under study and has ceased being a dense public energy field. Even many non-pro-life critics of PND and selective abortions choose not to challenge the regulatory frame of PND fundamentally, mainly because this might risk reopening the abortion controversy which want to avoid. There are still matters of concern in this field, such as the issue of late-term abortions and the kind of counselling that should be provided, but these issues do not really stir public unrest or public debate. The situation is somewhat different concerning pre-implantation genetic diagnosis (PGD). In contrast to PND, which is mainly governed by professional self-regulation, the question of how to properly regulate PGD has given rise to public debates. The debate was most intensive and controversial in Germany but to some extent also took place in Austria and the UK. The intensity of this public energy field has nothing to do with the frequency of PGD, which is still very rare. On the contrary, there seems to be an inverse relationship between the commonness of a practice and the intensity of debate about it; the more widespread a practice gets (see PND), the less

controversial the public debate becomes. Rather, PGD, as an interview partner put it, *"pushes some very sensitive buttons of some individuals, on both sides"* (Interview 13-3 2006), evoking anxieties about 'designer babies', the status of the embryo and the health of future children. The PGD debates were especially dense during the millennium change and accompanied by the establishment of new advisory bodies or new bioethics councils as we will point out in chapter 2 . In recent years, however, public debate about PGD has calmed down too.

In this case study, the peak of public unrest and public controversy had been in the 1980s when the possible future implications of human genetics became a subject of heated political debates ignited by social movements. These movements evoked apocalyptical scenarios ("brave new world", "total surveillance state", "production of human beings", etc.) often based on deterministic ideas about the implications of technological change for society (Kontos 1985; Schultz 1996). In Germany a broad range of feminist groups and organisations of disabled people articulated criticism towards reproductive technologies and genetic engineering (Bradish et al. 1989; Die Grünen im Bundestag 1985). The main frame applied by feminist groups could be termed an 'oppression frame', portraying women as victims of increasing medicalisation and alienation by (male) medical experts and scientists who wanted to get access to and control over procreation and the uterus, human eggs and embryos. Anti-eugenic and anti-capitalist positions also developed in this context, pushed forward by the radical movement of disabled people, who called themselves the "movement of cripples".[7] They saw genetic testing, PND and selective abortion as a modern form of eugenics and an instrument to enhance the "quality" of the future labour force or of the national population. Militant activists such as the feminist guerrilla group Rote Zora invaded laboratories in Germany and published research papers which they had seized in their assaults (Bürobert et al. 1996:99; Rote Zora 1989). In the UK, pro-life movements connected their protest against the new technologies with their moral objections against abortion.

All in all, in comparison to the mid- and late 1980s, the years after the millennium change are characterized by a non-antagonistic constellation. By "non-antagonistic constellation" we mean a situation not characterized by the confrontation of two opposing camps, one opposed to and the

[7] The journal *Randschau* and its predecessors (*Krüppelzeitung*, *Luftpumpe*) are interesting sources when studying this movement (www.martinseidler.privat.t-online.de/randschau.htm).

other in favour of genetic technology, each striving at defeating the respective other camp. To be sure, we still found a lot of unease about 'designer babies' or 'a new form of eugenics', but it is a rather subliminal ease, roaming around within an overall non-antagonistic constellation; techno-sceptic arguments are circulating within a post-euphoric and post-apocalyptic debate that is more fragmented, sophisticated, professionalised and normalised – a debate whose focus has shifted from fundamental "yes or no" questions to rather pragmatic questions such as how properly to organize counselling.

Interestingly, in this case study the *absence* of fierce antagonist conflict goes together with a '*discourse intensification* and a number of participatory governance arrangements and experiments such as consultation processes, consensus conferences, or youth conferences. We will come back to this phenomenon in chapter 5.

2. Institutional responses

What has become apparent from our empirical work is that in the politics of life areas we have studied, ranging from biomedical to food and environmental issues, there are myriad problems that, however diverse, are characterised by scientific uncertainty, political controversies, a strongly perceived need for action, the increasing significance of ethics and morality, conflicting imperatives and public unrest or unease. How have existing institutions responded to these novel and complex challenges to governance? Do we see institutional innovations that are better equipped to cope with these types of challenges?

The second proposition in the PAGANINI project was that the kind of state-initiated social engineering that dominated the better half of the last century, which was based on the assumed availability of synoptic, universally valid knowledge and of the ability of states to shape society and the market, no longer seemed a valid option under late-modernist conditions. As explained in Part I, we expected so-called new political spaces to become manifest in relation to the formal codified arrangements that provide the official setting of policy making and politics in the postwar era in Western societies when the latter were felt to be unable to cope adequately with unruly societal problems such as the life-political issues discussed here. The empirical question was to which extent such new political spaces did indeed emerge and which shape they took.

Institutional responses to BSE and the issue of **food scares** more generally are mixed in this respect. On the one hand, we certainly find an opening-up of the regulatory regime to non-state actors and non-scientists, and the rearrangement of the institutional settings regarding agricultural production and human health towards a more comprehensive approach, which set out to cover both areas in an integral manner. On the other hand, food safety is basically still, 20 years after the first identification of BSE, being treated in terms of the original regime, namely on an essentially scientific, modernist basis. 'Sound science' as the source of legitimate and effective state activities in regard to food safety control is actually re-emphasised. How do we make sense of these observations? Are the dynamics set in motion by the BSE phenomenon and other food scares best designated as the mere expressions of 'a system repairing itself'? Or should we appreciate the changes in the institutional landscape regarding food safety control in terms of fundamental renewal and regime innovation?

In the UK, at the time BSE was first identified, food safety was a shared responsibility between the institutional arrangements governing issues in respect to human health, and those in charge of agricultural production. Yet in practice, food safety control was closely tied up with the latter arrangements. The connection between food safety control and the representation of interest of the food-producing sector was formalised in the structure of the Ministry of Agriculture, Fisheries and Food (MAFF).

Perhaps more than a conscious strategy to protect farmers' interests against all odds, the Ministry's 'muddling-through' approach vis-à-vis BSE, which was later found inexcusable, might have been informed by a 'culture of secrecy' that characterised the organisation. In a depiction of the UK regulatory regime, Halfmann (2003) sketches an elite community of people sharing a background in exclusive educational centres and relying on the argued reasonability of regulatory action (rather than on solid scientific proof or legalistic procedures). An interpretation of the traditional regulatory regime in terms of a 'culture of secrecy' gives depth to the factual information on how the interface between science and policy in regard to agriculture and food safety was organised in the UK. This added to the problems caused by the (geographical and cultural) segregation of the institutes responsible for human health and those responsible for animal health. If BSE is considered a 'connecting power' between these separate institutional fields, the Food Standard Agency (FSA), newly established as a result of Labour coming in office in the wake of the BSE event, may be considered the main institutional rearrangement set out to bridge the two areas and to explicitly address the problematic culture of secrecy.

The FSA

The FSA finds its origins in the 'James Report' that on invitation of the then-opposition leader Tony Blair suggested a design on the "structure and functions of a Food Standards Agency". When the Labour Party came to office in May 1997, in line with these recommendations, the food safety responsibilities of MAFF and the Department of Health were brought together in June 1997 in a new agency, the Joint Food Safety and Standards Group (JFSSG). This body which comprised staff members from MAFF and from the Health Department became the core of the later food agency, the FSA.

The Agency became operational on 3 April 2000, as an independent government department with offices in England, Wales, Northern Ireland and Scotland. Operating 'at arms' length of government, its independence is among its core credentials. Furthermore, it set out to develop a new organisational culture based on openness. Formally, its independence is guaranteed through the Agency's 'non-Ministerial' status (it is accountable through the Secretary of State for Health to Parliament) and through its right to publish all its information and advice independently.

The FSA's remit covers food safety, the protection of consumers' interests in relation to food, and (jointly with the UK health departments) nutrition. The Agency addresses food safety issues at every stage of the food production and supply chain. Responsible for the agency's overall strategic direction and its compliance with legal obligations is a Board whose members are chosen for their relationships to different parts of the food industry and food safety sector and come from different segments of society, ranging from food business to academia. In practice, the responsible Secretary of State's department, Health, integrally adopts FSA's proposals for food safety regulation. Thus, the prime responsibility over all aspects of food safety in the UK is put in the hand of one, independent body.

In the Netherlands and in Germany too in pre-BSE time post–World War II days, 'iron triangles' of major players reigned the agricultural sector. Furthermore, as in the UK, the institutional arrangements for regulating agriculture, public health and, later, environmental management were quite neatly divided into separate areas of government which did not have 'much to do' with one another.

For many reasons, this situation changed considerably from the mid-1980s onward. In the Netherlands, with the loosening up of the iron triangle, other ministries, non-agricultural interest groups and representatives gradually gained influence in agricultural policy formation (cf. Loeber 2004). The outbreak of BSE presented merely an additional incentive for change. One of the most notable changes on the institutional level in the Netherlands is the change of name of the

Ministry of Agriculture. After the outbreak of a series of animal diseases that plagued the nation and got intensive attention in the media, the ministry struggled to broaden its right to existence. The notion of 'food quality' was coined as a theme by which the ministry could justify itself vis-à-vis society outside the agricultural sector while still indicating a strong link with its traditional focus on the primary sector. The letter 'V' in the ministry's formal abbreviation, which previously referred to Fisheries, now was changed to meaning 'Food Quality' (*Voedselkwaliteit*). What added to the new-found identity of the ministry was the fact that the VWA, the Dutch FSA-'equivalent' was brought under its auspices.

In Germany, the outbreak of BSE hit much harder, as it caused great societal concern, and, as was the case in the UK, here too a change in the Cabinet enforced the implications of the BSE-induced 'food scare'. The Federal Ministry for Nutrition, Agriculture and Forestry was reshaped into a new Ministry for Consumer Protection, Nutrition and Agriculture, which was designed to take on all tasks involved in the protection of food and in representing consumer interests that hitherto had been scattered among various ministries. The left-wing German parties pleaded for a new agrarian policy, which implied a break-away from standing practice. The measures taken (and foreseen) with the active support of the new ministry came known as the *Agrarwende* (fundamental agricultural turn). Another institutional change was that the Federal Institute for Consumer Protection and Veterinary Medicine was split up into two institutions for food safety control: the Federal Institute for Risk Assessment (BfR) was assigned tasks with regard to scientific research on food safety related issues, the Federal Agency for Consumer Protection and Food Safety (BVL) was assigned the task of developing early warning systems and systems for ensuring the traceability of products.

A comparable effort to functionally separate risk-assessment activities from risk management was made on the level of the EU. The institutional reform that took place as a result of the turmoil in regard to BSE (in terms of trade and public health) brought along an entirely new European "transnational" governance regime on food safety that cuts across the national/supranational distinction (cf. Chalmers 2003). A new Directorate-General for Health and Consumer Protection was installed in 1999. It set out to integrate varieties of policy concerns – from the protection of the consumer, public health and the free movement of goods within internal markets to animal welfare and the idea of a restructuring of the common agricultural policy in more sustainable terms – into one policy framework under the heading of food safety. This was effectuated with the General Food Law, a new piece of encompassing legislation that was gradually put into force

between 2002 and 2006. A key element in the new regime was the European Food Safety Authority (EFSA) to which the FSA (UK), the VWA (NL) and the BfR (G) were to serve as the national counterparts.

The EFSA

The General Food Law provided the legal basis for the new European Food Safety Authority (EFSA), established in January 2002. The EFSA was set up to bring under one roof the work previously done by a range of scientific committees and to make the scientific risk-assessment process more public. Rationale for its creation was "to protect public health and to restore consumer confidence", to integrate the work of scientific committees on food- and feed-related issues, and to make the processes of national and international risk assessment more transparent and better geared to one another. While the EFSA is in charge of risk assessment, the European Commission together with the European Parliament and the Council are in charge of risk management.

The EFSA emphasises the importance of being open about the 'political sides' of science. In a more or less comparable fashion as the British FSA, it organises its Management Board's meetings as an openly accessible event. Members of the general public are allowed to attend the meetings as an audience, and the events are broadcasted through the Internet. Furthermore, the EFSA engages in numerous consultations and discussions ("round table discussions"). Still, the EFSA design is criticised by respondents in this case study for having been granted too little political weight. Similar to the German situation, the political levy of risk management is sandwiched, so to speak, between the risk-assessment and riskcommunication tasks performed at the EFSA. First, risks are being assessed, then communicated with the European Commission, whereupon the decisions and control measures taken there are communicated back to the EFSA, to be communicated with the national food safety authorities of the member states.

Institutional responses to the novel challenge posed by **GM crops** were ambivalent too. The EU chose to take a different regulatory approach to GMO than the US and the WTO and based its GMO regulatory system on the *process* behind the products, whereas the US approach was based on the simple regulation of the *end products* alone. Therefore unlike the US, the EU considered GMOs to be a special category that required its own unique regulatory framework. This unique nature of GMOs and their potential risks is addressed in the preamble of the Deliberative Release Directive. The preamble goes to state that "the protection of human health and the environment requires that due attention be given to controlling risks" and that for each GM variety "a case-by-case environmental risk assessment should always be carried out prior to a release". The twin

competing imperatives of techno-economic growth on the one hand and precaution on the other are both institutionalized in this directive, leading to a simultaneous commitment to both the deliberate release of possibly harmful products and to an attempt to evaluate and regulate this possible harm. The preamble argues for a "step by step" approach, whereby:

> [T]he containment of GMOs is reduced and the scale of release increased gradually, step by step, but only if evaluation of the earlier steps in terms of protection of human health and the environment indicates that the next step can be taken.

The *Deliberate Release Directive* thus proscribes a two-stage procedure, involving experimental release prior to commercial release, covered by parts 'B' and 'C' of the directive respectively: Part 'B' covers experimental releases of GM crops such as field trials, while Part 'C' covers consent for commercial import, processing, feed, or cultivation. A 'Part B Consent' is given by a national competent authority of each EU member state and is valid in that state only. A 'Part C Consent' is valid for the whole EU under the principle of free circulation of products within the internal market. For a Part C Consent, first a biotechnology company would submit a dossier of information (a 'Summary Notification Information Format', or SNIF) to the national competent authority of any particular member state. Following a favourable opinion by this authority on the notification, the relevant Member State would then inform the European Commission of its opinion. If there are no objections raised by the other member states, the national competent authority that carried out the original evaluation then grants the consent. This consent, once given by the competent authority of any member state, would be valid for the entire EU. The principle of the internal market means that the GMO in question must be accepted by every other Member State, although the directive had a safeguard clause under its Article 16. This clause allowed a member state to impose its own provisional prohibition on the sale or use of a GM variety within its territory if it had "justifiable reasons" to consider that product "a risk to human health or the environment".

While tending towards precaution, the EU's Deliberate Release Directive therefore shared with both the US and the WTO a set of assumptions that confined the area of valid consideration to strictly science-based concerns around positive harm to health or the environment. Any assessment of wider social, economic, or cultural factors was ruled irrelevant. Furthermore, the procedure would be expert-based and technocratic, with little regard for public participation. In Germany, the establishment of the 1990/220 deliberate release directive was actually used as the occasion for the German government to revise its gene law and actually *restrict* the rights to public participation in GM decision making (Torgersen et al. 2002:52). Thus while moving towards the precautionary principle, the regulatory framework established by the EU after 1990 was narrowly

scientistic and technocratic, allowing no space for participation or for the other framings of the GMO issue that would emerge in the coming public controversy over the new technology.

The EU's approach was innovative in the sense that it took the novelty of GMO into account and acknowledged rather than denied the issue of uncertainty this novel phenomenon brought about. The directive was set off as a regulatory mechanism that serves to cope with this uncertainty. However, the directive left the procedure of doing so to experts and technocrats and hardly created new political spaces where broader public concerns could be voiced.

The revised directive differs from the 1990 version in several significant ways. These changes can be understood as a response to the regulatory crisis triggered by the original directive. These changes were supported by an explicit reference to the precautionary principle for the first time, contained in both the directive's preamble and in the important technical Annex II on risk assessment.

The principles of risk assessment were significantly extended in Annex II so that they now included addressing the potential wider and indirect impacts of the crops such as the associated herbicide management regime, with more trials sanctioned to provide such information. Other information was also required, such as an assessment of the effects on non-target species and possible competitive advantages that may be transferred to other plants. The revised directive also called for mandatory post-release monitoring requirements, including "monitoring of potential cumulative long-term effects". (Preamble, para 20). Furthermore, the 2001 directive put a ten-year time limit on consents. Another revision introduced, in response to public and NGO concerns, included placing some restrictions on the controversial antibiotic resistant marker genes.

The revised 2001 directive also attempted to address the wider issues of public and political concern that stretched beyond the narrow technical and scientistic parameters of the 1990 original. Thus the preamble (para 9) states:

> Respect for ethical principles recognised in a Member State is particularly important. Member states may take into consideration ethical aspects when GMOs are deliberately released or placed on the market as or in products.

While being given some legitimacy, however, ethical concerns were kept separate from and subordinate to the traditional science-based environmental and health riskassessment paradigm.

This is reflected in Articles 28 and 29 of the new directive which codified the commission's relationship to expert authority and advice. Article 28 called for mandatory consultation with relevant EU-level scientific committees, while Article 29 had the *lesser* power to recommend consultation with specialist ethical committees.

Finally, the revised 2001 directive made gestures towards including more space for public consultation, including mandatory public consultation. Thus Article 9 within section 'B' of the directive covering national experimental releases, entitled 'Consultation of and information to the public', called on member states to

> consult the public and, where appropriate, groups on the proposed deliberate release. In doing so, Member States shall lay down arrangements for this consultation, including a reasonable time-period, in order to give the public or groups the opportunity to express an opinion.

These features marked a change from the 1990 directive, which had only called for public consultation on a Part B consent "where a Member State considers it appropriate" (Article 7, 1990/220). However, even under the revised directive the calls for public information and consultation were still vague, with the mere placing of information on websites or advertisements in specified newspapers considered sufficient.

Other parts of the new EU regulatory framework for GMOs were established after more lengthy and contested negotiations in 2003. These were Regulation 1829/2003 on GM food and Feed regulation and Regulation 1830/2003 on Labelling and Traceability of GM Food and Feed products. With these regulations, Europe tended towards the establishment of a post-market-release system of monitoring, testing and regulation around labelling and traceability. The "right of consumers to information" which forms Article 153 of the EU's foundational treaty is invoked in Article 17 of the food and feed regulation, which goes on to pronounce labelling as the basis of informed choice. Article 21 of this regulation elaborates:

> Clear labelling, irrespective of the detectability of DNA or protein resulting from the genetic modification in the final product, meets the demands expressed in numerous surveys by a large majority of consumers, facilitates informed choice and precludes potential misleading of consumers as regards methods of manufacture or production. (1829/2003; 21).

Here we see the 'sound science' framing of the DRD being trumped or at least qualified by ethics, values and perceptions. Furthermore, ethical and religious concerns are referred to as legitimate reasons for labelling and informed choice, mentioned in Article 22 along with medically based special dietary needs. Thus the EU regulatory system moved further beyond its original positivist 'sound science' regulatory rhetoric in its governing of the GMO controversy.

With this new regulatory machinery in place, the scene was set in 2004 for the commission's attempt finally to break the regulatory log jam that had led to the 'de facto' moratorium six years earlier and establish the compromise position of 'coexistence'. Things have changed: away from a narrow focus on positivistic discourses of risk assessment and embracing consumer perceptions; away from the model of a single high-technology agricultural bioeconomy for Europe, towards a model of multiple bioeconomies coexisting in the same space; and away from a linear model of simply checking the safety of GMOs before release, towards one of continuous management to enable the different bioeconomies to coexist.

The overall scientifico-cultural battle over GMOs had not been won by either side, and neither had positive proof of safety nor of harm. In the face of this stalemate the new regime of 'coexistence' began to develop, in which 'market choice' begins to eclipse 'safety' as the authoritative guideline, and the more relativistic discourses of consumer sovereignty and choice become the dominant regulatory framings in the EU. Thus we can discern a new mode of governance here whose fundamental logic is not that of the state but of the market – albeit one guaranteed by the centralised scientific safety assessments carried out by the European Food Safety Authority – presenting an idealised vision of a new, normalised and less politicised 'post-conflict' regime of GM governance.

Hence, in the case of BSE and GM crops, new unprecedented phenomena and the political struggles and turbulences they evoked formed novel challenges to governance to which the institutions responded by introducing some institutional novelties and transformations. In contrast, in the **conservation** case it was rather the introduction of an institutional novelty, the Habitat Directive in 1992 that evoked some turbulence on the local and the national level and itself formed a challenge to governance. The challenge, in this case, was to *implement* it. The shift from target-specific to comprehensive conservation itself, as has been laid out in chapter 3, and the institutional instruments through which comprehensive conservation operates can be regarded as a major institutional innovation. In both cases under study, Finland and Greece, the

implementation of the Habitats Directive in legislation has caused a 'spill-over effect': in addition to conservation legislation, other laws have also been affected.

When the Finnish Nature Conservation Act was renewed in 1997, the final impulse to do so had come from Finland joining the EU in 1995. The principle of strict species protection, decreed in the Habitats Directive, is a new element in Finnish nature conservation legislation. In the context of incorporating the Habitats Directive into Finnish legislation, the Criminal Code had to be changed too in some aspects. Another relevant new law was the Forest Act, renewed in the late 1990s, as a consequence of the reasoned opinion of the Commission (in 2004; § 14b); also the Finnish Land Use and Building Act was reformed in this context in 2000.

In Greece, the transposition of the Habitats Directive into national law, originally due in June 1994, materialized in December 1998. Furthermore, in this context, the Greek authorities updated the national system of nature protection, aiming to integrate national and community sites in a new network through the enactment of a series of laws (Andreou 2004:5) such as Law 2637/98, transforming game reserves to wildlife reserves, and Law 2742/99, providing for the creation of Management Authorities (MAs) to manage the network of special areas of conservation (Natura 2000 programme) that formed part of the Habitats Directive. In 1999 the Ministry of the Environment produced a master plan, bringing together the sites protected by national and community legislation, which proposed the creation of 40 MAs that would cover 79 protected sites as well as most of the Natura 2000 sites (Andreou 2004:6).

Yet, the question is whether the institutional innovation set in motion by comprehensive conservation and the Habitats Directive has actually been followed by adequate institutional innovations concerning implementation. The problem here is that conservation hardly fits within the traditional control framing that has shaped state environmental policy in the age of high modernist statecraft. The 'classical' environmental problems such as urban hygiene, point-source pollution, and the management of infrastructural services, such as water, sewage and waste, are readily brought into an agreement with a control framing – in fact, the modern state aims at transforming such activities into managerial routines that nobody needs to notice, let alone worry about. This is what the "first generation" instruments of environmental policy have achieved with some success in the case of curbing point-source pollution, in particular (see, e.g., Jänicke & Weidner 1995; McNeill 2000). Conservation of nature, however, less easily fits within a control framing, and this discrepancy gets accentuated in the era of comprehensive conservation. Yet the

case studies on Finland and Greece in the project have found that central administrations in both countries are intent on keeping the situation under control by developing administrative principles. Local initiative and involvement do not have much role in these efforts.

Work package 4 suggests that what is needed is a more flexible system instead of a control framing. Such an institutional innovation that allows for such a more flexible form of governance is captured by the concept of a 'margin for planning'. The term 'margin for planning' is used by the city planners of Tampere (V. Vänskä). Formally, the term refers to the idea that the same goal can be reached using alternative means; in other words, the planners have degrees of freedom. The idea is easily coupled with the more formal idea of 'possibility space' (Dyke 1988; Haila & Dyke 2006). To explicate factors that affect the margin for planning in any specific situation, we ought to specify the main factors that either constrain or enable decision-making potential in that situation. The factors are comparable to 'degrees of freedom' in statistical reasoning. The notion of 'margin for planning' helps to open up new possibilities in situations that may seem fixed.

Concerning both the areas of **genetic testing** and **embryonic stem cell research,** we see the establishment of a series of new institutions from the 1980s to the 2000s that were charged to advise the government on how to regulate these new biomedical technologies on the one hand and how to meet public concerns and public unease on the other. The emergence and proliferation of bioethics advisory bodies on government level is the most conspicuous phenomenon of institutional innovation in the area of genetic testing and embryonic stem cell research.

What we can also see is a change from expert-based governance schemes in the 1980s, largely based on a 'risks and benefits' framing, to governance schemes that increasingly refer to an 'ethical implications' framing. In part, but not generally, the 'ethical turn' is accompanied by the integration of a new type of experts, such as lay people, citizens, social scientists, or ethicists – we will come back to this point.

Due to the overlap as regards bioethics bodies, we discuss these two case studies together. On the EU level, the EGE (European Group on Ethics in Science and New Technologies), which had started in 1991 as Group of Advisers to the European Commission on the Ethical Implications of Biotechnology (GAEIB), plays a certain role in EU stem cell policy. In

preparation of FP6 (2003–2006), the Commission came to the conclusion that the decision whether or not to include hES into research funding should be backed by an Opinion of EGE (Gottweis 2002:17). This opinion, as Commissioner Busquin [AU: first name?] declared, was the basis of the Commission's policy: in general, the EU addressed the "new" and unruly topic of ethics by efforts to build up, integrate and "harmonise" expert bodies and expertise in bioethics.

In Germany, a series of new expert bodies were established between the mid-1980s and 1990 that were designed to give policy advice on biomedicine and biotechnology, including issues of genetic testing. Such new expert bodies were the Benda Commission, named after its chair, Ernst Benda, that was established in 1984 in order to advise policy makers on ethical and legal questions of IVF, gene therapy and embryo transfer (Bundesminister für Forschung und Technologie 1985); the Parliamentarian Study Commission on Risks and Benefits of Genetic Technology (Enquetekommission Chancen und Risiken der Gentechnologie), a commission established in 1987 and composed one half each of parliamentarians and experts; and the Office for Technology Assessment (Büro für Technikfolgenabschätzung) in the German Parliament, established in 1990. Although these commissions and bodies partly already referred to "ethics", "ethical implication", or "ethical issues", the main frame through which genetic testing was interpreted was the "risks and benefits frame". The language of risks and benefits suggested that risks as well as benefits of this new technology could best be assessed by experts who were not necessarily only scientists but also jurists and physicians and recruited from the elites in the scientific, medical and legal professions. In contrast, the 2000 Parliamentarian Study Commission on Law and Ethics of Modern Medicine already in its title referred to the language of ethics. Among the members of this commission were a number of experts from the social sciences and from feminist or disability rights NGOs. In 2001 Chancellor Helmut Schröder set up the Nationaler Ethikrat (National Ethics Council) exactly at the time when the legalization of importing hES cell lines was being discussed in Germany. In fact, barely six months after its creation, it issued a recommendation in favour of allowing the import of hES cell lines. However, the National Ethics Council had been heavily contested at the time, charged to be a "counter project" to the Parliamentarian Study Commission (Bogner et al. 2006; K. Braun 2005) and branded a puppet institution intended to generate ad hoc legitimation for the government's allegedly bio-liberal decisions. The Parliamentary Study Commission on Law and Ethics of Modern Medicine also devoted a considerable part of its work on stem cell research and came up

with a more restrictive opinion in the end, recommending to uphold the German ban on embryo research but to allow for import of ES cells under certain conditions.

In Austria too, a new national Bioethics Commission was established in 2001 in order to advise the Federal Chancellor from an ethical perspective on all social, scientific and legal questions that stem from the scientific development of human medicine and human biology.

In the US, in November 1998, President Bill Clinton, as a deliberate attempt at trust building, asked the National Bioethics Advisory Commission (NBAC) for a review of the medical and ethical issues associated with human stem cell research.

In Italy, the Comitato Nazionale per la Bioetica (CNB) and the Dulbecco Commission were involved with the question of embryonic stem cell research. The CNB had already been established in the beginning of the 1990s and had since been involved in deliberations on bioethical questions. The "Dulbecco Commission", in contrast, was an ad hoc commission, created by Minister of Health Sandro Veronesi in September 2000.

In the UK, the government in 1982 authorised a Committee of Inquiry into Human Fertilisation and Embryology, the "Warnock Commission", headed by the moral philosopher Baroness Mary Warnock. The task of the inquiry committee was *"to consider recent and potential developments"*, *"safeguards"*, and *"social, ethical and legal implications"* (Ziegler 2004:66). Partly as an outcome of the recommendations made by the Warnock Report, the Human Fertilisation and Embryology Authority (HFEA) was established in1991. Its purview includes regulating IVF clinics, licensing research using human embryos, or approving or disapproving contested practices such as sex selection via pre-implantation genetic diagnosis or creating 'saviour siblings'. While it is an authority and not a bioethics advisory commission in the sense of the other bodies mentioned previously, it is still charged with taking ethical aspects into account. Fifty percent of the board members of the HFEA must be 'lay', always including both the Chair and Deputy Chair, and at least one-third must be medical or scientific experts.

In 1992, the Human Genetics Commission was created as a meta-regulatory agency for human genetics and as part of a system of arm's-length bodies while preserving the statutory body of the HFEA in regard to assisted reproduction (Cabinet Office & Office of Science and Technology 1999). The explicit aim of this reform was to expand the mandate of the advisory system beyond the reaction to concrete cases of technological development and beyond the expertise of

specialised technocratic bodies. The system of meta-regulatory bodies was assigned the function not only to react but also to initiate debates. The HGC has made strong efforts to promote elements of participatory governance in the last years by conducting consultations, citizen juries and opinion polls bundling the debates on genetic testing. We will discuss the questions as to the extent these participatory governance initiatives amount to new political spaces in the next section.

Yet, although a number of new institutions and, in part, novel types of institutions have been established, at the same time genetic testing and embryonic stem cell research have turned out to be fields that retained traditional high modernist modes of governance, based on the constitutionally legitimized institutions such as parliaments, the courts, or even referenda, and operating through legal bans, referring to a fixed national territory, relying on elite expertise, and insulating decision making on "hard issues" such as research funding, patenting, or the regulation of the healthcare system from public involvement. It strikes us that in the countries under study here, the unruliness of human embryonic stem cell research was neither efficiently tamed nor tackled with new forms of participatory practices. That is not to say that there was no public involvement in the issue. In Germany, for instance, an extremely intense and controversial public debate occurred on the acceptability of pre-implantation diagnosis and hES cell research, involving the civil society organizations, such as the churches, research organizations, organizations of the medical profession, and a series of NGOs, all lobbying for their respective cause and struggling to win over ministers or parliamentarians to their point of view. The main arenas where this form of public involvement took place were the media, whether in the more conventional newspapers or TV shows, or on the Internet. A similar form of public involvement took place in the debate on the law on medically assisted procreation (Law 40/2004) in Italy (see chapter 3). We can speak of 'conventional informal modes of participation' here: modes of participation that take the form of lobbying and interest group pressure, of legal participatory practices, using conventional arenas of political will formation such as the media in order to exercise influence on public opinion and political decision making by the institutions of representative democracy. Participants in these types of public involvement have neither been "invited" nor selected by state institutions; informal participation is not state-initiated.

The Italian debate on law 40/2004 is somewhat different, as it also includes an element of 'conventional *formal* participation', namely the referendum. The form of a referendum is no doubt a form of *direct* participation, whereby citizens themselves ultimately make the decision. At the

same time, it is a conventional and highly formalized instrument of public participation because the exact terms of holding a referendum, or the way in which questions may be put in the first place, are precisely defined by Italian law.

In addition to the resilience of "old" institutions, we also found that, at least in the case of human embryonic stem cell and cloning research, national boundaries do still matter. Somehow surprisingly and puzzlingly for an age that we know as a "global(ized)" one, it is the nation-state that seems to have emerged as the key topographical unit on the map of stem cell regulation. "States" actively shape stem cell and cloning research by drafting regulations that secure the safety and even proceeding of this line of research and by allocating funds that the private sector has only reluctantly invested so far. The very act of setting regulations in turn reaffirms national boundaries and differences between nation-states as regards the technological and research landscape in the biomedical sector. Furthermore, the very interpretation and meaning of the seemingly universal cells, embryos and clones differ strikingly from one such topographical unit to the next; often, they are also imbued with particular "national" meanings, ranging from narratives of national regeneration over national pride to a language of national (dis-)advantages in the emerging global stem cell geo-economies. Politics of hES are embroiled in "projects of reimagining nationhood" (Jasanoff 2005a:7). In short, the politics of hES cell research seems to be a case in point of the nation-state *gaining* significance rather than losing it.

On the basis of the preceding, we tend to answer the question whether new political spaces and new regimes of governance practices emerged in the fields under study with a cautious " yes and no". No, because we found a remarkable and unexpected resilience of what has been designated 'high modernist institutions' in Part I, which apparently are quite capable of surviving in the face of obviously dislocating events and/or pervasive, lasting perceptions of scepticism and alienation. Yes, we would however add, because what we observe to happen is that the resilience of these institutions is derived largely from a new governance logic that is being developed in- and outside these institutions. While there is no evidence for a 'meltdown' of modernist practices and institutions, there is ample evidence of new and innovative approaches to governing life-political issues under early 21st century economic, ecological and geo-political conditions. Among these are the increasing dominance of private-sector regulations, the proceeding emphasis of the individual and the particular in regulation (at the costs of traditional foci like the collective and the universal), and the ongoing integration of EU and member states' policy arrangements into practices of multi-level governance. Let us now discuss two aspects of the life-political issues

under scrutiny that sprang up from our empirical work as both characteristic of, and determining for, the new governance logic we detect: the element of lasting (scientific) uncertainty in policy making and the trend towards the ethicisation of governance.

3. Risk and uncertainty

Uncertainty has many different faces, but some of them show up in each of our case studies. What do we mean by uncertainty? Uncertainty is best defined in relation and contrast to 'risk'. The concept of risk implies that one has instruments and criteria to diagnose, measure and calculate the possibility of harm or peril of a specific action or event, and then balance this against its potential 'benefits' and eventually make an informed decision on the basis of such calculations. Framing events as risks certainly presents a challenge to governance. Yet it also provides a possibility to politically and technically deal with them, for instance, in terms of a procedure or an accepted institutional framework for making matters governable.

For various reasons, as explained above, in many of our case studies there were no instruments or criteria to make the issues calculable and thereby governable, either because they were altogether missing or because they were themselves politically contested.

With the very notion of dislocation (either understood as event or enduring condition), issues become unruly because there is either a lack of agreed upon (scientific) knowledge as regards their prospects, implications and effects or, even in cases in which scientific evidence exists, there are no fixed and uncontested criteria how to measure, calculate or evaluate these – possible – implications and effects. In that case, the 'rules of the game' are put up for discussion, along with the very issues that the game is about.

Furthermore (and related to the last point), the very issues in many of our case studies are characterised by both scientific and moral uncertainty: novel technologies and unexpected pathogen variants pose questions in regard to the classification of 'new' entities ("Is the human embryo a 'what' or a 'who'?", or "What was the sheep-clone named Dolly: a natural being or an artefact?"; "What *are* genetically modified plants? Are they just plants like others or an unprecedented type of entity?" or "What are prions?"). A lack of a priori shared moral standards and criteria to make judgments on these novelties prevent the answers to these questions from

being ever unambiguous. These questions are abundant in our case studies, probably due to the emergence of a whole range of new biological artefacts that the life sciences of the recent past and the present have brought into being. Stem cells, cloned mammals, laboratory embryos or GMOs are literally new entities. They do not contain labels on what they are, and, given that they are new to us, we cannot rely on agreed upon knowledge or categories on where to put them on our conceptual and regulatory landscapes.[8]

As a result, these questions have an outright practical-political character. Depending on how we answer them, we have to stop research or continue it, invent new regulatory categories or use familiar ones, craft new agencies or rely on traditional institutions. In other words, like 'risk', (scientific) 'uncertainty' can be seen as a 'political technology' as it does serves to render issues governable. It forms conditions that actors must acknowledge and deal with. But how? How did uncertainty come out in our case studies? And how many different ways are there to deal with uncertainty? Are there better ways and worse ones?

If we look at the issue of **human embryonic stem cell research**, we find that there is a considerable lack of reliable knowledge about the future prospects of this medical technology. Actors struggle with a lack of uncontested "facts" about the future prospects of this field of research. There are hopes and expectations, and some progress has been made concerning the establishment and maintenance of embryonic stem (ES) cell lines. But the field is still very much in the state of an early "science in the making" (Latour 1987) that is characterized by struggles over the meaning of shared and agreed upon terms and concepts. The proliferation of uncertainty and scientific controversies that characterizes human embryonic stem cell and cloning research, however, is not unique to this field of research, but indeed a characteristic of any field of research that is only just emerging. What renders the uncertainty surrounding stem cell research special, though, is that the struggle for "stem cell facts" is burdened by political struggles over the meaning of life in the 21st century. Scientific controversies are translated into political conflicts and vice versa; political conflicts are translated into scientific ones.

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[8] What renders them particularly problematic, then, is that they seem to be crafted *products* of the laboratories of *life scientists,* that is, those scientists who study nature and life. Therefore, they blur the boundary between the 'ontological real' of nature and the (all too) social reality of politics in a particularly blunt way, thereby contributing to the unruliness of the new politics of life.

What is a stem cell? Remarkably, this question cannot be answered easily. Stem cells cannot be reliably morphologically identified; neither do scientists agree on a set of molecular biomarkers that signal the presence of a stem cell. Even the most powerful microscope cannot help to set stem cells apart from other types of cells, and scientists neither know nor agree on the expression of what set of genes marks a cell's "stemness". In the absence of other agreed upon criteria, scientists rely on functional definitions of stem cells; that is, they define stem cells through what they are doing and producing (Zipori 2004; Shostak 2006).

From this perspective, then, a stem cell is a cell that is not yet differentiated and that has the potential to undergo divisions to form other, more specialized, cells that will perform specific functions in our bodies. Hence, stem cells are, firstly, less specific and less differentiated than other cells. Secondly, stem cells divide in a way that sets them apart from other cells within our bodies. Rather than symmetrically, they divide asymmetrically, giving rise to both a more specialized progeny cell *and* to an identical stem cell at the same time. Stem cells have therefore the capacity to self-renew for indefinite period of times.

Stem cells can be derived from (aborted) foetuses, from umbilical cord blood and from various types of tissues of adult organisms. However, at the present the most promising type of stem cells seems to be human embryonic stem cells that are derived from early human in vitro embryos. While the degree of "plasticity" of adult stem cells is the object of scientific controversies, that is, it is unclear to know how many different types of cells adult stem cells can give rise to, ES cells are classified as 'pluripotent'. This means that they are amenable to giving rise to all cell and tissue types of an adult organism. In addition, they can be grown indefinitely in the laboratory (Alberts 2002).

In the future, researchers hope, ES cells could be isolated from embryos and grown and multiplied in vitro. Subsequently, their vitality would be tamed and redirected into cell-based therapies for a broad range of diseases, ranging from neurodegenerative conditions such as Alzheimer's or Parkinson's disease and spinal cord injuries to diabetes or heart disease. ES cells, scientists argue, "could constitute an *unlimited* supply of diverse cell types that can be used for cell transplantation" (Paul, Li et al. 2002). ES cell-based therapies could also be personalized through the combination of ES cell technologies with somatic cell nuclear transfer (SCNT), a technique better known as '(therapeutic) cloning'. The technique involves the injection of a nucleus of a somatic cell of a patient into an enucleated oocyte, or egg. The resulting embryo would contain the same nuclear genome as the donor. The cloned embryo would not be transferred into a uterus, but cultured in vitro until it reaches the blastocyst stage, when ES cells could be derived from it (Solter & Gearhart 1999).

In addition to the scientific uncertainty surrounding stem cell research, much attention has been devoted to the moral and conceptual ordering of one of the key "materials" that stem cell draws upon: the early human embryo in the laboratory. In the US and in Italy, in particular, the conflicts about human embryonic stem cell research has been translated into a fierce debate on whether IVF embryos qualify as a mere "form of vitality" or as a "person". After all, if the human embryo is categorized as a human being or a "person", it must be protected by law, whereas if it is just a special form of human tissue it can be treated as a research tool or a therapeutic device. The ontological status of the human embryo not only plays a decisive role in the controversy on embryo research but also in that on pre-implantation genetic testing. If the human embryo is a human being, it is hard to argue that a number of embryos may deliberately be created in the laboratory just for the purpose of testing, knowing fully well that some of them will have to be "thrown out" depending on the result of the test.

In Germany, the situation was further complicated by the question of whether the cells that are taken from the blastocyst, either as in the case of PGD for testing purposes, or as hES cell research in order to establish a stem cell line, are still "cells" or already an "embryo". At least in this case there seems to be a consensus about the criteria that mark the difference, namely whether the cell is still totipotent and can develop into an embryo and theoretically into a full-fledged human being, or whether it is only pluripotent and has lost the capacity of differentiating into all types of cells. Hence, in this case, science was able to provide an agreed upon answer.

Yet, in other cases, scientific criteria are altogether lacking or contested, for instance, to answer the question: "What kind of entity is the product of somatic cell nuclear transfer (SCNT)?" Is it a human embryo although it has not been the result of the unification of an oocyte and a sperm? Following the Italian Dulbecco Commission's report, nuclear transfer is "a matter of reprogramming the nucleus of the somatic cell derived from the patient, through the contact with the cytoplasm of the oocyte" (Ministero della Sanità 2003 [2000]:116). The reprogrammation of the adult cell, the Commission argued, did not imply its transformation into an embryo. Rather, the result of this technique could be framed as an *artificial* cluster of cells that had no *natural* potential to develop into a fetus. Or, in the words of the report:

> In fact, an oocyte that is reconstructed with the nucleus of an adult somatic cell cannot be considered a zygote [i.e., an embryo at its first stage of development; I.M.] in the classical sense, as long as it does not derive from the unification of two gametes. The fact that such a reconstructed oocyte does *not spontaneously* give rise to an embryonic development proves

> this. [The development of the reconstructed oocyte into an embryo] can only occur thanks to an *artificial stimulation* that *forces* [the reconstructed oocyte] to develop into a blastocyst. (Ministero della Sanità 2003 [2000]; emphasis added)

As a technique that produces laboratory artefacts devoid of humanness, "reconstructed oocytes" could be used in research without infringing on bioethical concerns. While the Dulbecco Commission's report forwarded this categorization in order to facilitate research, in the UK a similar argument was used for the opposite end. In the UK, on 31 January 2001, new regulations came into effect that opened the door not only for public and private human embryonic stem cell research but also for somatic cell nuclear transfer (SCNT). In response to this decision, the Pro-Life alliance applied for judicial review. It sought a declaration that human embryos created by CNR are not within the definition of the HFE Act because they were not covered by the HFE Act's definition of a "human embryo" which referred to the product of "fertilization", that is, the unification of two gametes. Thus, they argued, the new regulations were based on procedural fault and thus invalid. The judge who rule on the case followed in his judgment the Pro-Life argumentation. In response to this ruling, however, the Parliament eventually enacted the "Human Reproductive Cloning Bill" to fill in that legal void which had been the result of suspending the former regulations. The bill was introduced on 21 November 2001 and became law on 4 December 2001. In this case, the issue could not be settled by science but was eventually settled by the court.

A similar problem shows up in the case of **genetic testing**. In this case study, we have examined the forms of governing three different types of genetic testing: pre-implantation genetic diagnosis (PGD), performed on a human embryo that has been produced in vitro and not yet transferred into the woman's womb, antenatal diagnosis which is performed on the embryo fetus during pregnancy, and postnatal diagnosis performed on children or adults. We have to deal with different forms of uncertainty here. In the case of PGD and antenatal diagnosis, as in the case of hES cell research, there is a strong moral dimension of uncertainty because these practices directly or indirectly imply the destruction of human embryos. Pre-implantation genetic diagnosis is a technology that involves the in-vitro creation of a "pool" of human embryos that are tested for certain genetic or chromosomal diagnosis. Those embryos that are found to be afflicted by that genetic or chromosal deviation are not transferred to the woman's womb but destroyed – or stored for research purposes. As regards antenatal genetic diagnosis, performed mainly via amniocentesis, a "positive" test result opens up no option for therapy but only the option of an

abortion. Opponents to these practices argue that they may be able to reduce the "risk" of giving birth to a child with a genetically or chromosomally caused disability or disease but that nevertheless these practices are morally wrong insofar as they imply the destruction of a human embryo via an abortion. In addition, opponents argue, these practices give rise to a new type of risk, namely the risk of increasing negative attitudes to people with disabilities or chronic diseases and thus indirectly contributing to discrimination and stigmatisation of these people. In short, there is a deep moral and political controversy about *which* risks are worth scientific or political intervention and whether the goal justifies the means in this case. Hence, the concept of risk and its applicability is in itself contested.

The case of genetic testing is also a case in point of demonstrating that an increase of knowledge does not per se imply a decrease of uncertainty. For one thing, very rarely do genetic test results provide positive knowledge about one's future health status. Only in the case of so-called monogenetic diseases such as Huntington's disease will the test provide a 100% certainty that the person will develop the disease at some point in life. Monogenetic diseases, however, are rare. The vast majority of conditions tested for today are so-called multi-factorial diseases or disorders, meaning that they are related to different types of factors such as epigenetic factors, genetic factors and the social environment and lifestyle of a person. This type of genetic testing on genetic risk factors is the result of the expansion of human genetics research to cover nearly all most common diseases (in industrialised countries), as, for example, heart disease, diabetes, Alzheimer's and cancer (Hopkins & Nightingale 2004).

The most common research strategies today aiming at increasing knowledge about multi-factorial diseases linked, among other factors, to certain genetic conditions are epidemiological studies and the search for biomarkers.

Biomarkers are thought to be precursors of a specific disease under investigation long before any symptoms are recognized (Lock 2005:52). Detecting such biomarkers, which may for instance indicate an increased probability to development of Alzheimer's disease or other complex

conditions, involves intensive extensive monitoring of thousands of healthy people for signs that may or may not be significant predictors for future disease (Lock 2005:55).

Epidemiological studies try to establish statistical correlations between certain genetic characteristics and certain diseases or "conditions" in a particular population by trying to identify so-called risk factors. Risk factors as such do not necessarily *cause* a certain disease but rather indicate an increased probability. To take the example of late onset Alzheimer's, risk factors may include a wide variety of variables such as age, gender, education, family history, Down syndrome, head trauma and, among other factors, a certain genetic variation (Lock 2005:55). The correlations between such factors can then be translated into individual risks and attributed to an individual body as its "genetic disposition".

Typical for the field of "multi-factorial genetic conditions" is the high uncertainty of test results with respect to the question of whether one person will in fact develop or not develop the respective disease in the future. Tests on "low penetrance" genetic factors provide unclear, uncertain diagnostic information on risks thereby leading to the problem of falsely positive or falsely negative diagnosis. We can term this type of uncertainty epistemological uncertainty: it is not caused by a lack of knowledge but by the character of knowledge, in this case its probabilistic character.

One of the tests that has gained most public attention is the genetic test on familial breast cancer since the mid-1990s (Lemke 2003; Wagenmann 2003/2004; Parthasarathy 2005). The tests on alterations in the BRCA 1 and 2 genes, which have been conceptualised as the familial breast cancer genes, are linked to a lot of uncertainties: First, they are only relevant to specific types of breast cancer, which make up less than 10% of all cases. Second, the probability of a woman with a positive test result to actually develop this type of cancer in the course of her life has been calculated with an increasingly less ratio and is currently estimated at less than 70%. Third, test results do not reveal when a disease will break out and how the disease will develop. Fourth, a negative test result does not imply that a woman will not still develop a different type of breast cancer during her life. Consequences that might be drawn from a "positive" test result range from preventive health care and regular physical examinations to breast amputation.

Today, interestingly in particular, proponents of genetic testing emphasize the scientific uncertainties inherent in the respective testing practices, arguing for instance that the information a test provides has only a probabilistic character and does not foretell a predetermined future but, rather, offers a range of options to the user. We found a "new modesty" here on the part of human genetics; it is directed against the assumptions of genetic determinism and thereby simultaneously against critiques of human genetics as based on such deterministic assumptions and reducing the person to a genotype. The "new modesty" also steals the thunder of those who

predict a dark, dystopian future in which control, surveillance and discrimination will be based on genetic information about a person. What the "new modesty" narrative tells us is that these concerns are unfounded because genetic knowledge is simply too uncertain and imperfect to provide the technical tools of such control and surveillance.

Hence, in the case of multi-factorial diseases, genetic test results may on the one hand increase the person's knowledge about his or her health status in the sense of providing data about the probability of future diseases, whereas on the other hand it increases uncertainty concerning the meaning of the test results and the ways on how to deal with them and which consequences to draw from them. Epistemological uncertainty, thus, is linked to what we may term practical uncertainty. By 'practical uncertainty' we mean a situation in which there is clearly a perceived need for action (e.g., to prevent the outbreak of a disease or the transferral of a genetic disorder to a future child), but it is unclear on the basis of which knowledge and according to which normative standards we are supposed to act. Practical uncertainty implies an element of normative uncertainty (what would be the *right* thing to do? According to which normative standards and criteria?) but also the element of epistemological uncertainty (is breast amputation really necessary for me?).

In addition, genetic testing is a field characterized by a huge amount of economic uncertainty. At present, it is unclear whether and how consumers and health markets will respond to genetic tests, and to what extent a pre-symptomatic and individualised medicine on the basis of genetic tests will establish. In particular, it is unclear how the free market for lifestyle tests (for example, for the susceptibility to nicotine addiction, for dietary advice etc.) will develop. Until now the experiences are limited to pilot experiments. The future of genetic testing depends highly on consumers' behaviour, the change of health, body and risk perceptions and the spread of individual strategies to acquire knowledge and control about their individual "genetic risks". In recent years, public anxieties for instance about the confidentiality of genetic test results with respect to employers or insurance companies in addition to the increasing gap between diagnosis and therapy has generated a certain sense of crisis, as there is no imminent prospect of new therapies surfacing that correspond to genetic tests. An indicator of such crisis may be the fact that biotech enterprises today often undertake "risk evaluations" before they market gene tests, trying to measure public mistrust in order to avoid scandals. For example, Hopkins and Nightingale explain the preference of genetic test producers in the UK not to market tests

directly but mainly through the National Health System (NHS) as expression of such a risk-avoiding strategy (Hopkins & Nightingale 2004).

Given the contingency of future markets for genetic tests on consumer behaviour, trust issues and the general feelings of individuals about genetic tests and their usefulness, reliability or ethical acceptability, the dimension of life style, feelings, and ethics is of enormous economic importance. This context might illuminate at least in part why the dimension of ethics and emotions has become so prominent in the governance of genetic testing in recent years. We will come back to this in the next chapter on the ethicisation of governance.

Looking at the issue area of BSE and other **food scares** , we see that it was in particular the focus on scientific certainty as a requirement and rationale for governmental action that kept the British government from acting swiftly in the face of potential risks to human health. When in late 1986 officials of the Ministry of Agriculture in the UK were first informed, through informal conversations, about a new disease among cows and the albeit vague and seemingly unlikely possibility that this disease might affect humans, they did not share this information and concern with the Department of Health (DoH). A lack of scientific evidence kept them from doing so. In a related yet slightly different reading of the events, respondents indicate that the lack of scientific certainty functioned as an excuse for policy makers not to act:

> And I remember so well, when the whole issue of BSE began [here in the UK] . . . they always used to say there is no scientific evidence that this disease can pass to humans, our scientists . . . etcetera. And that was their protection they thought that if there was no scientific evidence, then they could afford to ignore it (WP5 interview June 2006).

Flow of events: Bovine Spongiform Encephalopathy

In December 1984, a British farmer contacted a vet as he worried over one of his cows. The problem seemed to spread to other cows, and there was no response to treatment. After losing 9 of his cows, the farmer sent the 10th victim to a local ministerial laboratory, from which the cow's head was sent to the Central Veterinary Laboratory (CVL) in Weybridge. The pathologist on duty that day was "excited" to find indications of spongiform encephalopathy in the material

under her microscope (tiny holes in stained sections of the brain): "What was exciting that this was in a cow." The supervising senior pathologist who later had a look at the material in contrast did not make a connection with scrapie, and he put the observed anomalies down as resulting from toxic poisoning (Information available from Phillips et al. 2000 [BSE-inquiry], vol. 3, pars 1.7 to 1.17). In November 1986, this pathologist, Gerard Wells, was the first to write about a possible "bovine variant of scrapie", a report he drew up in view of another case of the unknown disease in cattle in Kent.

The issue was being discussed among scientists in the UK and elsewhere, and several hypotheses as to the nature and origin of the disease were advanced. An exchange of laboratory material between Weybridge and the Neuropathogenesis Unit (NPU) in Edinburgh led the latter to conclude in October 1987 that the brain lesions found in the affected cows were the results of a 'prion disease', a family of inflictions to which scrapie in sheep and a degenerative brain disorder in humans, Creutzfeldt-Jacob Disease, also belonged.

In the UK, where the concern over BSE was strongly cast in terms of a distrust in the state's capacity to handle the potential risks, much more so than in Germany or the Netherlands, there was a perceived need to act in view of public health *in spite of* a lack of scientific evidence. Yet *how* to act could not be based on scientific knowledge because scientific analyses of the situation were themselves contested. The controversy whether to act, policy-wise, on public health could not be settled on the grounds of scientific principles because there was no unanimity about the cause or even the character of this new disease and the possibility that it might pass over to humans.

Existing control measures to guarantee food safety were designed to detect and fight bacteria and viruses. As observed previously, the problem with BSE was that these assumptions did not work in the case of prions. In spite of the verdict of the Neuropathogenesis Unit (NPU) in Edinburgh that the symptoms found in cattle were to be understood as the effects of a prion disease, protection measures for viral diseases were taken, mainly as no other regulatory rules were available. New 'rules of the game' had to be made up all along with the development of scientific insight in what was happening. A complicating factor was that with scrapie being a 'low-key' phenomenon at the time, there were hardly any scientists working on prion diseases (cf. WP5, interview June 2006).

Prions

'Prion' is an artificially constructed word introduced by Stanley Prusiner in 1982 for proteinaceous infectious particles (infectious protein), to indicate the 'protein only' hypothesis postulated earlier by Griffith. This hypothesis holds that proteins may themselves function as a pathogenic agent, causing diseases without viruses or other alien living bodies entering the body of the diseased human or animal. Prions are understood to be unusually 'folded' proteins, dubbed scrapie PrP, which triggers other, normal PrP to copy its pathogenic shape. In this process, nervous cells are being destroyed, resulting in a specific substance that settles as plaques in the brain.

As mentioned before, the prion hypothesis provided hardly any stepping stones as to how to proceed. Eventually, in the early 2000s, a glimpse of 'proof' was observed, as one informant relates:

> The only real guidance, the only real certainty that it came from beef I suppose is . . . when there was a cluster of cases, five people in one [area] all of whom had bought beef from a butcher, and because he was a [specialised] butcher, he had the skills to take brains out of beef and sheep heads, and he used to sell it, not many people eat that but some people do, some older people did. And what transpired was . . . he would use a knife, and he would then wipe the knife, and then he would use that knife to cut ordinary beef or ordinary meat, and it contaminated it. And what nobody knew . . . was that [prions] so incredibly bond to metal, and you couldn't wash them off, you can't even sterilize them off, and therefore . . . it was only really when that came up, you had a direct connection (WP 5, interview June 2006).

Similarly, scientific uncertainty concerning the potential health effects and environmental effects of **genetically modified plants and their products**, or rather the recognition to some extend of such scientific uncertainty by the EU regulatory framework implied the need to step beyond given regulatory instruments. The controversy on GM food that exploded in the EU and many member states in the late 1990s was largely a controversy about the question of whether GM food should adequately be framed as a matter of risk to the environment or the health of consumers, however, risks that in principle are amenable to calculation and control, or whether GM plants and their products are a matter of uncertainty, in that their potential effects are so complex that almost no one is able to foresee, calculate or contain them. Before the first GM crops and foods arrived into global markets and ecosystems in the mid1990s, the EU had already established its regulatory framework around the Deliberate Release Directive (1990/220, replaced

by 2001/18). This regulatory framework was based on expert scientific advice about possible harm to health or the environment and required each member state to establish a 'competent authority' (CA) which would handle such decisions.

The EU to some extend recognized the condition of uncertainty concerning GM food when, in the Deliberate Release Directive of 1990 (190/220), it explicitly acknowledged the unique nature of GMO's and their potential risks:

> [L]iving organisms, whether released into the environment in large or small amounts for experimental purposes or as commercial products, may reproduce in the environment and cross national frontiers thereby affecting other member states; [and] the effects of such releases on the environment may be irreversible.

The EU adopted a regulatory framework that was inherently more precautionary than that adopted by the US. Unlike the US, the EU considered the novelty of the genetic modification process to still contain important areas of scientific uncertainty and potential risk and GMOs to be a special category that required its own unique regulatory framework. This led the EU to base its GMO regulatory system on the *process* behind the products, whereas the US approach was based on the simple regulation of the *end products* alone. In the following section we will argue that categorizing GMOs as a unique and unprecedented type of entities amounts in fact to a recognition of what we term an ontopolitical quality of the issue.

Thus, the EU regulatory framework can be viewed as a hybrid offspring of a technocratic risk culture on the one hand, assuming that regulations and new authorities (the CAs), based on scientific expert advice be able to control the risks implied in this technology, and a culture of uncertainty on the other, recognizing the unprecedented novelty of the technology and the potential irreversibility of its consequences. This hybrid regulatory approach produced a series of hybrid governance responses to the political controversy on GM food as we will show in the later sections.

In the **GM food** controversy, ontological questions were not as directly moralized as in the controversies involving the status of the human embryo but nevertheless politically decisive. The issue at stake here was whether GM plants were just "plants", as the US authorities saw it, or whether they belonged to a separate and special ontological category which had not yet been

invented. The EU Deliberate Release Directive (1990/220) took the latter stance. The EU's approach differed from that of the US and the OECD which was based on the idea of a 'substantial equivalence' between GM and Non-GM products, measurable by a simple and reductionist content analysis that assumed the familiarity of the effects sought. The US and the OECD thus established that GM crops needed no special regulatory category. By contrast, the EU regulatory discourses began to focus on the containment and policing of a special new category that in their view was simultaneously a life form, a new technology, a commodity and a potential form of 'living pollution' that could threaten to contaminate and subvert the natural and social order. Such a mode of regulation would help to symbolically mark out GM crops, a move which would have important consequences for the performance of patterns of regulation and conflict around the technology.

The conflict on the implementation of the European Union's **Habitat Directive** in the case of the flying squirrel in Finland and the loggerhead sea turtle in Greece similarly cannot be properly understood without the background of a an increasing cultural awareness of uncertainty. Having reconstructed the cultural history of nature conservation, work package 4 reveals that the character of nature conservation has undergone a profound change in recent decades. We characterize this change as a shift *from target-specific to comprehensive conservation*. Increasing awareness that human modification of nature on the global scale brings about an increasing threat of an extinction avalanche is the main driver of this shift.

Traditionally, the targets of nature conservation were either specified protected species or areas set aside from all productive activities as nature reserves. Species and areas remain focal points in conservation, but the shift to comprehensive conservation means that conservation needs are framed in a new way: on the one hand, what is protected and why is defined through systematic, comprehensive assessment and classification, for instance, through Red Data Lists of endangered species, and on the other hand, the ecological context of protected species and areas is emphasized. The latter aspect is quite natural: the viability of species populations depends on the continuous suitability of the ecological context in which they live, and protected areas are greatly influenced by what happens in their surroundings; in the famous phrasing of Daniel Janzen (1986): "No reserve is an island."

Both 'sustainable development' and 'biodiversity preservation' have arisen as normative ideals, and a response to this awareness of uncertainty in the context of this shift towards

comprehensive conservation. In the 1980s 'biodiversity' was conceived as an umbrella term that gives a comprehensive description of contemporary conservation concerns. This shift towards comprehensive conservation, while it is a response to the growing awareness of uncertainty, brings about a new series of uncertainties itself which pose new, unexpected governance challenges for the public administration on all levels of government. For one thing, conservation management is torn between the two conflicting imperatives of the *strict protection* of the endangered species with the *ongoing activities* of forestry and tourist services. In addition, comprehensive protection is reliant on a huge amount of knowledge about rather complex and ever-changing circumstances such as the size of the existing populations of the species and recent population trends of that species. The situation gets further complicated when the potential impact of conservation measures on the livelihood of local people is taken into account or when the potential impact of prospective construction projects or changes in forestry practices on the species is to be assessed. In short, the more complex, dynamic and future-oriented conservation policy becomes, the more it depends on knowledge which will never be able to produce scientific certainties about each and every possible development, and the more it needs to integrate potentially conflicting imperatives. Practical uncertainty thus is a constitutive implication of comprehensive conservation. The shift from the comparatively one-dimensional target-related approach to the more complex comprehensive approach in conservation practices is, as we will show in later sections, intrinsically linked to the need for new and more participatory forms of knowledge production, the ethicisation of conservation policies and issues of trust. We will come back to the question, which governance responses to these challenges we can detect.

4. The ethicisation of governance

In empirical research, some of the most striking findings often are those that have caught the eye without having been at the centre of the research before. Although the PAGANINI project had started from the assumption that 'politics of life' areas are strongly connected to normative, moral and value-based factors, such as a sense of responsibility towards non-human nature, future generations and/or one's own body, we had not been aware of the pervasiveness of the ethicisation or moralization of governance in the areas under study.

Throughout our case studies, issues turned out to be strongly framed in normative terms such as responsibility, ethical permissibility, moral or immoral actions, relief of suffering, human dignity, animal welfare or moral obligations. We term this ethicisation or moralization.

> In trying to capture this phenomenon, we have to notice that contemporary language is lacking an appropriate term for the phenomenon we have noted. To come to grips with different dimensions of this phenomenon, it is useful to draw some preliminary distinctions. First, the term "normative" refers to rules and norms of conduct that are commonly shared in a given society, including those codified in legislation, whereas "morality" and "ethics" refer to obligations felt primarily in the personal sphere. The latter terms have divergent connotations as regards the "source" of the obligations: morality originates in deeply felt personal obligations (for instance, Christian morality of the Protestant variant), whereas ethics leans on a search for universal rules (for instance, Platonism, or Kantian ethics). It is clear, however, that conceptual distinctions do not alone capture the essence of the phenomenon we have observed. The meanings of the terms shade into one another at the boundaries. Furthermore, the relations are dynamic in the sense that sudden shifts from one kind of emphasis to another one are possible and, in fact, have been recorded in our cases. So, for instance, the obligation to respect and protect nature was originally channelled toward a search for binding legislation and conventions (the "normative" dimension) but has lately got a powerful tinge of personal moral obligation. In the case of stem cell research and genetic testing, the personal and moral pressure that the uncertainty in these fields creates has given rise to official or semi-official bodies ("ethics committees") that try to formulate general ethical rules. Normative pressure, as a felt obligation to develop adequate legislation, is at the background in all of the cases but with varying force. And so on.
>
> What we want to capture, primarily, is the phenomenon that actors themselves, that is participants in governance or public controversies, apply a language of morality and ethics. In the absence of a generic term which comprises both "moralization" and "ethicization" we therefore use both terms, although they are not completely interchangeable

Several aspects are important as regards the phenomenon of moralization and ethicisation: First, it implies that "matters of fact" cannot be separated from "matters of concern" (Latour 2004), and questions of "is" from questions of "ought". We have shown in the previous chapter on the relevance of uncertainty that "is" questions have direct moral and political consequences and that there is almost no "neutral fact" the establishment of which is not a politically relevant decision. Second, it displays the *practical* character of the issues at stake: the strongly perceived need for action, even in the absence of scientific certainty, and the practical orientation of actors who ask themselves what they should or should not *do*. Third, in moralized or ethicised issue areas, people take the first-person stance on the issues; they raise and discussion questions such as "what are *we* supposed to do?" "what shall *we* do next?" "what is the right thing for *me* to do here?" In other words, if an issue area or a governance problem has undergone moralization or ethicisation, actors relate the issue to themselves and their actions and thus take a *participant's* point of view. They assume that it *does* matter to some extent what they personally do regarding the issue and do *not* assume that it is the exclusive responsibility of others, be it experts or policy makers, to cope with it. Our case studies demonstrate how this syndrome comes out in practice:

"Ethics" and "morals" proved to be of great significance in the issue areas of **human embryonic stem cell** research. Work package 2 shows that expressions of concern, affectedness, values and beliefs seem to be of particular importance in this issue area. It is through such words that new political spaces begin to emerge, which are characterized by new rationalities and principles of decision making and in which 'life' is being exposed to the 'logic' of pathos and ethos (Gottweis 2006a, 2006b). However, it seems that the framing of "stem cell and cloning research" as an essentially bioethical question, as opposed to, say, a social question, facilitates the staging of "stem cell and cloning research" on the (closed) floor of bioethics committees and discourages arrangements that include a broader range of actors.

However, our comparative study on the politics of hES cell research in the US, Israel, Germany, the UK, Italy, and on the EU level also makes clear that being an "ethical issue" is not an intrinsic quality of human embryonic stem cells. Rather, this branch of research has been *framed* as an ethical issue to varying degrees and this framing has taken place differently in different cultural and political contexts. In Israel, barely any controversy took place on the ethical permissibility of human ES cell and cloning research. Whereas on the occasion of the first passing of The Prohibition of Genetic Intervention Law in 1998, which was passed in response to the birth of Dolly, and in the occasion of its renewal, there *have* been some voices calling for a permanent ban

of human cloning. However, scientists and bioethicists have been able to "convince" these voices that it would be "irrational" and "immoderate" to oppose scientific research in principle and to impose rash bans. Scientific research, so the story went, should be carefully monitored – and science could be trusted (Gottweis & Prainsack 2006).

Following the birth of Dolly the sheep, the Knesset, (the Israeli Parliament) adopted The Prohibition of Genetic Intervention (Human Cloning and Genetic Manipulation of Reproductive Cells) Law in December 1998. In 2004 the law was slightly modified and renewed for another five years (State of Israel 1999; see Barilan and Siegal 2005; Revel 2005; Prainsack 2006). It prohibits the deployment of reproductive cells "that have undergone a permanent intentional genetic modification (Germ Line Gene Therapy)" and human reproductive cloning, setting a moratorium on both technologies until March 2009. However, while the law bans applications of "reproductive cloning", it leaves "research cloning" untouched. In the absence of primary legislation, "research cloning" and hES cell research are governed by secondary legislation – the 1980s Public Health Regulations (Human Experimentation) and the 1987's Public Health (Extra-Corporeal Fertilization) Regulations (Shapira without year; see Shenker 2003; Shapira 2002:641). Their respect and implementation is monitored by a range of "Helsinki committees," or institutional review boards. Altogether, the current regulatory regime places a ban on the production of embryos for research purposes (Shapira without year), but it does not inhibit Israeli scientists from deploying "surplus" embryos for research purposes or from producing embryonic structures through somatic cell nuclear transfer. However, scientists engaging in one of these practices need prior approval from the so called (Supreme) Helsinki Committee for Genetic Medical Experiments on Humans, a monitoring body within the Ministry of Health. In its 2003 report to the Ministry of Health, the committee stated that it was ready to approve both the derivation of hES cells from "genuinely surplus" embryos and applications for somatic cell nuclear transfer (Shapira n.d.). This comparatively unrestrictive regulatory regime should be seen in a context where "even reproductive cloning is not opposed in principle" (Prainsack 2006). The conviction that there is no reason to oppose human reproductive cloning in principle, but good reason to be careful unless safety issues will be solved, is translated in the legislators' choice of a moratorium on "reproductive cloning" rather than a permanent ban (Prainsack 2006)

In other country cases such as the US, Germany and Italy, the moral acceptability of hES research became the object of fierce controversies that divided the population into two opposed "camps". In Germany, Christian churches, disability rights groups, feminist networks and many other actors mobilized a notion of a "common ethos", reminding what the devaluation of human life had led to in Germany's National Socialist past**,** an ethos which, in their view, lies at the heart of German postwar society and is derived from the historical experience of the Nazi crimes. It implies a common will to not become the sort of people any longer who distinguish between "life worth living" and "life not worth living". (Braun 2005) Opponents rejected research on hES

cells as an "attack on life" and "human dignity", a "dehumanization" of life and even "cannibalism" (Cardinal of Cologne, Joachim Meisner, quoted in Anonymous 2001).

In the US**,** stem cell politics was characterized by a clash between pro-life groups and patients' organizations. This emotional polarization went hand in hand with the absence of successful trust building, as no undisputed regulatory authority emerged.

In Italy, a very fierce controversy on the ethics of human embryonic stem cell research ended with the embracement of the Italian embryo as "one of us" and the failure of the attempts to relax the tight restriction that govern Italy's reproductive laboratories. The controversy on whether there should be stem cells for Italy was quickly translated into moral debates on the meaning of "life" and "Italienness" in the 21st century. The controversies were kicked off by harsh contestations of Law number 40/2004, which was passed by the Italian Parliament in February 2004.

In Italy, human ES cell and cloning research is governed by Law number 40/2004 (Repubblica Italiana 2004). The law regulates the range of permissible practices of techniques of assisted reproduction. However, as long as the law bans the production of "surplus" embryos, the deployment of embryos for research purposes and all forms of cloning, it has important implications for human ES cell and cloning research.

The restrictions to stem cell research were not the major intention of the legislature, but it nevertheless made sure that the passing of the law in February 2004 stem cell research would become a hotly contested and "unruly" issue.

In spring 2004, the Luca Coscioni Association started to collect signatures for a petition for a referendum that sought to overturn the entire law and supported four additional requests that aimed to partially cancel the law. The Luca Coscioni Association is a transversal association that involves a broad range of socio-political actors, such as scientists, physicians, infertile couples and patients affected by chronicle pathologies. It is named after its founder, Luca Coscioni, who suffered from amyotrophic lateral sclerosis (ALS), a disease that figures prominently among the potential targets of human ES cell and cloning research. His disease confined him to a wheelchair, and he was able to speak only with the help of a computer. Since 2002 he was the iconic embodiment of a struggle that was engendered by the aim to facilitate the performance of human ES cell and cloning research in Italian laboratories.

More than a million signatures were collected. Following the required procedures, the Constitutional Court controlled the admissibility of the five petitions in January 2005. It did not

admit the request for the abrogation of the entire law, arguing that a law was constitutionally necessary, but it gave a go-ahead to the four "partial" referenda.

The referenda took place on 12-13 June 2005, after almost six months of intense debates between two antagonistic alliances.

However, for a referendum to be valid a minimum of 50% +1 of the Italian electorate must cast its vote, but only just a quarter of the Italian electorate went to the polls; therefore, the law 40/2004 with its tight restriction on hES cell and cloning research is still in place.

In 2004, Italy was split into two opposing camps and a group that was later framed as a "disinterested" and "silent majority". One alliance focused on the freedom of reproduction, freedom from religion, women's rights over their bodies, the right not to be hindered in someone's own ethical choice by a governmental morality imposed on individuals, the freedom of research, the right to receive cures and to live a healthy life and the right to have – at least – hope in potential therapies in a not-too-distant future. The reference point of this alliance was the "human being" as an adult, biological citizen (Rose & Novas 2006) whose genetic or somatic corporeality, vulnerability and suffering endows him or her with individual vital human rights and freedoms, which the state as a good shepherd not only may not interfere with but also must foster. The contrasting alliance of supporters of the law referred to the need to protect "human life" too. However, they radicalized the category of a "human life" to include fertilized oocytes and embryos. They argued that the embryo was "one of us". In addition, they defended Law number 40/2004 because it "has finally put an end to the so called 'Wild West of procreation'". The conflict that was set on the stage of "life", eventually turned to be a dispute about very different visions of the meaning of Italianness in the 21st century.

The Italian "Wild West" of reproduction

In the 1980s–1990s a series of cases that troubled genealogies, kinship categories and the "natural way of procreation" were intensively debated in the Italian media. One of these cases involved a woman in her mid-60s, who asked a fertility expert to help her become mother with the frozen sperm of her husband, who had died 10 years before (Valentini 2004). In a similar case, the tribunal of Palermo gave a widow permission to transfer the frozen embryos that had been fertilized before her husband's death. In 1994 Italian fertility expert Severino Antinori gained global fame when he helped a woman aged 62 to become mother, and in 1995 a major uproar was provoked by the birth of a girl in Rome that had been implanted in the womb of the embryo's aunt more than a year after the death of the embryo's "biological" mother (Keates 1995).

In part, what took place in the Italian debate was an attempt by some actors to reconvert "matters of concern" into "matters of facts", referring to "nature" and "natural laws" as an allegedly "objective" foundation of moral judgements. In this vein, Daniele Paoli (a member of a rightist party) explained in the discussions in the Senate in 2003:

> The [embryo's.] right to identity, [its] right to have two parents . . . is a natural law, which cannot be amended by [political] laws or by a Parliament's majority. (Senato della Repubblica 2003; emphasis added)

We find here that moral sentiments and a language of moral obligations were mobilized on both sides of the conflicts. However, when we look at the particular role of the Luca Coscioni Association in this story, we also see a particular new type of expert emerging, the "afflicted expert", is a person whose special qualification as an expert consists in being physically afflicted by a disorder for which biomedical research promises to deliver a remedy in the – not so far away - future. Following his own terms, Luca Coscioni understood and presented himself as an "expert of bioethics" on his "own skin" (ADUC 2002a). We can term this type of expertise "embodied expertise", and we will see it again in the UK controversy on stem cell research as well as in the genetic testing case study. The afflicted expert's authority stems from his or her authenticity, and this in turn from his or her somatic status as being bodily afflicted by one of the diseases targeted by the contested biomedical practices.

In the UK, the conflict on embryonic stem cell research was mainly framed as one between pragmatism and dogmatism. Here the figure of the afflicted expert appears in the context of the December 2000 parliamentary debates on extending the scope of the HFE Act so that it would permit research on human embryos for the purpose of increasing understanding about human diseases and disorders and their cell-based treatments.

The 1990 HFE Act, schedule II states that

. . . a licence . . . cannot authorise any activity unless it appears to the Authority to be necessary or desirable for the purpose of

(a) promoting advances in the treatment of infertility,
(b) increasing knowledge about the causes of congenital disease,
(c) increasing knowledge about the causes of miscarriages,
(d) developing more effective techniques of contraception, or
(e) developing methods for detecting the presence of gene or chromosome abnormalities in embryos before implantation,

or for such other purposes as may be specified in regulations.

The Act also outlawed replacing a nucleus of a cell of an embryo with a nucleus taken from a cell of any person, embryo or subsequent development of an embryo.

In xy, the Human Fertilization and Embryo Authority (HFEA) and the Human Genetics Advisory Commission (HGAC) in a joint consultation paper recommended "that the Secretary of State should consider specifying in regulations two further purposes to be added to the list in paragraph 3(2) of Schedule 2 being:

- developing methods of therapy for mitochondrial diseases
- developing methods of therapy for diseased or damaged tissues or organs.

In June 1999 the government decided to defer its decision on a possible rewriting of the HFEA regulations as suggested in the joint HGAC/HFEA report. Under the impact of Dolly the cloned sheep, the government announced the organization of an expert group chaired by the Chief Medical Officer, Professor Liam Donaldson on the topic (Department of Health 2000:49). It took the Donaldson expert group much longer to produce and present the report than initially indicated. For one thing, it seemed that the government wanted as much of a time distance as possible between the BSE and the GMO crisis that had peaked in mid-1999. In August 2000, after almost a year of deliberations, the expert group issued a report that, in essence, reiterated policy content and direction of the 1998 HCAG consultation paper (Department of Health 2000). After the report was published, the government announced that members of Parliament would have a free vote to decide on the proposed change in regulations (Tim Radford, *The Guardian,* 17 August 2000). The debates in Parliament took place in late December 2000.

In one of these debates, the wheelchair-bound MP Ann Begg delivered one of the most passionate speeches in which she combined a "pragmatic perspective" with a plea for the "duty" of the parliament to allow stem cell research to proceed as a "moral obligation".

> I must begin by declaring an interest. I have a condition that results from a single gene defect. Ultimately, the cure – if there is to be one – for Gaucher's disease will be gene replacement therapy, but there is no doubt that my problems, such as osteoporosis, could be helped by the research that we are discussing. Although I have a personal interest, I am speaking not just because of my own experience, but because of approaches I have received from constituents. About five weeks ago, in the middle of a busy advice surgery, a constituent arrived in an agitated state. She sat down. She had great difficulty in speaking and had quite severe tremors in both her hands and her head. She managed to get out that she was there to lobby me about supporting the whole issue of stem cell research. It was at that point that I stopped my constituent and said, 'It's okay, I know the arguments. I am in favour of the research. I understand what you are getting at.' A look of relief came across her face and she said, 'You mean that I don't have to go into the spiel that I have prepared? I've had such a morning; I couldn't get myself together. It's been very difficult. I've prepared everything, but I know that my words don't come our properly and that, if I had to explain something that was very complicated, I might not be able to do it well'. . . .

Begg continued:

> That reminded me of the problems my uncle faced when he, too, had Parkinson's disease. . . . I am therefore aware of the issues around what had been proposed. I hope that I can articulate some of the thoughts, feelings, and emotions of those who may be helped by the research. . . . We have the technology with the potential to alleviate huge suffering. I believe that the moral argument is on the side of pursuing that technology. (Ann Begg, HC, December 2000, cc 906–908).

In the following debate, on December 20, Begg also spoke:

> If the vote is lost today, I and other hon. Members will have to go back to our constituents who have Parkinson's disease, multiple sclerosis or Huntington's disease and say, "Sorry, embryo cells can be sued for research into improvements in contraception but cannot be sued to find a treatment for what is wrong with you. . . .We will have to tell them, "Sorry, a group of cells in a laboratory dish, which will die because they have no means of sustaining themselves, has the same status as you. These cells are so important that they cannot be used to help alleviate your suffering. . . . I would find it impossible to explain the logic of that position to my constituents. (Begg, HC, 19 December, c 229).

Another member, Sally Keeble reasoned:

> I . . . have had IVF treatment which, in my case, was successful. I am also a theologian. . . . I have been through a process and know what it is like to look at embryos that are part of one's genetic material. . . . I might not want to give them away as they are part of my genetic material. However, I must ask what the embryos will do if they cannot create life or reproduce something of my husband and me. . . . I believe that the means and ends are

> justified. I hope that the House will agree to the regulations and enable science to proceed. (Keeble, 20 December, C256-257). (110)

In the issue area of **genetic testing**, mobilizing moral sentiments like empathy and a feeling of moral responsibility also played a huge role. Acquaintance with the personal fate of those who suffered from certain genetic disorders often appeared to form a qualification for being able to make judgments and decisions on how to regulate genetic testing. Participants in the youth conference of the Human Genetics Commission (HGC) in Wales, an element of the HGC "Making Babies" consultation process, for instance, were shown a TV feature on the efforts of a couple to have a "healthy" baby. One interview partner from the pro-life NGO CORE who was present at the conference remembers that she had no chance to argue against the emotional impressions incited by this feature:

> They showed a television programme which lasted nearly an hour of a couple who was trying to have a baby and so it was just endless pictures of the sick child and how dramatic it was. It was impossible to compete with that. My feeling afterwards was: you don't move into discussing big ethical issues after you have watched a hair-tracking programme on television. (Interview 22-3 2006)

Another indicator for the prominent role of emotions and moral sentiments in the controversy on pre-implantation genetic diagnosis may be the power of personal life stories presented and excessively discussed in the media, mainly in the UK. One story referred to in nearly each of our interviews in the UK (interviews 6-3 2006, 9-3 2006 and 17-3 2006; Brecher 2006; Mills 2006) is the story is about the possibility that the people from the deaf community could demand to use PGD to select an embryo with a specific form of inherited deafness. By this means, so the story goes, the couple could make sure that their child will be like them and like they want it to be: deaf. The story attracted a considerable amount of attention; it was evoked again and again, mainly to illustrate the potential troubling consequences a technology such as PGD might have. Interestingly, however, there has been no such case in the UK. The story refers to a merely hypothetical setting, originally incited by an article about a deaf lesbian couple in the US who had looked for a *sperm donor* (note that they were *not* asking for PGD!) with a certain genetic condition linked to deafness (Spriggs 2002). Yet the story circulated as a means to incite empathy as well as reflections about a complicated and interesting issue to debate . It is presented as an ethical dilemma, constituted by the value of reproductive autonomy, on one side and the "welfare of the child" principle as established by the HFE Act, on the other. Apparently, the power of such personalized stories is not diminished by its mainly hypothetic, fictional character. Another

example of the power of stories would be story of "the Hashimis" or "the Whitakers", both families who have become enormously famous because they requested PGD for the purpose of "tissue typing". These stories are about "suffering", the need for making hard choices, but also about the need for the expert community to show empathy towards such individual cases.

Tissue typing is done by Human Leukocyte Antigen Typing which allows to determine whether the tissue of the embryo matches with an existing ill family member, in most cases an existing sibling, who is in need for a tissue or organ transplant That is why this application of PGD is also known to the public as selecting a "saviour sibling". The HFEA allowed tissue typing in the case of the Hashimi family but later rejected it in the case of the Whitaker family. The argument was that the disease of Zain Hashimi, thalassemia, is genetically transmitted, so that the embryo who would function as a "saviour sibling", was screened for the gene himself or herself, as well as for the tissue compatibility. In the case of Charlie Whitaker, the Diamond-Blackfan syndrome was not genetically transmitted, so the embryo as possible "saviour sibling" for Charlie would not be screened for a genetic condition (Wasserman 2003). The pro-life NGO CORE fought against the decision in the Hashimi case and went to court arguing against third-party interests being criteria for PGD; however, after initial success before the High Court, it failed, in the end, in its intentions (Ziegler 2004:90). Later, the HFEA also allowed cases similar to the Whitaker case. The HFEA justified its policy change by pointing to a shift in prioritised considerations: while in the beginning the (small) risk for the embryo tested by PGD to get a "genetic defect" as consequence of the procedure itself was considered more important, later the HFEA in a more "contextual" way argued with the "welfare of the family" and their right to "reproductive choice" (Mills 2006).

The ethics discourse thus may take the form of stories circulating in the public or pictures and TV features, or, as in the case of Luca Coscioni or Anne Begg mentioned previously, the exertion of the afflicted body as a powerful discursive tool. The ethics discourse here is a means to incite and mobilize emotions as a qualification for making judgments and political decisions. What we see here is an emotionalised, ethicised style of interpellating political subjects, be it the more general, unspecific public addressed by the media, or potential voters on a referendum, or political decision makers such as members of Parliament. Ethics, or more specifically moral sentiment, appears to have become an important resource in a new way in governance controversies in the areas under study here.

Concerning genetic testing as a governance issue, we can detect two further aspects of the power of ethics. One is the role of (bio)ethics as a political technology to render unruly issues, such as genetic testing in general or PGD in particular, governable. This was what happened in the UK consultations and public debates on PGD during the last years, which did not focus on the

general approval or disapproval of PGD but displayed an increasing sophistication of the criteria on how to judge it, such as the "seriousness" of a condition, "third-party interests" (in the case of tissue typing), "health purposes" vs. "frivolous or 'social' reasons", "late-onset" and "low penetrance genetic conditions", the percentage of risk, expected point in time of onset of the disease, or a lists of inherited diseases to be tested, as well as the "viability" of the embryo. These factors have entered the debate thus causing an explosion of ever refined and differentiated criteria to facilitate negotiation and decision making. Following Brian Salter (2005), we can speak of ethical brokerage, generating intermediate positions and newly refined, ever more differentiated criteria to open the field for political negotiation and trade-off that might allow for compromise and intermediate positions in situations where at first glance stances seem non-negotiable.

Aside from being a political resource and a political technology, we can detect a third function of ethics in the policy area of genetic testing which, when we apply the concepts of Michel Foucault, can be understood as a link between the "conduct of the self" and the "conduct of conduct" (Foucault xy). What we have generally observed in the policy area of genetic testing is a discursive explosion about the contingent social, cultural and psychological modalities of individual decision making on genetic testing, the anxieties and hopes, moral obligations and dilemmas people feel about the test as well as its result and the consequences. Much talk in new and old governance arenas such as consultations, patient panels, citizen juries or parliaments has been devoted to this subjective dimension of genetic testing, concerning the need for and appropriate form of psychological counselling before and after such a test is done, how serious a certain genetic conditions needs to be to justify regulation and the subjective meaning that the condition and the testing procedure has to an individual, a couple or a family. Hence, a huge interest exists in the intersection of lifestyles, attitudes and feelings, and genetic testing practices on the level of "conduct of conduct", that is, the level of regulatory governance. This intersection, however, is equally important as regards the economic future of the genetic testing sector. As we have seen in chapter 3, the vast majority of genetic tests, namely those for multi-factorial diseases, do not provide 100% reliable knowledge but essentially probabilistic knowledge and thus bear considerable uncertainty from the user's perspective. One of the critical questions both the genetic testing industry and the related research sector is facing today is whether health care systems and/or individual consumers will make sense of this form of knowledge and actually "buy it" *despite* the uncertainty attached to it. In the absence of available genetic therapies,

making sense of this probabilistic form of knowledge largely means counterbalancing the "bad" genes by a "good" lifestyle and attitude through exercising, quitting smoking, maintaining a good diet, seeing a therapist, or having a more optimistic outlook on life. Thereby, the uncertainty of risk calculations and the paradigm of "multi-factorial" diseases instead of the "one gene hypothesis", paradoxically foster the "responsibilization" (Rose 1999:74) of the individual. Responsible behaviour is supposed to minimise risk. In this context, ethics is not so much about making general moral judgements as about taking responsibility for one's lifestyle in the face of genetic knowledge; adopting a certain "ethos" which orients the way one lives life and the becoming the person one wants to be. In the context of epistemological uncertainty, as explained in chapter 3, the government of the individual, the development of the market, and political regulation are linked to – and by – the significance of lifestyle ethics.

The **GM food** controversy was to a considerable extend framed in a language of ethics and morality too, both by NGOs and civil society organizations and by government institutions. Here, this framing, on the one hand, implied that GM plants and their products were not exclusively considered as a "matter of fact", a matter on which mainly scientific experts had the authority to speak and make judgments, but also as a "matter of concern" on which citizens and their organizations would also have a legitimate right to speak. In this vein, the revised 2001 EU Deliberate Release Directive attempted to address the wider issues of public and political concern that stretched beyond the narrow technical and scientistic parameters of the 1990 original. Thus the preamble (para 9) states:

> Respect for ethical principles recognised in a Member State is particularly important. Member states may take into consideration ethical aspects when GMOs are deliberately released or placed on the market as or in products.

Thus ethical concerns were included as having some legitimacy within the new official regulatory framework, although kept separate from and subordinate to the traditional science-based environmental and health risk-assessment paradigm. This is reflected in Articles 28 and 29 of the new directive which codified the commission's relationship to expert authority and advice. Article 28 called for mandatory consultation with relevant EU-level scientific committees, while Article 29 had the *lesser* power to recommend consultation with specialist ethical committees.

The ethics frame thus provides an opportunity for public concerns to be voiced. However, this tendency was contained and counterbalanced to some degree by the move to keep "matters of facts" insulated against "matters of concern" and to ensure that the latter were subordinate to the first. Providing opportunities for public concern to be articulated was not unanimously welcomed by EU institutions. For instance, the European Commission's *Strategy for Europe on Life Sciences and Biotechnology* (European Commission 2002:7) acknowledges that the life sciences and biotechnology

> also raise important policy and societal issues and have given rise to a broad public debate. (European Commission 2002:7)

When it proceeds to discuss this debate, however, it laments that the debate

> focused narrowly on genetically modified organisms (GMOs) and specific ethical questions, on which public opinion has become polarised. (Ibid:10)

Most crucially, it then points to important limits constraining how long such debate might be accommodated within overall considerations of the "strategic vision":

> Uncertainty about societal acceptance has contributed to detracting attention in Europe from the factors that determine our capacity for innovation and technology development and uptake. This has stifled our competitive position, weakened our research capability and could limit our policy options in the longer term. (European Commission 2002)

This statement must be understood in the context of the Lisbon Agenda which the EU explicitly confirms in the Strategy Paper.

The 'Lisbon Strategy' after the European Council's Lisbon meeting in 2000, declared that its "new strategic goal for the next decade" was "[t]o become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" (Presidency Conclusions, Lisbon European Council, 23 and 24 March 2000).[9] Central to this strategy was to promote research and development and the private appropriation of the flows of knowledge from public scientific and academic networks, in order to promote high value technoscientific innovation-based production. The January 2002 *Strategy for Europe on Life Sciences and Biotechnology* located biotechnology within the Lisbon Agenda and opens by proclaiming: "Life sciences and biotechnology are widely recognised to be, after information technology, the next wave of the knowledge-based economy, creating new opportunities for our societies and economies" (European Commission 2002: 7).

Focusing on ethical questions, in short, threatens the EU's capacity for innovation and competitive position. In the policy area of biotechnology, as we see here, the EU was torn between conflicting imperatives of economic competitiveness and democracy, the former being safeguarded by allegedly neutral scientific criteria insulated against ethical debate and public concern, and the latter providing opportunities of such concerns to beheard and values to be taken into account. As we will see later on in chapter 4, our conclusion is that the EU and its member states found themselves obliged to move into the direction of the latter.

While on the institutional level, thus, the meaning of 'ethics' was heavily associated with 'public concern' and demands to bring these concerns to the fore, on the side of NGOs opposing GM food, we find that ethics and morality strongly carry the meaning of first-person involvement. This is expressed for instance by the Greek Orthodox Church when it declares that the meaning of biotechnology should be found not only in the ethics but in 'bio-spirituality', since at the end, the ethical is

9 http://ue.eu.int/ueDocs/cms_Data/docs/pressData/en/ec/00100-r1.en0.htm.

> whatever maintains the operation of the self-governed inside of us, whatever preserves the harmony of our psychosomatic balance and whatever evokes the need of God and the feel for eternal perspective in our lives. (Hatzinikolaou[10] 2002, as cited in Zorbas 2005)

Similarly, the Balkan Network, bringing together a variety of groups opposed to GM food from Balkan regions (Kanellopoulou 2006), including Greenpeace, OTOE, EFET, GSEE and the Prefecture of Thessaloniki, stressed in its November 2005 declaration:

> The movement against GMOs is the expression of a moral choice of citizens, institutions and organisations with innocent motives and goals. It objects to the degradation of human values, to the abuse of scientific knowledge [which does] not take into account common interest.
>
> We are all committed to provide to the coming generations the heritage of a rich variety of seeds, plants and animals. The distribution of GMOs in the environment threatens food safety and environmental sustainability of the whole planet.
>
> We call citizens to take this matter into their hands (www.gmostop.org)

Not least does "ethics" as the first-person perspective appear in the figure of the conscious consumer, taking responsibility for his or her health as well as the environment through buying food that is labelled as free of GMOs.

Consumer consciousness plays a prominent role in the **food scares** case too. In fact, what we find here is the co-emergence of a decisively ethical layer of governance and a shift from a formerly segmented to a more comprehensive approach. We see a twofold integration process that took place in response to the dislocatory power (see chapter 1) of the BSE crisis. One of these integration processes connected the formerly segmented policy areas of public health, agriculture, environmental politics and animal welfare; the other connected public policy in these policy domains and individual lifestyle and, in fact, lifestyle ethics, collective responsibility and individual responsibility for oneself *and* the environment and the animals. The new discursive mechanisms that fostered this twofold integration process were the conceptualisation of a horizontal food chain and the associated coining of the "farm to fork" metaphor.

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[10] Hatzinikolaou (Harvard & MIT Ph.D. in HST, Biomedical technology, current Metropolitan [Mitropolitis] Nikolaos) has been a member of the Bioethics Committee of GSRT, the chair of the bioethics committee of the Greek Orthodox Church, as well as other bioethics committees.

'Farm to fork' as the EU institutionalised view on food safety

Central principles underlying the General Food Law are the concepts of 'traceability' and 'food operator responsibility'. The notion of traceability pertains to the idea that all those involved in the production, processing, dissemination and otherwise handling of foodstuffs ("food and feed business operators"), must make sure that all foodstuffs, animal feed and feed ingredients can be traced right through the food chain 'from farm to fork' (i.e., from the farming sector to processing, transport, storage, distribution and retail to the consumer). Each business unit (producer, processor, importer and so on) must be able to identify the businesses it supplies or is being supplied by. This rule-of-thumb incorporated in the General Food Law became known as the 'one-step-backward, one-step-forward' approach.

The metaphor of the 'food chain' had already a long-standing history before it assumed a new meaning in the context of food scares. The old 'vertical food chain' metaphor referred to the *hierarchical* relationship between animals and men as a source of proteins and other nutrients. In that biological reading, it had gained considerable weight in conveying the detrimental effects of pollutant accumulation ('PCBs from plankton to ice bear'). Under the influence of BSE and other food scares, notably including GMO-related discussions, the metaphor not only became a key concept in the framing of food issues but also took on some entirely different meanings, referring to the *horizontal* linkage of producer to consumer. Discourse analysis on the basis of a newspaper data set for the three countries under investigation in the food scares project indicates that this novel meaning entered the scene between 1996 and 1998 in the context of the erupting BSE-crisis. The new interpretation of the phrase rapidly gained momentum in the following two-year period. An example of the concepts new use is the following quote from a spokesman of a leading firm:

> To have the food chain entirely in our own hands, so as to restrict risks to a minimum. That is the gig wish for the cattle- and fish feed company Nutreco. The recurring feed scandals, with the dioxin crisis as a recent all-time-low, have made the firm even more aware of the need for that. "It is more than a desire", replies Antoon van den Berg, director of Nutreco's animal products division, "it is our basic philosophy. The super-market chains are strongly pressurising us to supply safe food. Food of which the origins are clear, which is traceable back to all suppliers. Our customers demand that, so that is what we do. To link the farmer to the consumer is therefore our task". (*Trouw*, 31 December 1999)

Thus the metaphor of the food chain transformed from a depiction of vertical, hierarchical bonds between species, to an image of horizontal, interdependent ties between economically and organisationally separated units; a collection of units which is, please note, amenable for control.

Among the issues that came to be re-framed in line with this new chain metaphor and thus came to be linked to food safety were topics such as the environmental implications of agriculture, risks in terms of an individually defined, 'bodily' safety and animal welfare.

This 'leap' from a concern for the body to a concern for nature surrounding the human body is reflected in the institutional redesigns in regard to food safety control as described in chapter 2 (e.g., the linking of the Food and Consumer Product Safety Authority [VWA] to the Dutch ministry of agriculture). Another indicator of these dynamics is that a safety control system that had been elaborated by retail companies (the hazard analysis critical control points; HACCP) was made obligatory in three successive stages for an increasingly larger part of the horizontal food chain: in 1990, it was formalised for the entire retail sector; in 1995, it was made obligatory for the food-processing industry as well. Under the influence of the EU General Food Law, it was also made the standard hygiene code for slaughterhouses. At the time, voices were raised that pleaded for a compulsory adoption of the HACCP system in the primary sector too. That has not yet been formalised, but quite a number of farmers already organised their quality control practices on the basis of this system.

The HACCP system, originally developed the context of space exploration, entails an assessment of every stage in a production of handling process, detailing for each of the 'critical elements', i.e., those aspects of that stage or step that are prone to failure. On the basis of this assessment, for each element safety measures are elaborated. The associated control system subsequently is a systemised check on whether all steps and stages and all precautionary measures (e.g., production workers wearing hair nets or white coats in certain stages of the production process) are implemented. Supermarkets and other larger retailer businesses in Europe adopted the HACCP as its standard system for quality and hygiene control.

The new farm-to-fork metaphor opened up a qualitative jump towards considering the ethical aspects of agricultural production, addressing the different steps of food production, food processing and consumption as a series of intersecting *practices*. In addition to being entrepreneurs producing agricultural goods, the metaphor attributed a new identity to farmers namely as producers of *food* (rather than of agricultural produce). In this role, responsibility for public health issues is put onto farmers as well, an assumption on which new regulatory practices, for example, making the sector responsible for controlling its own compliance with safety regulations, came to be built. Further, the new discourse also draws the consumer in an active role into the economic chain of food production. It adorns him or her with an identity as citizen, to be held responsible on moral grounds for the ethical aspects of the production of his or her food. The ethical

discourse draws on non-utilitarian conceptualisations of the relation between human and animal, as well as on an understanding of the physical world as vulnerable and in need of protection. Issues such as animal welfare, environmental care and integrated rural development as a consequence got emphasised as topics for deliberation even in arenas traditionally focusing on the rationalisation of agricultural production, such as in the EU CAP and at the level of agricultural policy of member states. In a letter to Parliament, the Dutch Cabinet expressed its position in these matters in almost biblical terms:

> The earth and nature have been bestowed on us; we may make use of these in order to live prosperously, healthy and safely. Yet we will have to pass her [*sic*!, intended is 'the earth'] on to subsequent generations, for them to live too prosperously, healthy and safely. In view of our fellow men [naasten] and generations that come after us we carry a responsibility. The earth has been given to us to manage [beheren], to labour and to keep safe [behoeden]. Sustainability and stewardship are all about here and there, about now and later (Letter of the Dutch Cabinet to Parliament, 4 June 2005)

On another occasion, the Dutch agricultural minister posited that "the consumption of food is a moral act."[11] These views seem to mirror the views on food that have informed the recent meat-related legislation on the level of the EU. As voiced by the former European Commissioner for Health and Consumer Protection and Food quality, David Byrne: "The three key issues highlighted [here] – 'Safe, Sustainable and Ethical' – must be central to our whole approach to the food chain, whether in the primary production sector, the food processing sector, the distribution chain, or even at the final preparation and consumption phase."

The traditional rationalisation discourse on agriculture (the very same Dutch agricultural minister on an other occasion was heard stating that "agriculture is an economic sector just like any other" [WP5 interview September 2006]) which had been dominant in pre-BSE days certainly did not

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[11] "[M]inister Veerman zegt namelijk dat het 'Consumeren van voedsel een morele daad is'" (Speech of the Minister of Agriculture, dr. C. P. Veerman, given on his behalf by R.M. Bergkamp at the inauguration of the international president of Euro-Toques, 23 January 2006 Maastricht).

vanish; however it was challenged by a new competing ethical discourse that contextualized agriculture as a series of practices intersecting with a "chain" of other practices.[12]

The emergence of an ethics discourse on agriculture, as we have seen, can be understood as the manifestation of a more comprehensive and contextual view on agriculture, understanding it basically as a form of *practice* that may have certain effects and as such requires someone who is responsible. Similarly, work package 5 shows that the meaning of **nature conservation** has undergone a series of transformations throughout its history, also implying a tendency from reductionist to comprehensive views and from a utilitarian to a moral stance towards the issue.

The genealogy of modern nature conservation

(a) The fact of human-caused extinction, as a 'piece of knowledge,' or 'matter of fact' (in Foucault's 1972 terminology, 'savoir'). The fact of extinction in the history of life arose within palaeontology in the 18th century and triggered fierce religion-driven controversies (Mayr 1982:347–349). Darwin's breakthrough finally settled the issue about the reality of historical extinctions; in *The Origin,* Darwin write a four-page section titled "On Extinction." The awareness that humans can drive species into extinction is a late-19th-century phenomenon, by and large. The "community" of colonial hunters provided clearly one important germinating ground for this concern (Adams 2004).
(b) Utilitarian conservation. A purely utilitarian perception that the productivity of nature requires active maintenance and care has ancient roots in some ways, but as a more systematic attitude in the West it derives from the early 19th century – again, it seems that experience from outside Europe took the lead (Judd 1997; Wynn 2004; Grove 1997). It seems plausible that the colonial experience produced some sort of "moral ecologies" that included an incipient understanding of the significance of nature for livelihood; nature as 'given,' as something to be cherished, not as something to be 'conquered'. This utilitarianism has had an antithesis which has been in a dominant position until very recently: the perception that the human duty is to dominate the rest of nature.
(c) The Romantic Movement. The romantic view of nature had strong connections with nationalism in various countries – in Finland, for instance, in a particularly strong form. Nationalism and nature conservation got into positive interference with one another: protecting native species became to be equated with cherishing the national cultural heritage.

[12] The discourse-analysis on the basis of the newspaper data set indicates that there are considerable differences in this respect between the UK, the Netherlands and Germany; the ethics and environmental discourse is much less developed in Germany and much more in UK.

(d) New moral sensibility concerning other living creatures. "Nature is our friend" was a slogan in popular education that gathered momentum form the late 19th century on. It marks the birth of new subjects vis-à-vis nature. For instance, since 1870 societies for the preservation of songbirds have sprang up in Finland (Vuorisalo et al. 1999). Changes in moral sensibility in Greece are reflected in initiatives by the Hellenic Mountaineers Club, which in the early 20th century pressured the Greek state to create a law on national parks and at the end of the Civil War established, along with others, the Hellenic Society for the Protection of Nature (Kousis 1995:285).
(e) Human biospheric dependence. This perception has roots that go back to the late 19th century ("biogeochemistry", "biosphere"), but the biospheric perspective as such was launched in Euro-American ecology in the 1950s. An early promulgator of the view was the polymath Alfred Lotka, one of the founding figures of modern population ecology, who viewed it like this: "(W)e are far removed from equilibrium – a fact which is of the highest practical significance, since it implies that a period of adjustment to equilibrium conditions lies before us, and he would be an extreme optimist who should expect that such adjustment can be reached without labor and travail" (Lotka 1956:279).
In other words, Lotka's point of reference was not a stable "balance of nature" as the wording might suggest, but rather a dynamic, temporally shifting steady-state.
(f) Biodiversity as a normative principle. The goal of biodiversity preservation establishes, or aims at establishing, a direct continuum from ecological knowledge to a firm action plan; this is 'co-construction' in Jasanoff's (2004) sense. Perhaps the dynamics come from the fact that scientific questions and governance questions are phrased and framed in similar, even identical, terms. Biodiversity is a powerful attractor both in the political and in the scientific, knowledge-producing sphere (Haila 2004).

The concern over nature conservation as such is clearly *normatively driven*; it is a field of knowledge in the sense of *connaissance*, as distinct from *savoir*, to refer to Foucault's terms, and at the same time a field of practices, comprising governance practices. In order to come to terms with the specific nature of the challenges modern conservation poses to governance, as work package 5 demonstrates, we have to understand the specific intersection between uncertainty, normativity and the need for action. The point is that defining specific, strict standards for nature conservation within the comprehensive paradigm is very complicated. The search for standards bifurcates into two directions: large-scale/health of the biosphere and small-scale/biodiversity/ continuation of the processes of life everywhere. Neither of these can provide specific normative standards.

Scientific knowledge-practices play an essential role in the governance of endangered nature. Hence, at some moments science is close to '*savoir*,' in the sense of documenting relevant matters of fact about the ways human actions are threatening other creatures of nature. Yet, on the level

of system of knowledge, an essential transition took place in conservation biology with the modification of human-caused extinction threat from target-specific concept to a statistical concept (Haila 2002a, 2004). This transition brought about unexpected problems for the development of thinking within the discipline of conservation biology because demonstrating extinction empirically is well-nigh impossible, so one must resort to indicators and surrogates of various sorts (*area* remains the single most important), but using such indicators and surrogates as arguments in policy advice opens up new problems (Haila 2004). This has given rise to efforts to formally quantify extinction risks (Burgman et al. 1993, Akçakaya & Sjögren-Gulve 2000), however, as we have seen with respect to the concept of risk in the context of genetic testing (see chapter 3), risk is a *probabilistic* concept. Even the most well-refined indicators, surrogates, statistics and scenarios trying to quantify the risk of extinction can never produce positive, 100% reliable knowledge but just probabilistic prognoses. Hence, comprehensive conservation, actually quite parallel to genetic testing, displays a built-in element of epistemological and practical uncertainty: it does rely on knowledge, in fact on an expansion of knowledge, but knowledge takes the form of probabilistic knowledge, leaving those who rely on it with a series of decisions to make. At the same time, the very idea of conservation implies the perceived need for action, the need to act to prevent further extinction, hence the need for action in the face of inescapable scientific uncertainty. There is a need for action, but scientific knowledge does not provide clear standards for such action. Actors, thus, are left with the need to make moral judgments oriented by normative standards they themselves have to find. The moment of ethicisation in the field of nature conservation does not least stem from this predicament.

There is another twist to the story. A statistical concept of extinction is politically and culturally significant for the following reason: it lifts the risk of extinction away from specified targets – species, sites – onto an abstract level. The threat of extinction is everywhere present, no matter whether it can be actually demonstrated or not. The fate of Amazonian rain forests and the myriad species living there is continually present in the cultural consciousness of the European public. It would be difficult to overemphasize the significance of this fact for current European conservation controversies. This process means that nature conservation gets a new ethical dimension, grounded in the global worry of the viability of the biosphere. This brings about a dynamics of *ethicisation* of conservation in the sense that the older normative grounds are complemented with a new, global ethical sensibility. The new globally grounded ethical framing supports the significance of knowledge in this field.

Not least, in conservation issues, knowledge is explicitly normative through the question, What to preserve, and why? This is at the same time a scientific question and a governance question. Merged together, the scientific question and the governance question lead automatically to a search for norms, and in search for norms actors often tend to turn to "nature" for guidance because nothing else is available, in other words, they tend to reconvert "matters of concern" into alleged "matters of fact". In an extreme form, this inspires scientists to try to define a particular state of nature at a particular point of time in the past as a model to be imitated. The following is a representative citation from a prominent source in conservation biology:

> Conservationists must make two key decisions. First, they must decide which time in the past should serve as the reference period. Second, they must assess the probable ecological conditions that existed in the area at the time. (Orians & Soulé 2001:6–7)

The selection of *which* "facts", however, should serve as normative criteria, is itself a political decision. Hence, the intersection of a comprehensive approach, scientific uncertainty, and the dynamics of ethicisation brings forth the question of universal normative background with a new force. The question is: Can the past serve as a normative basis? We will come back to this point when we discuss the temporalization of governance in chapter 5.

Another aspect of the phenomenon of ethicisation is the growing number and the influence of national bioethics commissions or other types of ethics bodies on the governance of life. We will look into this phenomenon in chapter 5..

5. Participation in the co-production of regulatory knowledge and political authority

Two premises were put centre stage in the theoretical debate on which the PAGANINI project is set up: it builds on the premise that there is a quality to the politics of life that links it to civic participation and it builds on the premise that scientific authority and political authority are 'co-produced' (cf. Jasanoff 2004). The idea was that life-political issues take shape through the

production of knowledge in a way that is inseparable from their articulation as political controversies. Indeed, the empirical findings bear witness of this 'interwovenness' between science and politics in practice (see above). What is interesting is that where the cases disclose instances of 'participatory governance' – which the project set out to investigate – these involve without exception both participation in knowledge production and participation in the production or disruption of political authority.

In Part I (based on work package 1; Loeber et al. 2005) it was argued that a definition of 'participatory governance' as "the practice of consulting and involving members of the public in the agenda-setting, decision-making, and policy-forming activities of organizations or institutions responsible for policy development" (Rowe & Frewer 2004) might fall short of covering the varieties of practices in which actors (state and non-state actors, scientists and lay people, citizens and consumers, and so on) jointly aspire to govern unruly public problems. When politics is understood as a struggle over meaning and the allocation and prioritisation of values that comes out inter alia *in* technologies, or in, say, scientific and medical practices, the notion of 'participation' is stretched beyond its limits and the above definition is rendered obsolete. Starting from such a broader understanding of politics and participation, other questions can be asked such as, What is it exactly that a public participates in? How is 'the public' constructed? In relation to what and by whom?

Our case studies have confirmed that such a more complex approach to the question of participation is indeed called for and justified. From the case studies it transpires that, first, political participation cannot and should not be reduced to participatory governance *arrangements*. Participation, in both knowledge production and political judgement and decision making, takes many different shapes and is practised at very different sites, governance arrangements being only one such site. Second, the critical questions concerning such participatory governance arrangements cannot and should not be reduced to questions of inclusion and exclusion. Going beyond such questions of inclusion and exclusion, we rather want to ask:

- *Who* invites non-state actors and *why*? What is the context?
- Who actually is "the public"? *Which* public? Who counts as "the public"? How is "the public" constructed and what are the specific assumptions that underlie these constructions?

- *What* is it exactly that a public participates in? What counts as a "political" issue open to participation, and on the basis of which understanding of politics? How is the political constructed in these arrangements? Does it comprise questions about the nature and desirability of the present societal order, or is it restricted to questions that can in principle be answered within the existing regulatory schemes?

Viewed from this broader perspective, the case studies display a broad range of different face of political participation.

Participation in knowledge production

Participatory knowledge production takes rather different forms among the cases we studied. In some cases it forms part of the policy issue at stake, in other cases it forms part of governance strategies developed to cope with the issue, and in some cases it is part of both. Let us explain what participatory knowledge production means in the different case studies.

In the case of **embryonic stem cell research**, knowledge production directly relies on people getting physically involved in research practice: there could be no hES cell research without women being ready to donate oocytes or couples agreeing to donate their "surplus" embryos to this field of research. Somatic cell nuclear transfer (SCNT), the technique better known as "cloning", in particular, could not be done without large-scale donations of human egg cells. This fact has given rise to some public concerns that stem cell research could lead to a new exploitation of women's bodies or to anxieties on women selling their oocytes.

Thus, the readiness of women to donate their egg cellsor to couples to donate the embryos that have been produced from their gametes forms a crucial strategic precondition for this research to be continued. Once pharmaceutical and therapies have been derived from this research, it additionally relies on human subjects to invest their fleshy bodies in clinical trials. In other words, whereas formal participatory arrangements are scarce in the field of human ES cell and cloning research more downstream, upstream participation and lay involvement in the very process of crafting science is abundant.

Therefore, a positive attitude towards this research, motivating people to get physically involved, is of crucial strategic importance for knowledge production in this field. At the same time, this fact has given rise to some unease and concern in the public which forms part of the policy problem too. This leaves governance with a twofold and potentially contradictious challenge of ensuring the supply of body materials but also protecting citizens from getting exploited.

Knowledge production in the field of **genetic testing** relies on "involving the public" too, albeit in a different way. As has been pointed out in chapter 3, the vast share of research and development concerning genetic testing is done in the sector of multi-factorial diseases, not on monogenetic diseases. Research into the genetic aspect of multi-factorial diseases, both through epidemiological studies and the search for biomarkers, requires a large- scale involvement of *healthy* people, people who do not or not yet have developed the disease under study. Research on complex, multi-factorial diseases thus is dependent on the participation of huge numbers of people, providing data which may or may not be useful to study a certain disease. In chapter 5, we will show that in the policy area of genetic testing, as well as in many other areas under study in the PAGANINI project, notably the areas of genetically modified food and food scares, we can observe a certain "participatory shift" in governance that has taken place in the recent one or two decades. In the field of genetic testing, the participatory shift in governance bears a remarkable "family resemblance" to the "participatory shift" in research. It is our contention that more is behind this parallel than just coincidence; the two participatory shifts are linked by the growing significance of lifestyle, lifestyle ethics and people's feelings concerning the test and its results and for genetic testing as a future market and a branch of research. Within the new, systemic and more complex genetic paradigm that tends to supersede the older, linear, monogenetic paradigm, the "speaking subject", that is, the actual *or potential* patient or user of a genetic test speaking about his or her live, lifestyle, feelings and attitudes is a potentially valuable source of knowledge concerning the functioning of genes and genetic tests.

There are several social spaces where such speaking is incited and takes place. One of them is counselling, guided by ever more sophisticated "non-directive" and "communicative" counselling concepts (Samerski 2002; Vieth 2004). For example, Alison Lashwood, consultant nurse at the biggest UK PGD clinic, explains that counselling is a rather therapeutic, comprehensive communication that by far exceeds the aspect of conveying information about the medical procedures and the risks at stake:

> We spend a lot of time discussing PGD with couples before they undertake it. And the things we want to talk to them about it: What is the background, what has happened previously, so that we can understand where they are coming from, why they might be asking for this and why they think, PGD may help them. (Lashwood, 2006)

The knowledge produced in the counselling setting also has a certain relevance for regulatory practices, in particular in the UK where the social and psychological situations of a family or couple requesting PGD are in fact the main criteria for evaluating the "seriousness" of a condition and thus for approval or disapproval of their demand. Again, the consultant nurse Lashwood explains:

> The severity of a condition, the conception of this, may vary tremendously from family to family. It is not enough just looking at a situation of a child with a genetic disorder without looking at that within the context of the family, the family experience, what has happened before, how many children this couple have. (Lashwood, 2006)

Hence, scientific facts about a genetic disorder are viewed and evaluated in the context of subjective perspectives and feelings (Interview 17-3 2006). When the HFEA refuses to set up a catalogue of genetic disorders considered "serious" enough to justify the use of PGD, it argues in a similar vein. Just as genetic factors are seen to form only one type among other types of factors causing disease, genetic facts form merely one element that must be taken into account among a multiplicity of other factors, all of which interact with one another. Hence, we see a "systemic shift" on the level of counselling too, just as on the level of genetic knowledge production. The implication of such a systemic paradigm, however, is that it does not allow for a stable, long-term regulation, based on fixed categories, only for rather flexible case-to-case decision making which displays an inherent tendency of expanding the indications for PGD.

In some sense, participatory governance arrangements and experiments also provide an opportunity for inciting speech about life, the complex interactions between social, emotional and genetic factors of diseases and about the social and psychological context in which people apply a test and make sense of its results. At the youth conference in Leipzig, for instance, dealing with such social and psychological aspects of the test figured prominently among the topics; the youth groups emphasised the need for reflecting on what would be the best practices of counselling, and a considerable part of the catalogue of demands the young people developed referred to adequate ways to address the fears, concerns and needs of women confronted with the possibility of antenatal testing. Patient panels also provide an arena where individuals are

invited to speak about their personal relations to a genetic disorder, the test as such and its results, and public consultations on topics such as PGD, sex selection via genetic testing, or testing for late-onset disorder. Patient panels invite participants to imagine themselves as being potentially afflicted by a certain genetic disorder and to speak about their attitudes. Thus, personal speech about "genes in context" plays an important role in knowledge production, regulation and participatory governance arrangements, and we can observe a participatory shift on many different levels.

Taking a closer look at the **GM food** controversy, we find that participatory knowledge production has taken place to some extent in the context of the National Seed List Hearings held in 2000 and 2002 over the GM HR Maize variety Chardon LL (T25). These hearings formed not only newly politicised arenas of political participation but also for participatory knowledge production. In fact, they provided an opportunity for a participatory intrusion that commented on, challenged and changed the science, a hybrid space in which participatory knowledge production *was* a powerful act of political participation. Interestingly, as we will show in chapter 5, the "GM Dialogue" was launched as a response to this type of "wildcat participation". The GM Dialogue provided formal opportunities for civic participation; however, these were opportunities in which science and politics, knowledge production and political participation would be re-separated from each other, and public values and scientific facts would be chaperoned by panels of experts and permitted to make no unconstitutional liaison.

National Seed Listing

Following an early EEC directive (70/457/EEC), the sale of a new variety was prohibited unless it was included in the EEC Common Catalogue and National List. This was originally aimed at securing minimum standards of seed quality, and the legislation predates the GM controversy and applies to all varieties not just GM ones. Under this directive, statutory tests and trials are required to demonstrate that new varieties are 'distinct, uniform and stable' (DUC), have 'value

for cultivation and use' (VCU) and represent an improvement on existing listed varieties. Seed listing constituted the last stage in the regulatory process and follows the granting of marketing consent under the GM Deliberate Release Directive 1990/220.

In March 2000 the addition of the genetically modified product Chardon LL T25 Maize was proposed to the UK National List, marking the final part of legislative clearance for that variety. This gave another alarm signal to those opposed to GM plants that, despite the commercial moratorium during the farm scale evaluations (FSEs), the introduction of the technology was still moving forward with government approval.

Farm Scale Evaluations

In June 1998 the industry launched SCIMAC (Supply Chain Initiative on Modified Agricultural Crops), which advocated the managed and regulated introduction of GM Crops, in co-existence with conventional and organic agriculture, and supported the labelling of GM products for the consumer. On 5 November of that year, the UK government announced a voluntary agreement with SCIMAC for a moratorium on commercial GM plantings and a programme of Farm Scale Evaluations (FSEs) of four GM crops, which would be compared with non-GM crops for their effects on wildlife biodiversity.

But a latent power existed under the National List legislation for members of the public to demand a hearing and examine the evidence for the "distinct, uniform and stable-criterion" (DUC) and the "have 'value for cultivation and use'-criterion" (VCU) of a variety. Prior to Chardon LL, objections to seed listing were rare and there had never before been a request for a public hearing. With this new GM variety, however, there were 223 written objections, including 67 requests for a public hearing. Interestingly, these hearings had been bequeathed a structure that went beyond usual consultation mechanisms and allowed for what amounted to a two- or three-stage representation and appeals process, including written representations, cross examination, a hearing, and an additional tribunal.

At the hearings one of the first problems to emerge was that the DUV testing had been carried out over only one year, rather than the statutory two years required by the EU Directive. Thus the £500,000 hearing had to be delayed until 2002. This enabled Friends of the Earth to claim in a 2000 press release:

> This fiasco has only come to light because Friends of the Earth and ordinary members of the public forced the Government to hold a public hearing on the listing of this GM seed.

> Only a week after the BSE report was published, we now find that the minimum official testing of this crop has simply not taken place. If the hearing had not happened, this vital information would never have come to light and the crop would have been given official approval.

In this case, wildcat civic participation, in a way, made sure that knowledge production, namely producing knowledge about DUV, took the adequate time and was conducted appropriately at all.

In the hearings the tests carried out for the GM Maize were scrutinized and cross-examined by coalitions of NGOs and a host of dissident or independent scientists. The outcome was a succession of exposures of uncertainties in the science and inadequacies in the tests undertaken, some of which were acknowledged by the chair of ACRE (Advisory Committee on Releases to the Environment)[13]. Hence, dissident civic participation produced knowledge about the nature and the potential effects of GM plants in their future environmental context that would have been unavailable without these interventions.

In contrast, in the case of **food scares,** participatory forms of knowledge production were designed in response to the dislocations caused by the BSE event. The idea underlying the British Food Standard Agency (FSA) approach to consumers being on scientific committees is that this representation helps gear the production knowledge to the particulars of a problem in a specific place and time. That is imperative because a complicating factor in food safety control today is that globalisation and societal differentiation render "the" consumer no longer, if it ever was at all, a meaningful construction. Remarkably, this comes at a time in which "the consumer" has been attributed increasingly more importance. The adoption and formalisation of (initially private-sector-based) regulation, similar to the new labelling regime in the case of GMO, has attributed to consumers the identity of risk managers, on a rational basis (a declaration of contents in detail on products is considered basis for "correct" decision making on consumption). That role complements the consumer's attributed role and identity discussed previously, namely that of a moral actor responsible for guarding the welfare of animals (that end up on his or her plate), the environmental aspects of foodstuffs etc.

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13 Professor Alan Gray on *Farming Today*, BBC Radio 4, 27 April 2002.

The category of "the consumer" itself has undergone diversification (Loeber 2006). Consumers are endowed multiple rationalities and identities depending on place, time and specific context. To regulatory science and risk-control practices, it is a complicating factor, as risk is now conceptualised as a resultant of a specific combination of food-based pollution with specific consumer-related characteristics (e.g., age or genetic disposition) and group-related consumption patterns and ways of life. The 'multiple consumer' implies the need for a diversification of both risk communication *and* risk assessment. The latter is a complex challenge, as risk is traditionally conceptualised in relation to a 'universalised' population rather than as a trait inherent to a particular quantity and quality of food products,

In short, with the institutional innovations that followed the government's responses to the BSE event and other food scares, extra-scientific factors and contributions by non-scientists play a larger role in agricultural knowledge production in the area of food safety. Hence to some extent, we see a more contextualized and more localized knowledge production coming of age in addition to the 'sound science' approaches to policies of establishing the safety of food.

Concerning **conservation** as both a system of knowledge and a sector of governance, we find that participatory knowledge production plays a crucial role here too. Participatory knowledge production, in fact, forms part of implementing conservation policies. The protection of both the flying squirrel and the loggerhead turtle has given rise to specific knowledge practices. This includes assessing the total population size and activities that require more specialized skills such as surveying the squirrels and monitoring the nesting cycle of the turtles. Semi-professional nature surveyors are specializing on squirrel surveys. They develop specific embodied working practices. Volunteers participate in the monitoring work at the nesting beaches of the turtles.

The need to answer the question of squirrel presence vs. absence has given rise to new knowledge practice. The extremely secretive habits of the flying squirrel set considerable challenges to the skills of surveyors. The new nature surveyors were usually biologists by education and hired by planning and consultant offices, municipalities or governmental agencies. Some larger cities such as Tampere have had suitable people among their own staff. After specific training, an increasing number of forestry professionals have learned to command the surveying methodology.

In our field work we found out that personal, local and embodied experience plays a big role in surveying flying squirrels. The embodied style of collecting ecological data by the surveyors is based on a special kind of human-animal relationship. The surveyors are trained in surveying flying squirrels using the behaviour and habits of the animals as cues, by experiencing and learning weak signals and different combinations of them, by working in different areas, in particular, by learning the contexts of droppings which are variable but also have invariants which the surveyors are able to sense and record.

In the turtle case, volunteers have an essential role in guarding and monitoring the nesting beaches. One could argue that knowledge needs concerning the conservation of *Caretta caretta* are not a complex issue, since tracking the animal's nesting behaviour is a clearly visible process. Nevertheless, the production of scientific knowledge, especially the part concerning survey data, the debates built around this knowledge by experts and non-experts, as well as the applications and use of the knowledge have been major issues when discussing the protection of this species.

> Turtles have a big circle of life with an adulthood age at 25 years old. . . . They may not appear at the nesting sites to nest their eggs on an annual basis. For this reason, we need at least 25 years of surveys to make conclusions about their population.(Interview 18b-4, 040706 & Interview 19b-4, 050706)

This work is done to a large extent by NGO volunteers, mainly foreign students, who are trained by NGO scientific experts to follow NGO scientific instructions and aims – which has given rise to some criticism among local people. Some locals raise doubts over the validity of the records and the data of NGO-led scientific surveys, since these are produced by one and only body, namely Archelon, also known as the Sea Turtle Protection Society (STPS).

Archelon (or, the Sea Turtle Protection Society, STPS) is an NGO that since 1982 maintains its role as the basic surveyor of *Caretta caretta* in Zakynthos and since 1984 in the rest of the turtle's nesting areas in Greece. This is usually done through research projects which include tagging of the nesting females on the nesting areas, or assignments. Archeron's continuous scientific inputs are of vital importance for the production of knowledge, the validity of the data, as well as the adoption and implementation of the appropriate conservation strategies. Thus, state bodies, NGOs and scientific agencies rely heavily on data from STPS surveys, which are carried out following standards applied by an international community of experts. Official data banks are mostly focused on geographical nesting information, classification and boundaries, specific

estimation and records of the number of the nests and the average hatchling and adult population at the age of reproduction. [AU: Is this series correct? Please revise if not.]
The permission for the surveys is given to Archelon by the Ministry of Agriculture. At the end of each nesting season, specific reports with the scientific results are sent to the MA on behalf of the NGO. The data are available to be taken into consideration when needed, most likely for steps to be taken in the next nesting season. The Ministry of Environment is also informed about the results (interview 19b-4, 050706).

A nationwide survey on the nesting sites in Greece during the 1980s allowed for the identification of nesting areas and led to the establishment of permanent monitoring and nest conservation projects in the six most important areas, i.e., the island of Zakynthos, Kiparissia and Lakonikos on the Peloponnesos and Rethimno, Chania and Messara on the island of Crete (Irvine, Margaritoulis, Arapis, 1999). Based on nesting data from several seasons, the significant nesting areas in Greece were classified as 'major' or 'moderate'. 'Major' nesting areas are defined as those hosting on average more than 100 nests/season and over 6 nests/km/season. Five areas in Greece fulfill these requirements: the Laganas Bay, Kyparissia Bay, Rethimno, Lakonikos Bay and Bay of Chania. The Bay of Messara and Koroni are considered as 'moderate' areas (Margaritoulis & Rees 2003).

In both the squirrel and the turtle cases, the need to get reliable records on the location of the breeding sites and resting places of the animals has given rise to new knowledge practices. In the squirrel case, a semi-professional group of surveyors are in charge of the data collection, in the turtle case, NGO volunteers produce a huge amount of the knowledge needed to implement conservatin policies. Knowledge production takes place not in the lab or in the office but out in the forests and on the beaches where it is done by a mixture of scientists, non-scientists, prospective but not-yet scientists (students), professionals, semi-professionals, and volunteers. Thus, we can speak of participatory knowledge production in this case too.

As has been laid out previously, participation in the politics of **human embryonic stem cell research** largely took the shape of "conventional formal modes of participation" (the referendum in Italy on Law number 40/2000) and of "conventional informal modes of participation" (public debates on stem cell research in Germany and Italy). New participatory governance arrangements, however, hardly played any role at all in this issue area. In contrast to such formal governance arrangements, the public debates in Germany and Italy had not been

state-initiated. Neither have participants been "invited" by government institutions. Rather, participants in these debates were "self-selected" or "self-appointed" and as such usually entered the debate from a "partisan" position, promoting their respective cause. Hence, participation and public involvement here have an essentially *antagonist* structure. The same holds true for the debate on GM crops and to some extent the debate on genetic testing; however, institutional responses differ. In the field of stem cell research, the most common government response to this antagonist structure was to turn to an existing bioethics commission for advice, to establish a new one, or to do both. This was what happened in Germany with the Parliamentary Study Commission on Law and Ethics of Modern Medicine (prior to the conflict) and the National Council on Ethics (newly established).

In contrast, in the case of the GM controversy and the issue area of genetic testing, participatory governance arrangements were at times set up by state institutions precisely to counter and mediate this adversarial form of public involvement.

The debate on **GM crops** both in the UK and in Greece in fact took a rather antagonist form. In Greece, though, state agencies made no formal attempts to involve lay publics. Greece exemplifies a group of GM-contending member states in its broad pattern. Unlike the UK, the antagonist structure of the Greek debate refers to a confrontation not between NGOs and part of the public and the government but to a confrontation between an alliance between environmental NGOs and the state on one side and multinational corporations and the EU on the other. Consequently, the stance Greece took was characterised by a discourse of the policing of national borders. It invoked Article 16 to ban EU-permitted GMOs from its territory, and, led by scientists who were aligned with environmental, precautionary discourses, developed a range of bio-precautionary institutions to detect GMOs in food, feed and seed. There were some slight vacillations on the part of the government, but any attempts to move towards more pro-GM positions intensified grassroots and NGO actions.

Participation in the Greek case was confined on the one hand, to multi-level mobilisations and pressure created by coalitions of environmentalists, local authorities, farmers' associations, consumers, scientists' unions and others, and on the other, to the rather close, yet informal relationship since the mid-1990s between environmental NGOs, such as Greenpeace, and political ecology groups, with the PASOK government in the setting of biotechnology policy agendas and the policing of Greece's borders against GM plants and food.

Opposition against GMOs in Greece endured throughout the 2000s when wider grassroots action against GMOs were taken. Towards the end of 2003, under the initiative of 'Thessaly Citizens of the World,' the Greek Social Forum and a few other groups, the first anti-GM network meeting took place in Trikala, with the participation of environmental, social, consumer, scientific, professional, agricultural and local government groups (Kanellopoulou 2006). In February 2004 the Panhellenic Movement against GMOs (*Panelladiki Kinisi kata ton GTO*) was founded as a grassroots, anti-GM network, with the participation of 142 bodies, including environmental NGOs, scientific unions, farmers' organisations (both organic and conventional), municipalities, one labour union, food producers and retailers, women's groups, consumer organisations, church bodies and political movements. Particularly striking was the alliance between the traditional rivals of conventional farmers' organisations and environmental NGOs. As their resolution from this panhellenic conference-assembly shows, participants were as concerned with political-economic issues, such as the role of multinational companies and the effects of genetic patenting, as they were for purely environmental issues centred on risk and uncertainty. Hence, we find a huge amount of what we termed "conventional informal participation" in Greece in the issue area of GMOs. A broad range of civil society actors were engaged in a conflict that took a rather antagonist shape, though the adversary of these actors was not so much the national government but multinational biotech corporations and the EU insofar as it was perceived as acting on their behalf. Unlike that of the UK, the Greek government did not feel it was necessary to canalise this adversarial form of public (self-)involvment into official participatory fora.

As to the UK, we have already pointed out in chapter 5 how the National Seed List hearings had unexpectedly turned into fora of what we have termed 'wildcat participation'. These hearings formed newly politicised spaces, but they were not the only ones. Other spaces which had originally not been designed as arenas of political participation got newly politicised too, ranging from supermarkets, farmers' fields, village halls, Magistrates and Crown Courts, to beekeepers' conventions. Public involvement or participation in these spaces can be classified as partly "conventional informal participation"; however it also took the form of *unconventional* informal participation, for instance, when protesters took "direct action" in the form of "crop-trashing". Another such – unexpectedly – politicized site were the Farm Scale Evaluations (FSEs) that had originally been designed by the UK government to take the heat *out* of the debate. The idea of the farm scale evaluations came into being when in 1998 the industry formed a strategy and in June

launched SCIMAC (Supply Chain Initiative on Modified Agricultural Crops), which advocates the managed and regulated introduction of GM Crops, allegedly in co-existence with conventional and organic agriculture, and supported the labelling of GM products for the consumer. On 5 November 1998, the government announced a voluntary agreement with SCIMAC for a moratorium on commercial GM plantings and a programme of Farm Scale Evaluations (FSEs) of four GM crops, which would be compared with non-GM crops for their effects on wildlife biodiversity.

In this scenario the limited commercial planting of the herbicide resistant GM crops would go ahead, but this would be accompanied by farm scale evaluation of this process for ecological outcomes, such as the effect of the different herbicide regimes on agricultural biodiversity. However, by 1999 it was being emphasised that these were non-commercial trials, and therefore 'purely scientific'. The environment minister clarified the position by announcing a further deal with SCIMAC in November 1999 agreeing that no commercial cultivation would go ahead until another three years of the trials. Thus the FSEs were born as commercial *scale* trials, but sanctified as pure 'science'. These birthmarks raised further scepticism amongst critics in the NGOs and media that behind the scientific and precautionary rhetoric the FSEs were merely a way of moving the GM project further towards a goal of mass commercial release.

However, following the development of this strategy, public hostility continued to grow, with the FSEs providing a new focus for opposition and concern. Before the FSEs, GM had been an abstract issue; the field trials made them concrete and located. Hence, the FSEs also opened up new political spaces for informal participation around the issue. This was particularly turbulent, because the FSE process did not offer the public any formal mechanism for participation in decisions about whether or where to sow GM crops. The public were informed (via the government website, by an announcement in a local newspaper and by a letter to the local parish council), but only after the site had been chosen and the decision to sow has been made.

The FSE trials provoked a whole new set of political critiques and interventions in a number of registers: of *science* – that the inevitably reductionist nature of the FSEs would not produce valid knowledge about the GM socio-ecological complex; of *democracy* – that the FSEs were being foisted on local populations without their consent; and of *risk* – that the FSEs were in themselves a form of pollution. A pattern of public participation began to emerge around the FSEs, ranging from village meetings, picnics and trespasses on the sites, to 'crop-trashings'. The trials thus

became the cause and focus of yet more anti-GM activism and popular/civic unrest; rather than closing down and narrowing the debate into purely 'technical' issues, they produced a more complex, turbulent situation between 1999 and 2003 – not helped by the fact that for many they were seen as preparing the way towards mass commercial cultivation. Therefore, attempts to create a scientific zone purified of all politics were frustrated as politics continued to intrude. As well as detecting the reactions of weeds and insects to the presence of the new technology, other actors were drawn into the fields: the nightly crop-trashings widened the experiments into hybrid politic-scientific spaces (Szerszynski 2005).

The court cases of those arrested in the crop field actions would often become politicised spaces too, as they turned into high-profile trials of the GM crops rather than the activist defendants. These courtroom battles occurred across the UK. The trial of 28 Greenpeace activists who removed part of a crop of GM maize in July 1999 at Lyng in Norfolk was particularly well publicised and documented. In the trial and retrial, Greenpeace assembled 10 expert scientific witnesses to help defend the activists, with the intention of putting 'GM on trial' instead (Greenpeace 2000).

Thus the GM debate was already happening before, between and beyond the officially sanctioned *GM Nation* in a variety of novel arenas: supermarkets, farmers' fields, courtrooms, seed list hearings, beekeepers' gatherings and many other spaces provided novel and unanticipated sites of participation in the political battle over the new technology.

As mentioned before, the participatory governance arrangement termed *GM Nation* was set up in response and as an alternative to the National Seed Listing hearings.

The idea was born when in September 2002 the Department for Environment, Food and Rural Affairs (DEFRA) stated that "the National List system is not the appropriate place to challenge GM safety assessments" and proposed to remove the right to hearings and written representations. Instead, it announced "improved, effective and transparent mechanisms" of consultation under the deliberate release directive. The DEFRA document also acknowledged

"genuine public concern" and the need for a "GM Public Debate".[14] Thus like a kindly chaperone, DEFRA was concerned to escort public participation away from the hybrid and "inappropriate" arenas of the national seed list hearings and into new formal arenas made safe for such participation.

It then issued a consultation paper on these proposed changes to the right to seed list hearings, as part of a wider round of consultations on the UK's plans for implementing the revised deliberate release directive (2001/18/EC). A total of 60 responses about the proposed changes to the seed list hearings were received from stakeholders ranging from farmers, organic growers and industry to NGOs, interestingly with 55 against and 5 in favour. DEFRA itself, echoing the concerns of those 55 respondents opposed to the changes, conceded that a "hearing" can allow a "more in-depth, participative approach and had the potential to permit the cross-examination of witnesses on both sides in full view of the public". We thus find respondents claiming some advantages in the more antagonistic model provided by the National Seed List hearings over the presentation of peer group consensus found in more traditional scientific advisory committees and arenas. As the design and trajectory of the GM Dialogue in the UK is quite instructive with respect to the chances, limits and ambivalences of participatory governance arrangements, we will discuss this exercise here in more detail.

In May 2002 the government announced that there should be a "national dialogue" on GM issues that would be separated into three different strands – a review of the science of GM, a study of its economic feasibility and a public debate. Preparation for these began in late 2002, with the main processes running in 2003. The public debate *GM Nation* was the highpoint of formal participatory governance arrangements in the GM controversy in the UK.

Hence, a Steering Board was established and a membership appointed that included both a leading figure from the Five Year Freeze anti-GM coalition as well as from the industry body the Agricultural Biotechnology Council (ABC). When the steering body had to appoint a contractor in September 2002 that would actually implement the debate, it found it had little choice, and for reasons of budgetary and time constraints had to appoint a government agency, the Central

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14 http://www.defra.gov.uk/corporate/consult/nationallist/letter.htm.

Office of Information (CoI). The decision evoked concerns among some members, though, that it might compromise public confidence in the independence of the exercise from the government.

Time constraints would continue to shape *GM Nation* and diminish it in the eyes of its critics. The process began to be criticised by NGOs, academics and others from these early stages, complaining about the time limits as critics feared they would exacerbate other problems including a lack of clarity as to the overall purpose of the debate and its relationship with governing institutions and official decisions. These complaints connected to questions about the relationship of the debate to the eventual FSE results, and to the scientific and the economic strands in the dialogue. They also raised questions about governmental openness to the debates outcomes (Healey 2004:15, 20, 67). Eventually the Secretary of State granted an extension of the time period so that it would "allow for the expected publication of the first results of the farm-scale evaluations" (*GM Nation* PDSB 2003:14).

A series of nine "Foundation Workshops" were held during November 2002 in a series of towns to give the public the opportunity to frame the questions for the debate. At this stage, a contrast between a conception of 'the general public' versus another category of the 'actively involved' emerged, categories that would become significant in the subsequent reception and interpretation of the debates outcomes by various parties. As the Steering Board put it:

> Eight of the workshops involved members of the general public, representing four broad stages in life and two broad socioeconomic groups. . . . However, the Norwich workshop, for purposes of comparison, comprised participants who were "Actively Involved" in GM, half of them supporters and half opponents.

From these foundation workshops, each of which had 18–20 participants meeting for three hours, the subcontractor charged with this task (Corr Willbourn, Research and Development) identified six overlapping principle frames for the debate, around food, choice, information needs, uncertainty and trust, ethics and the targets and intended trajectory of GM technology. This report was then distilled into a series of tools for public engagement and participation.

The first of these tools was a series of 13 questions that would form the basic structure of *GM Nation*. These questions took the form of a series of statements ranging from the optimistic to the pessimistic towards GM crops. A series of 'tick boxes' were offering 5 choices ranging from 'agree strongly' to 'disagree strongly'. These 13 framework questions were distributed in the mass

open meetings of *GM Nation* public debates as well as the selected "control" of the "narrow-but-deep" focus groups. After these 13 closed questions, there followed another 2 more open questions where participants were allowed 5 dotted lines to express their views. This *GM Nation* information pack and feedback form/questionnaire that was distributed at many events, via the website and post formed a mobile technology of engagement and participation, with the ability to incorporate many events and situations into '*GM Nation*'. The Central Office of Communications declared that wherever a batch of 30 or more feedback forms were ordered they would assume this represented a *GM Nation* meeting (*GM Nation* PDSB 2003:59).

The other tool that emerged from the workshops report was the prepared common "stimulus materials" that all *GM Nation* participants would be exposed to before filling in the feedback form questions. However, some members of the Steering Board won the argument to add more pluralistic and diverse stimulus material. The board thus enrolled a variety of stakeholders to prepare their own answers and perspectives to the questions emerging from the foundation workshops. These were then passed to a subcontracted company Creative Research working with the science museum to be worked into a more standardized, and perhaps more neutral, format. Furthermore, by April 2003 the decision to attribute sources was abandoned because of lack of time to contact all the sources to gain consent. Thus the stimulus materials ended up being bland statements that were unattributed to any sources. Together, the stimulus material, questions and feedback form formed a *GM Nation* tool that attempted to standardise the diverse moments and modes of participation into a nationally coherent and somehow measurable entity.

The public debate itself was launched on 3 June 2003 with a press briefing and the first of the six Tier 1 meetings – facilitated roundtable discussions based on stimulus material. The rest of the Tier 1 events took place in different cities over the next 10 days, attended in total by over 1,000 people. An estimated total of around 40 Tier 2 regional and county-level meetings, took place between 16 June and 18 July, more varied in form, including expert witnesses and debates around a motion. Another estimated 629 local Tier 3 meetings were largely organized by town councils and civil society groups for which the "toolkit" was made available. At each meeting in every tier, feedback forms were made available so the participants could express further views. The Steering Board summarised:

> Over 4,500 individual requests for materials were received by *GM Nation*. As a result 20,000 workbooks, 6,000 CD-Roms, over 1,000 videos and more than 70,000 feedback

> forms were sent to members of the general public and interested parties. In addition, the contents of the workbook and CD Rom were available on the *GM Nation* website, along with the feedback form, which was available to complete between 3 June and 18 July 2003. During this period over 27,000 unique visitors to the website were recorded. . . . In total 36,557 completed questionnaires were received by 18 July 2003 and were included in this analysis. Of these, 18,771 were submitted in hard copy, and 17,786 were submitted on the website. [15]

In addition to the public meetings of the open debate, in which the participants were "self-selecting", the Steering Board commissioned a series of "narrow but deep" focus group discussions in June and July 2003 to act as a control. Ten different groups were convened with a total of 77 participants, chosen to be broadly representative of the general public and selected to have no immediate connection or interest in the issue. Each group met twice over a two-week period.

The *GM Nation* process of public events was planned to finish in July. However, the publication of the results of the FSEs was postponed from July until September 2003. This led to demands from the *GM Nation* steering committee and others to have the timescale of the debate extended so that the FSEs could be included in the public's deliberations, but these demands were rejected by the government. This refusal raised the question of the entire relationship between the public debate and the FSEs: whether the *GM Nation* and the public would be allowed to deliberate on the scientific results or whether these would be kept as two separate information feeds, with the deliberative power exclusively reserved for government. This move even raised suspicions at the ministerial level:

> I think the best science that is available ought to be made available to the public. The only reason that the government wanted to keep them separate was because the FSE results came out wrong from their point of view. If the FSE results were a clean bill of health I'm sure they would have been extremely keen, indeed demanding, that the *GM Nation*, every member, should be sent a copy of the results or something, to make sure that they got it in their head that their was nothing wrong with GM. But it all went wrong. (Interview with Michael Meacher MP, former Environment Minister)

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15 http://www.gmnation.org.uk/docs/introduction_to_feedback.pdf.

The final report by the Steering Board which attempted to combine information from both the public debates and the "narrow but deep" groups *(GM Nation? The Findings of the Public Debate*) concluded that (1) people are generally uneasy about GM; (2) the more people engage in GM issues, the harder their attitudes and more intense their concerns; (3) there is little support for early commercialization; (4) there is widespread mistrust of government and multinational companies; (5) there is a broad desire to know more and for more research to be done; (6) developing countries have special interests; (7) the debate was welcomed and valued (*GM Nation* PDSB 2003:51-53).

However, challenges to whether participation in *GM Nation* was truly representative were raised by the official evaluation team, and echoed by industry and government. In this vein, DEFRA later commented:

> We accept that the findings of the public debate broadly reflect the current state of public opinion on GM crops. We acknowledge that people are generally uneasy about GM crops and food, and that there is little support for early commercialisation of GM crops in this country. However the results suggest that the general public may have a lower degree of outright opposition to GM than the participants in the debate, while still being very cautious. The debate has also confirmed that people's attitudes towards GM crops are shaped by a complex range of issues and concerns, and that to some extent GM crops have become a focus for much wider concerns. (DEFRA 2004)

Simultaneously, from late 2003 onwards, the FSE results were published, which had produced largely negative results on the four GM crops under study. Backed by the outcomes of *GM Nation* and of the FSEs, the government then announced that the commercial cultivation of only one of the four GM crops, the maize, could go ahead and even this permission was subject to a number of conditions. GM was in effect kicked into the long grass as an issue in the UK.

After the event, *GM Nation* quickly became the subject of some controversy, especially over questions of its 'representativeness'. These questions revolved around whether a representative 'general public' had in fact participated, or whether those already critical towards GM crops had in some sense 'captured' the process. That the latter had indeed happened was a claim made, in various degrees, by the biotechnology industry, by the government and by the official academic evaluators of *GM Nation*. In particular, we see a contrast between what we may term 'engaged publics' or 'issue publics' on the one hand and the 'general public' on the other. As the official independent *GM Nation* evaluation team from the Universities of East Anglia and Cardiff put it:

> [T]he intent was to have a debate that was not dominated by significant pressure groups, but to access the "quiet majority". We interpret this to entail representative sampling of the population, as opposed to biased sampling of particular cliques. Representativeness may be ascertained in several ways: it may be determined according to the socio-economic and demographic profiles of the sample (in comparison to that of the general public), or by the attitudinal similarity of sample to population. (Horlick-Jones et al. 2004:22)

Those who attended *GM Nation* are seen on this basis as being unrepresentative, in terms both of their demographics and in the intensity of their interest and opinion. Similarly the AEBC and the Steering Board had built into *GM Nation* a series of 'narrow but deep' focus groups to create a representation of a pure, disinterested public to act as a 'control' to balance against capture by stakeholder networks:

> We believe that the Narrow But Deep element provides evidence of grass roots views and attitudes which might otherwise have been unheard during the debate. If there is a silent majority, it would show itself here. (*GM Nation* PDSB 2003:36)

Thus considerable efforts were made to find a 'pure' public, a 'silent majority' stripped bare of civil society mediation, to stand naked before the state and the social scientist. The point we would stress, however, is that such a 'pure' public does not simply exist "out there" but inevitably is the outcome of active processes of goal setting, decision making, prioritisation and selection, and thus depends on how the format of such participatory exercises is designed.

Throughout the controversy over the representativeness of *GM Nation*, the expression 'silent majority' is frequently evoked. Such a silent majority can of course by definition never speak for itself, but must somehow be articulated from outside. Policy makers and researchers are confronted with the problem that they search and address a public that hardly becomes visible and shows up in the events they are staging together with social scientists and PR agencies – such as scientific cafés, consensus conferences and days of dialogue – as can be seen in the small numbers of participation and media response to this kind of events. The concept of the 'silent majority' , however, has a controversial history, deployed by powerful elites as a counterweight to the critical voices of social movements and civil society. Thus, *which* form of public is addressed by participatory exercises, whether it is the silent majority or stakeholders and activists or still other constructions of publics, is a decision with specific political implications, depending on the respective context. What is important though is that there is no context-free and politically "neutral" way of constructing 'the public' in such participatory arrangements; the public is constructed through different ways of interpellation, through the different ways participants are

"invited" and through the format of the exercise as such. Whatever the way to construct the public will be, it will be based on certain implicit or explicit assumptions and will have certain political implications.

The construction of different forms of publics through interpellation can also be observed in the **genetic testing** case. In our case study, however, we again found that participatory governance arrangements are just one possible form of public involvement, while non-state initiated forms of informal participation take place too and should not be overlooked. In Austria, for instance, a group of representatives from disabilities groups and moderate pro-life activists formed the platform "Ethics Commission FOR the Austrian Federal Government" because governmental officials, who did not consider them "experts", denied these activists access to the official Bioethics Commission. It is therefore the aim of the alternative Ethics Commission to complement the opinion of the expert-oriented Bioethics Committee and to provide an additional opinion from lay people who are actually affected by biotechnology.

In Germany, the Aktion Mensch, a huge NGO for people with disabilities and their families, organized a forum on bioethics in 2002 called "1000fragen.de" (www.1000fragen.de) on a whole range of issues related to genetics, embryo research, cloning and other biomedical issues. The 1000fragen campaign basically collected questions and concerns citizens had about reprogenetics and biomedicine in a very broad sense. These questions were published on the Internet and some of them on advertising pillars, on huge posters in the streets, and in newspapers in a big advertisement campaign by Aktion Mensch. In a second round, prominent figures from the public sphere such as public intellectuals, actors, politicians and others were asked to comment on these questions with their statements being published too. The campaign was much more visible publicly than consensus conferences that had been organized in Dresden and Leipzig around that time because of the broad poster and media campaign. Most of the 8,500 questions collected from citizens referred to the topic of the "(im)perfect human being" – and showed great concern about "selection practices" linking genetic testing practices to social tendencies of eugenics (Aktion Mensch 2003; Waldschmidt et al. 2006). The goal of the campaign was to give a voice to these concerns and to provide a forum to discuss them rather than to give direct advice to the government (although a publication with the questions collected from citizens was presented to politicians). The organizers deliberately wanted to facilitate debate on biomedical developments *without* the pressure of decision making ("Austausch ohne Entscheidungsdruck")

(Aktion Mensch 2003:11) which allowed the articulation of some broader concerns and more diffuse unease about the implications of genetic technology for the social order as a whole.

Issues of genetic testing, however, have also become the subject of more formal participatory exercises in the countries under study. For Germany and Austria, we will rather speak of participatory governance exercises or *experiments* than of governance *arrangements* because, in contrast to public consultations held by the Human Genetics Commission (HGC) or the Human Fertilization and Embryology Authority (HFEA) in the UK, the citizen conferences in Germany and Austria were lacking the status of a well-established policy instrument.

One common feature of these experiments was that they were not connected to the formal decision-making processes and had no clear addressee on the government side. The Austrian citizen conference "Genetic Data: from where, whereto, what for?" (BürgerInnenkonferenz "Genetische Daten: woher, wohin, wozu?") was commissioned by the Austrian Council for Research and Technology development, an advisory body to the government, in Vienna in June 2003 (Felt 2003). It formed part of the Council's public relations campaign "Innovative Austria" and was designed by the PR agency Communication Matters (Bogner 2004, Menasse 2004). There seemed to be some ambivalence as to the question whether the citizen conference was supposed to funnel its proceedings into the Austrian decision-making process. On the one hand, the primary aim of the conference was to raise public awareness for science and technology and not to make any decisions at all. On the other hand, Communication Matters, the organisers, understood the event as an attempt at institutional innovation, and made some efforts to place it appropriately in the Austrian decision-making mechanisms. These efforts, however, completely failed. The most influential politicians in this area either completely rejected or neglected the consensus conference. Other politicians, such as representatives of the National Council simply failed to notice the event.

In Germany, citizen conference on the topic of genetic diagnostic was organized in 2001 and a youth conference on genetic technology took place in 2006 as a kind of citizen conference aimed particularly for young people. Both conferences were not directly state-initiated but were organized "at arms length distance" from the state. The Dresden Conference was organized by the Hygiene Museum at Dresden, which is a foundation, but took place under the auspices of the German Federal Ministry for Education and Research which was also the funding agency of the project. The organizers invited 19 citizens, selected through a random process. The organizers

deliberately chose *not* to invite stakeholders, activists or professionals who were already familiar with the issue because of their political or professional activities, but only "newcomers" to the issue area. Hence, the idea that underlay the format of the conference was clearly the "pure public". The citizen group was given the opportunity to select from a "pool" of experts from different sectors of society, ranging from science to disability rights, interrogate them, and deliberate on the issue during a course of several days. The final vote of the citizen group was then handed over to the media, to the Minister of Education and Research and to an German umbrella organization for research funding agencies (Stifterverband für die Deutsche Wissenschaft) as a "decision-making aid". The vote actually caught some attention in the media because it displayed a clear-cut gender gap on the issue of pre-implantation genetic diagnosis with all the women in the group voting unanimously against it. Otherwise, it did not resonate strongly within the policy community.

The Leipzig Youth Conference too was organized at arms length from the state; it was organized by the University of Leipzig, Department of Media Education, but initiated and funded again by the Federal Ministry for Education and Research. Policy makers did not seem particularly interested in the project; no politician from federal parliament, government or the political parties was disposed to participate in the central event of this project. Students were invited to produce films and features on the topic of human genetics and genetic testing, some of which were presented at the central event on 19 May 2006. There, the students were first given information on the scientific aspects of human genetics and then called upon to reflect on the "chances and risks" presented by this technology, to deliberate on those "chances and risks" as a group and then to produce an exact catalogue of their demands with respect to legal regulation. However, no policy maker attended the event or was willing to listen to this catalogue. In the end of the conference, the youth were upset about the disinterest of journalists and politicians in their product of the allegedly participatory process.

Several observations are striking about this exercise: First, the invitation to reflect and to problematise referred to the "second step" of the procedure only, after allegedly neutral scientific facts were presented. The students were not offered conflicting scientific views for instance on the concept of a gene or the relation between "genes" and diseases. Second, students were invited to participate, but it was not at all clear *in what*. There was no initiative of regulating genetic testing at the time. In addition, no policy maker was interested in what the young people had to say. The government apparently had enough interest in having young people reflect and

deliberate on the issue to fund the event but not enough interest in the outcome to show up at the event. Third, underlying the event was a construction of "the youth" as a homogeneous social group and as a "pure" public – in the sense of citizens of the future. This hindered the conference in discussing and deliberating on the obviously quite controversial and heterogeneous positions presented by different youth groups. The idea of a "pure public" that has been operative in the design of the Dresden citizen conference and part of the *GM Nation* exercise here assumes an additional meaning: "the youth" is constructed as a homogeneous, naïve, and "pristine" group, not compromised by professional or political interests nor capable of internal conflict and dissent.

In the UK, one of the main instruments of inviting public participation was the consultation. The Human Genetics Commission (HGC) and the Human Fertilization and Embryology Authority have conducted a number of public consultations on issues of genetic testing such as pre-implantation genetic diagnosis, sex selection, or broader issues of genetics and assisted reproduction.

The biggest consultation effort made by the HGC concerned the general question of how to regulate genetic information. Under the title "Inside Information" the consultation process took place in 2000–2002, made up of a series of different types of exercises each addressing a different type of public. What is interesting in general is that through launching this huge participatory exercise, the HGC did not so much *react* to public debate as try to *incite* it.

The consultation consisted of a survey, using a randomly recruited, nationally representative group of 1,000 people, two public meetings with some 200 students each, a consultation document ("Whose hands on our genes?") including a tick-box section for reply available on the Internet, discussions with a series of organizations such as the Medical Research Council or the Wellcome Trust, and correspondence with the consultative panel that had been set up by the HGC and was constituted by some 100 people affected by a genetic disorder. Hence, we find different constructions of different publics which can be found in other consultation exercises by HGC or HFEA too, each giving room to different speaking positions while precluding others:

A survey or opinion poll addresses the "general public", made up of individuals, supposed to represent the imaginary national population as a whole. This instrument does not give room to the speaking of position organizations and groups who have a specific view on the issue, thus it

does not address 'issue publics' or 'engaged publics'. In the interviews, HGC and HFEA members expressed a general scepticism toward the method of opinion polls (e.g., Interview 10-3 2006) because people could participate without being coached first. "*Of course, the disadvantage of the opinion poll is that people involved in it are not involved"* (Interview 17-3 2006; similarly Interviews 10-3 2006, 20-3 2006). Interestingly, especially those interviewees who are considered partisan by the advisory system were referring to quantitative methods such as polls as a possible form of participation (Interview 22-3 2006).

The consultation document, in contrast, allowed for responses both from individuals and from organizations; hence, self-selected participants can use this instrument to make their cause. The invitation to respond to the consultation paper thus provided some room for engaged publics to participate.

In addition to these self-selected participants, the HGC also consulted a 'stakeholder public' selected by the commission. Such a selection of relevant stakeholders, of course, never takes places beyond existing relations of power, who is relevant or deemed to be relevant is not least a matter of power.

Furthermore, we meet again with the idea of the 'pure public' which was very similar to the public that was constructed at the Leipzig youth conference: made up of school and college students addressed as representative of their generation, not of certain views or positions on the issue. The idea underlying the construction of a 'pure public' seems to be twofold: First, the exercise serves as a source of knowledge in that it provides information about how "ordinary people" think and feel about the issue; second, the exercise is supposed to convert participants from being ignorant into being educated, as one member of the HGC explained with respect to another 'pure public' consultation exercise:

> They specifically wanted to take people who probably know nothing or very little about the use of genetic information, apart from what they see on television, and to spend two or three days with them and have real expert witnesses and educate them about the issues involved, and then ask them, after these few days, how they feel about it. Just to get a flavour . . . they want a measure of how people would feel, when they are ignorant of the issue and when they are completely educated. (Interview 4-3 2006)

The consultative panel, finally, forms a case in point of what we have termed 'embodied expertise' with respect to the role of Luca Coscioni, the "expert of bioethics" on his "own skin"

in the Italian stem cell research debate, or MP Ann Begg inthe British debate (see chapter 3). Much like Luca Coscioni and Ann Begg, the members of the Consultative Panel claim to have or are ascribed a certain moral *and* epistemological authority on the issue, an authority emanating from the quality of their body and the personal experience of being affected by a genetic disorder. Authority and authenticity are very close to one another here. Members of the HGC's Consultative Panel, are not necessarily affected themselves, although some of them have family members who are affected or take care of people who are. Nevertheless, it is authenticity based on personal experience which qualifies them as a member of this panel. Nevertheless, the panel of the"affected public" is also the result of constructive efforts:

> There was a certain amount of engineering involved [in constituting the Consultative Panel], because they wanted a range of experiences as wide as possible. So people were asked what the genetic condition was, were they affected directly or were they looking after someone, or were they someone who had a condition run in the family and they didn't know if they were affected yet, so that kind of thing. It was to get as broad a picture as possible, and then so there was a little bit of engineering I think, because they would get a lot of people with a certain genetic condition and not so many with another, and they wanted to balance. (Interview 4-3 2006)

The purpose of the whole public consultation exercise, as interviewees explained to us, was not to learn about the quantitative distribution of opinions or to investigate the representative opinions of democratic majorities, but rather to "to flesh [is this correct?] out the spectrum of opinions that are held within the public", as one member of the HGC put it (Interview 13-3 2006), to get the maximum range of views to inform the commissions considerations. One HFEA manager explains that even opinion polls were not s interesting to the HFEA as a quantitative method, but rather as a method to compare the scope of arguments resulting from a poll with the scope of responses to the consultation paper (Interview 17-3 2006). Thus, the quantitative dimension is of minor relevance in opinion polls – when compared to the aim of fishing for arguments. Another interviewee explained that the HGC was not bound by the opinions gathered through consultations. Rather, these results form a kind of raw data that need to be interpreted and "weighed" by the commission itself:

> So you have to be quite careful with polling and sort of justify why you come to a different conclusion. But I sort of rationalised it in my mind, that it is not unlike the way in which a court or a judge weighs evidence, you know, some evidence is more persuasive because it is nearer, or because it is more relevant, or because it is more recent, or because you like the witness better, you trust the witness better. (Interview 20-3 2006)

Hence, the main goal of such participatory exercises was not to get a representative picture of public opinion on the issue by which policy makers could get their bearings but rather to educate the public in different ways in order to generate a measured, non-adversarial debate:

> Since the HGC was established it has been quite successful in terms of promoting rational discussion of the issues. . . . [T]here was no forum within which it was possible to have a measured debate. Discussion of the issues tended to be more sort of shouting from fixed viewpoints, so as they were, and hoping to convince whoever, the government, the public, about the validity of your views simply by the force with which you expressed it. Human Genetics Advisory Commission moderated that and then the Human Genetics Commission I think improved even better. (Interview 13-3 2006)

In this context, 'pure publics' or 'affected publics' are preferred at the expense of 'engaged publics'. In general, we found similar scepticism towards the 'engaged public' as in the case study on GMO. The speaking position of a representative of a political group, an NGO, or an interest group, in short a "partisan", is depicted in a rather pejorative way by our interviewees as *"minority of highly vociferous groups"* (Interview 20-3 2006), a *"small set of people"* (Interview 6-3 2006), a *"self-selecting sample"* (Interview 17-3 2006) that in their view was not at all democratically legitimated.

Altogether, the picture of participatory governance arrangements and experiments that emerges from the case study on genetic testing shows a strong preference of the 'inviting side' for pure publics and affected publics and a reluctance towards engaged publics. Furthermore, educational purposes seem to prevail over purposes of actually influencing and informing policy making.

Hence, 'the public' is not a given entity, existing "out there" so that governments could simply reach out for it and invite it to participate. Rather, the public is actively constructed through, among other things, the respective practices of "invitation" themselves.

How different yet are the findings from the **food safety** case study which discussed the newly developing regulatory regime of food production and food safety that materialised in the aftermath of the BSE event. The newly established arrangements were designed (and evolved) to deal with the challenges of 'constitutive' uncertainty facing issues of food safety, as well as those related to a potential mistrust of government as a source of legitimate knowledge on food safety. The approaches to risk governance that notably the FSA, and also other food authorities, designed and performed we propose to designate as 'participatory governance'. 'Innovative

participatory practices' are observed in regard to two functions in the process of governing : a) oversight and scrutiny on the one hand, and b) political judgement and decision making on the other (Loeber 2006). Furthermore, instances of both types of innovation are observed in both areas of the public energy field of food: agriculture and public health (safety and risk assessment).

Oversight, or public scrutiny, is an essential element in providing legitimacy to political rule: it concerns the mechanisms that ensure that those in control are themselves controlled. Oversight in the formal organisation of politics is institutionalised in the shape of Parliament. In civil society, it is notably the media that performs the 'traditional' control function. Issue-specific oversight furthermore is provided by NGOs, so-called independent governmental organisations, and transient focal action groups. In the post-BSE era, the range of actors exercising public scrutiny regarding food safety control has become principally broadened, and the possibilities by which oversight can be exercised has been fundamentally enlarged. The most telling expression of this dynamic is provided by the organisational and operational characteristics of the new British Food Standards Agency. In stark contrast to the practice of regulation that took place in the UK traditionally in a culture of secrecy, the deliberations involved in the assessment as well as management of risks are now completely 'open'. The Agency's 'openness policy' encompasses both guaranteeing transparency – enabling others to see and judge the processes of translating science into politics (policy advice) and vice versa (research agenda) – and enabling access, making available all potentially relevant information to whomever is interested. The design and staging of so-called Open Board Meeting, that is, having the board's meetings literally witnessed by a live audience as well as webstreamed via 'fly-on-the-wall' technology is the most eye-catching case in point. What sets this approach apart from the traditional understanding of 'participation' is that the non-state actors who areprovided access and transparency are *not* enabled or allowed to actively take part in the deliberations. The meetings are held "as though the audience didn't exist" (apart from a question-and-answer session at the end). Still, we suggest to speak of these practices in terms of 'participation'. Other examples are the practices of EFSA to webstream its scientific committee meetings, the Dutch campaign to encourage consumers to "look into the chain", that is, to trace and check who handled the constitutive parts of their food, and the project *ICT-kanskaart voedselveiligheid*, a joint initiative of the Dutch Ministries of Agriculture and Public Health to explore the possibilities of information and communication technology to enhance a public's critical assessment of food safety. We see (Loeber 2006) two reasons for doing so:

First, being open and transparent allows for the generation of, and is a source for, legitimacy of public action. Sources of public legitimacy are usually divided into 'output' and 'input' legitimacy (Scharpf 1999). Output legitimacy is derived from the desirability of the achievements of an organisation. Input legitimacy refers to the correctness of the processes (in the eyes of those who will be affected by the outcome) by which the involved decisions are reached. Input legitimacy is the 'classical' basis for legitimate government in representative democracies and is formalised through the principles and procedures by which the 'trias politica' are organised in a modern nation-state. Yet, characteristic of the state under current 'post-traditional' conditions (cf. Loeber et al. 2005) is that the formal principles and procedure no longer serve to cover the core aspects of the political. First of all, the topography of politics is literally changing, through such factors as the globalisation of production networks, processes of supra-nationalisation (EU) and an accompanying "trans-nationalisation" of economic, cultural and social relationships. Current political arrangements furthermore usually comprise actors on the local, regional and global level. These arrangements furthermore frequently consist of formal and informal associations between states, markets and citizens and their associations. Because of these flexible networks of actors, politics take shape outside and beyond the political institutions that are traditionally considered the exclusive centres of political power (a phenomenon dubbed "subpolitics"; Beck 1994, 1997, 1998). What the (post-)modern state is in need of, therefore, is the possibility of exercising public control over such 'displaced' politics. The dynamics of increasing transparency is key here. By enabling public scrutiny on processes of deliberation and judgement that concern 'res publica', namely on matters of food safety, agro-economic interests and public health, the legitimacy of governing activities is enhanced. By doing so, please note, in regard to processes of assessment, analysis and judgment that take place *prior to* such deliberations in the formal setting for such scrutiny – parliament – it results in what we may call 'throughput legitimacy'. The transparency here provides a source of throughput legitimacy for the governing issues of food safety.

Secondly, 'opening up' (being transparent) serves another function: it enables the creation of a public. The temporary setting of, for example, the FSA Open Board Meetings creates, for the duration of the meeting, a common political identity among otherwise widely varied people, namely as an audience to the deliberations that concern their "being together as a community" (cf. Mouffe, 1992). The open access to the meetings actively 'produce' citizens while engaging experts in science-based, policy-oriented deliberation. Put differently, the openness policy of the FSA enables people to be 'citizen on stand-by' (cf. Verhoeven 2006:87; cf. Schudson 1998), *even*

when they are *not* watching the show – and to switch mode to the modus of citizen, as soon as they feel triggered to be involved. Whether or not state-initiated, any attempt at enhancing the transparency of processes of political judgment may be considered as an event that help individuals choose their moment and subject for "becoming politically active" (Loeber 2006; cf. Eder 2000).

III. Conclusions

The PAGANINI project has documented in much detail the "crisis" of classical-modernist statecraft. Classical-modernist statecraft was based on the assumption that, first, society and market could be shaped from the centre, that is, by the state and, second, that the state, in turn, could rely on synoptic, universally valid and politically neutral knowledge . Taken together, governance within the classical-modernist paradigm worked as knowledge-based 'social engineering', initiated and exercised by state-actors.

The classical-modernist paradigm is seriously challenged, yet remarkably enduring.

The picture that emerges from the case studies as regards the viability of classical-modernist statecraft is mixed and shows partly inconsistent or contradictory tendencies.

The assumption that governance can be based on synoptic, universally valid knowledge is shattered indeed. Each of our case studies makes it clear that governance is heavily reliant on knowledge, but that the knowledge available is insufficient, deeply contested, and highly uncertain, and, what is more, that actors *are increasingly aware of this*. Thus, the institutions of classical-modernist statecraft find themselves confronted and challenged by a *culture of uncertainty*. It is precisely this constellation that calls for a rethinking of current practices of governance.

From calculability to incalculability

The new politics of life addresses critical choices about the future of humankind and makes this manifest in ways that essentially challenge the mode of social and political ordering in terms of risk. While 'risk' is still an influential concept and a widely applied technology of government, risk discourse is profoundly challenged by the fact that *the criteria,* both scientific and normative, for calculating 'risk', balancing 'risks' and 'benefits', and in part also for distinguishing 'risks' and

'benefits', are deeply contested. Radical uncertainty has become an inescapable condition of governance.

It is one of our main conclusions and recommendations that rather than denying conditions of uncertainty, the national governments of Europe and the European institutions should make their struggles with (un)certainty open and transparent. This statement, however, should not be misunderstood as calling for a "quick fix" kind of resolution of the current challenges for governance. Such "quick fixes" do not exist, and also participatory governance is hardly the answer to the kind of challenges we have discussed in this report.

Governing the future in the face of uncertainty

The absence of agreed upon criteria to calculate future risks and benefits of course does not dismiss the need for political action in the present. On the contrary, politics of life areas seem to be characterized by a strongly perceived need for political action, often for *urgent* action, a need for governance activities that cannot be postponed to the day when science will have provided sufficient, reliable and uncontested evidence and a consensus on normative criteria for appropriate action. This pressure for action is linked to and partly caused by another salient feature of politics of life areas; in these areas, the objects of governance, or rather the objects perceived to *require* governance, have '*a life of their own*'; they are constantly evolving, altering, increasing or decreasing, and manifesting themselves *in time*. Phenomena of life thus are inherently dynamic – which makes them particularly unruly and unpredictable and poses specific challenges to governance, not least the challenge to govern the, as to yet unknown and never completely predictable, *future* manifestations and implications of these objects. Governance, in politics of life areas, largely means governing the future, but this future is unforeseeable and unpredictable and consists of an endless multiplicity of possible future*s*. The *envisioning* – or not – of such futures in this context has political implications and thus is a political act.

Whether we look at stem cells, stem cell lines, and the prospects of therapies derived from them, at monogenetic or multi-factorial diseases and the prospects of genetic diagnosis and therapy, at genetically modified plants and their future environmental or health impact, at the threat of BSE and nvCFJ, or at endangered species and the prospects of biodiversity, we find that prognosis is politics; envisioning some possible futures, at the expense of others, and drawing conclusions

from these visions forms part of the struggle over meaning which, in PAGANINI, we consider to be politics.

Governance in politics of life areas inevitably means governing the future, but "the future" is an outcome of envisioning processes that are not normatively neutral and not derived from the extrapolation of "objective" scientific data. **Governance in politics of life areas should abandon the claim that it is based on normatively neutral prognoses derived from scientific extrapolation but should arrange for transparency concerning the normatively laden assumptions and ideas that inform contesting visions of the future and give room for contesting visions.**

Uncertainty and ethics

A further common feature of the politics of life areas that emerged from the case studies concerns the salience of a language of ethics and morality. Issues turned out to be strongly framed in normative terms such as "moral obligations " or "responsibility", the qualification of certain courses of action as being "ethically permissible" or not, "moral" or "immoral", or imperatives to "relieve suffering", to respect "human dignity", "protect biodiversity", or promote "animal welfare". It seems that today in governance the language of logos is increasingly complemented by a language of "ethos" and "pathos." Governance in the politics of life areas is to a remarkable degree confronted with and/or contributing to the interpretation of policy problems, the supposed causes of these problems as well as possible remedies and solutions in a language of ethics, morality, and emotions. We can therefore speak of an ethicisation and emotionalisation of governance that has taken place in politics of life areas.

The phenomenona of ethicisation and emotionalisation relates to the other features of politics of life areas outlined above, namely perceived need for action in the face of radical uncertainty. Under conditions of radical uncertainty, 'facts' cannot be separated from 'values', 'matters of fact' not from 'matters of concern'. That means however, that actors cannot find sufficient orientation for decision making and acting in scientific truth (logos) and thus look for orientation in the realm of normative values and principles, but also by reliance to what David Hume has called "sentiments". Thus, framing governance issues in the language of ethics and pathos seems to be

correlated with a situation when science has increasingly lost the authority to produce 'truth' as a basis for governance.

This phenomenon in turn relates to questions of control, responsibility and participation.

The 'ethics turn' is inherently related to claims to participation; in moralized or ethicised issue areas, people take the first-person stance on the issues; they raise and discuss questions such as "what are *we* supposed to do?"; "what shall *we* do next?"; "what is the right thing for *me*/for *us* to do?" Ethicisation means that actors relate the issue to themselves and their actions and thus take a *participant's,* in contrast to an observer's point of view. Actors assume that it *does* matter to some extent what they personally do or not do. Put differently, the ethics turn can be understood as manifesting the erosion of classical-modernist statecraft based on the assumption that government is the centre of effective political control within a given territory, that science provides 'true' and neutral knowledge for governments to use in order to effectively shape society and that one can be neatly separated from the other. It is the erosion of this model of combined, yet separated, scientific authority and state control that is manifested by, and promoted further, by ethicisation; in using the language of ethics, actors deny that the issue can or should be left exclusively to government control and scientific truth production.

Institutional innovation and institutional resilience

However, this does not mean that the institutions and organizing principles of classical-modernist statecraft necessarily give way to an opening up of the political, promoted by processes of ethicisation and claims to participation.

There *is* some evidence of institutional innovation under conditions of uncertainty. Examples of such institutional innovation include

- the principle of transparency as inscribed for instance into the structure of the Food Standard Agency,
- an institutional acknowledgement of novelty and uncertainty, as for instance inscribed into the precautionary principle in EU policy making (see GMO case),

- an acknowledgement of complexity and an accordingly comprehensive approach, as found for instance in comprehensive conservation or the shift from a formerly segmented to a comprehensive, integrated approach connecting public health, agriculture, environmental politics and animal welfare in the case of food safety policies in the UK, the Netherlands, Germany and the EU

Two additional strands of new forms of governance and institutional innovation developed which show the emergence and proliferation of ethics committees in the realm of governance on the one hand and a number of institutional efforts to promote public involvement and public participation on the other.

Besides strands of institutional innovation, as pointed out earlier, there is also evidence that classical-modernist forms of governance persist and adapt to the new situation of radical uncertainty, and that the occurrence of dislocatory moments does not necessarily lead to an opening up of the political. In fact, classical-modernist statecraft seems to display a considerable degree of *institutional resilience* in the face of radical uncertainty. This resilience takes different forms:

- *Preserving the boundaries between "the political system" and "society"*:

In the case of stem cell research, for instance, despite a strong dislocatory event, namely the birth of Dolly the sheep, the traditional, classical-modernist patterns and institutions of government have proven surprisingly dominant and unchallenged. The dominant institutions in this case were parliaments, governments, expert bodies, the courts, and the law, each of them confined to the territorial boundaries of the state. There were no noteworthy efforts of enhancing public participation or public involvement in the area of stem cell research in the countries under study.

- *Preserving the boundaries between "facts" and "values":*

In particular, the assumption that 'facts' can be separated from 'values', and 'science' from 'politics' is still very much alive and structures a great deal of governance practices and institutions. In many cases, this separation was inscribed into new institutional divisions of tasks, such as between (scientific) risk assessment and (political) risk management and communication in the case of the BfR and the BVL in German post-BSE agricultural policy or in the "facts first" approach that is practiced throughout most public participation arrangements, for instance in the

UK, or the dualism between Agriculture and Environment Biotechnology Commission (AEBC, supposedly speaking for "society") and Advisory Committee on Releases to the Environment (ACRE, supposedly speaking for "science" and "nature") in the UK .

Today knowledge acquisition, knowledge management, participation and multi-level governance connect together in complex ways. Our empirical results point towards a conclusion that appropriate ways to organize these relationships may vary a lot between different cases. Different types of knowledge are relevant on different levels of governance. This is very clear in the conservation case of work package 5: The challenge on the *local level* is to develop a relationship of companionship between local actors and the creatures of nature that need protection, based on an intimate knowledge of the actual sites and regions that are of concern (in some cases even an intimate knowledge of individual animals or plants!). The challenge on the regional level is to create an adequate knowledge base, shared and accepted as valid among all relevant stakeholders, on the favourable conservation status of the species of concern (this is the normative rule spelled out in the Habitats Directive). On the national and EU level the challenge is to create a knowledge archive that serves the purposes of control. Quite obviously, the role of formal science in disciplines such as population ecology and conservation biology gets relatively more prominent, the higher up we get in this hierarchy. On the local level, the intimate familiarity of amateur naturalists with the creatures of nature they are passionately interested in is a particularly valuable resource. Naturalists and their organizations should be systematically recruited into a supporting network of nature conservation.

Ethics commission that had been set up by governments in order to counsel them on contested politics of life issues could be found in a number of case studies in PAGANINI (stem cells, genetic testing, GMO). By and large, such ethics commissions can be considered elitist rather than participatory institutions. Although this type of ethics bodies differs from traditional expert bodies in that experts on ethics do not provide advice on "facts" only but on "values" too, these bodies are closer to the classical-modernist statecraft model of government than to an opening up of the political. One could say that through ethics commissions the language of ethics is reintegrated into the – slightly modified – institutions of classical-modernist statecraft.

- *Reinventing neutrality through participatory arrangements:*

"Participation" and "public involvement", as our case studies show, can assume very different meanings and very different forms. Among these, state-led participatory arrangement cover only a small part of the whole range of forms participation can take. These arrangements deserve more detailed discussion:

Participation

At the outset, the PAGANINI project started from the hypothesis that "in the domain of life-political issues, the notions of participation and governance seem to have become intermingled to an unusual extent" (WP1, p. 3). Within the empirical research, however, it turned out that things are more complex and that the concept of participation needs to be rethought. "Participation" and "public involvement", for one thing, cannot and should not be confined to formal, state-initiated arrangements.

Participation can for instance, as the cases of GMO politics in Greece and the UK demonstrate, take the form of grassroots and NGO actions, seeking to make their case heard in the public and exercise pressure on the government through legal means such as lobbying, the mass media, or advertisement campaigns as in the case of the 1000frage.de campaign on biomedicine in Germany. We can speak of conventional informal forms of participation here.

Also in the case study on GM plants, we found the politicisation of spaces which had originally not been designed as arenas of formal civic participation such as supermarkets, farmers' fields, village halls, Magistrates and Crown Courts. Public involvement or participation in these spaces can be classified as partly "conventional informal participation", partly however it also took the form of *unconventional* informal participation, for instance in the form of "crop-trashing".

Then again, we can distinguish a form of civic participation we termed 'wildcat participation', namely in the case of the National Seed List hearings, because it undermined the supposed separation of 'science' and 'politics', 'matters of fact' and 'matters of concern'. These hearings had originally not been designed to make political statements or political decisions but to gather

"facts" but they unexpectedly turned into newly politicised spaces where the debate about facts mingled with political arguments.

What these forms of participation have in common is they are not state-initiated but emerge from civil society. Participants in these cases have not been "invited" by government institutions nor have they been selected by formal organizers, on the contrary, actors are self-selected here or "self-appointed" and as such usually entered the debate from a "partisan" point of view, promoting their respective cause concerning the issue at stake. Consequently, participation or public involvement that takes place at such unexpectedly politicized sites and is led by civil society rather than led by the state tends to feature a rather antagonistic structure, characterized by sometimes adversarial arguments and struggles. We can term the types of publics emerging at such sites 'engaged publics' or 'issue publics'.

On the other hand, we found a number of *formal participatory arrangements*, mainly in the case studies on genetic testing and GM plants. Both academic and political discourses on enhancing "civic participation" or strengthening "participatory governance" usually refer to such formal arrangements which are largely understood as a means to democratise policy making and (re-)create trust, particularly in contested policy areas such as science and technology policy. Having looked closer into such formal participatory arrangements *within the broader context* of other forms of political participation and governance practices, however, we would rather caution that formal civic participation has its own implications that require careful consideration.

In contrast to the antagonistic structure of civil society–led participation, formal participatory governance arrangements were at times set up by state institutions precisely to counter and mediate this adversarial type of public involvement. The participatory governance arrangement termed *GM Nation,* for instance, *w*as set up in response and as an alternative to the wildcat type of participation at the National Seed Listing hearings.

Formal, state-initiated participatory arrangements, as the case studies on GM plants and genetic testing show, are often informed by the desire to achieve representativeness among participants, to mirror the general public, composed of by individual participants taking no particular interest in the respective issue and possibly, as in the case of the youth conferences we analyzed, being yet "unspoiled" by partisan views and supposedly open "rational" education. The construction of such pure publics thus may provide an alternative to existing engaged publics or issue publics.

However, as the case studies have shown, the design of *any* formal participatory arrangement involves a considerable amount of "engineering", including arrangements seeking to invite a "representative", disinterested, "pure" public. There is no such thing as "the public" waiting for pure representation. Formal participatory arrangements are *inevitably* based on a process of active construction, involving goal setting, selection, decision making and prioritisation, including the decision to prioritize the pure public at the expense of engaged publics.

Objectives, ideas, priorities, selection criteria that inform the construction of those "publics" that are invited for participation should be made transparent. Organizers should be aware that there is no "pure public" but that inviting non-state actors as participants inevitably involves political decisions and actions that take place within a specific social and political context and have social and political implications.

Therefore need for reflexivity about the construction of publics in participatory arrangements.

There should be some room given to "engaged publics" too.

What seems to be going on today is 'old' definitions no longer hold and various groups try to impose new (partial) definitions of a new order on others. A new, postmodernist logic seems to be spinning new relations among citizens/consumers and scientists and administrators. There is no single New Way of governing Europe.

IV. Recommendations: Participation, Institutional Innovation, and the Governance of Life

The focus within the PAGANINI project was on participation in politics of life domains and how Politics of Life domains problematise existing forms of political decision making and participation. Within the case studies undertaken over the course of the project, the goal was to observe political participation and participatory democracy: to trace how regulatory questions turn into issues that are more broadly debated; to examine how novel spaces for political debate are created, often in unseemly places; to demonstrate how they multiply through institutional innovations; to study how, in some areas of political decision making, notions of "risk" or "benefit" as something that is calculable are giving way to radical uncertainty; to investigate the emergence of specific types of discourse within the political sphere termed "ethical" and that often also refer to sentiments, rather than rational argumentation or economic calculus; and finally, to research how knowledge used in decision making is created in an increasingly open process that includes not only scientists but a variety of participants.

When analyzing the PAGANINI case studies, "modernist" techniques of governance were contrasted with contemporary participatory approaches to governance. Interestingly enough, the PAGANINI case studies do not suggest a complete shift from one model of governance to another one. Rather, the empirical findings of the project suggest that modernist techniques of governance have proved fairly resilient and, in many cases, have adapted well to the new realities of politics of life domains. As a result, different approaches and paradigms of governance will often coexist. Ethics committees, an adaptation of technical expert committees to the domain of values, are a case in point. Ethics committees are more reminiscent of technocratic, elitist forms of governance and have little to do with broader participation. Still, ethics committees can open up debates and make them visible to a broader audience; they can become mechanisms to enable wider participation in governance. And even scientific advisory committees can turn into forums for public participation, as the British food safety case shows. Thus, in practice, elitist, technocratic forms of governance often coexist with more open and democratic approaches to governance.

In the PAGANINI case studies, one observes a picture of participation that is both more nuanced and more complex than many studies or commentaries on participation and the democratization of technocratic decision making would suggest. Participation has indeed multiplied; participation has also become a new buzzword within government, especially in Europe. Partly this may well be a reflection of the fundamentally weak mechanisms of political representation at the European level and an increasingly urgent need, within the organizations and agencies of the European Union, to engage more and more directly with their citizens. From the PAGANINI case studies it is clear that participation is hardly a simple, quick fix that can be applied in any instance where the model of technocratic decision making has failed.

Citizen and consensus conferences are but one mode of consultation and, so the case studies seem to suggest, certainly not the most common. Tribunals of "disinterested citizens" who agree to follow certain idealized rules of discourse, are at best an extreme of artificially engineered participation that simply does not do justice to the numerous modes of participation in regulatory policy that have emerged over the past few decades. Any government agency dealing with politics of life domains should make it as their first task to understand, in as much detail as possible, the various "publics" that are related to any given regulatory question.

Beyond this insight, are there any normative conclusions emerging from this project? What lessons are to be drawn from the PAGANINI case studies for those in public administrations or in political positions who need to make decisions now? In what follows, some insights that would seem to emerge from the case studies are provided. The goal is to provide practical suggestions on how, in politics of life domains, administrators or government officials can successfully devise processes of participatory decision making and participation that are likely to yield outcomes that are durable, scientifically sound, and socially robust.

1. Participatory democracy, both arranged and spontaneous, has become an essential instrument of governance in politics of life domains in Europe

In all cases studies within the PAGANINI project participatory democracy and participatory governance have become a crucial instrument to re-build trust in European government. While participatory governance is by now a well-established and legitimate mechanisms of governance, efforts to further strengthen mechanisms of participatory governance and participatory governance in politics of life domains are clearly warranted. However, it was also found that

participation and participatory governance is by no means limited to state-led efforts only. Such formal or arranged participation was encountered in a number of cases studies within PAGANINI. There can be no doubt that formal participation, whatever form it may take, is by now a political reality. Still, the empirical findings also suggest that formal participation is typically only one mechanism of participation among others. Furthermore, the complete substitution of informal or spontaneous participation as opposed to formal or ”invited participation” almost never seems to succeed. At best, formal participation is an additional mechanisms that may add to, or complement, other mechanisms of participation. Government agencies may also use formal participation as a means to limit the impact of other mechanisms of participation. But, not a single case was found where a full substitution of informal participation by a formally arranged and supervised exercise was successful. Thus, our conclusion that government agencies should look at formal mechanisms as an additional and supplementary mechanism of participation, rather than as a substitute for forms of participation that may appear less easy to control. Finally, formal mechanisms of participation come with their own limitations, inherent dynamics, and uncertainty.

2. Acknowledge the fundamental uncertainty of politics of life domains

Uncertainty is a fundamental feature in politics of life domains. While classical techniques of governance and administration aim at reducing uncertainty to calculable and quantifiable “risks” or “benefits”, in politics of life domains this is often not possible. The case studies within the PAGANINI project suggest that, for governments, it would often be the best strategy to acknowledge this fact at the outset. While this has happened to a certain extent under policies that are based on the “precautionary principle”, it is important to note here that uncertainty in politics of life domains is much broader, and also includes uncertainty about the very objects of regulation and governance, or uncertainty about the benefits of a novel technology (and not just uncertainty about its risks).

3. Find ways to account for the instability over time inherent in politics of life domains

In the politics of life, nothing is stable. The objects of regulation often change over time, as does the scientific knowledge relevant to political decisions, or the composition of interested publics. For example, the creation of a new scientific object, such as the discovery of a novel gene, can have a multitude of societal and political implications and may lead to the formation of entirely new social groups or new stakeholder publics, as the case of the breast cancer genes BRCA 1 and BRCA 2 has demonstrated. Government agencies would be well advised to find arrangements that, to the extent possible, acknowledge this inherent instability in politics of life domains. What this really means, in political or legal terms, will depend on the specific case. In politics of life issues, government would best adhere to approaches to regulation that allow for quick changes or that remain entirely informal. In fact, such arrangements may turn out as problematic since political compromises in politics of life domains often are "tested" in more thorough ways than is the case for many other areas of politics. Still, there is good indication that formal approaches to regulation in politics of life areas will be most successful if they acknowledge the inherent instability of the very ingredients of these regulations—starting with issues deemed problematic, to relevant scientific knowledge, or the composition of the concerned publics.

4. Focus on the societal robustness, in addition to the scientific credibility or regulatory coherence of new policies or regulations

In politics of life domains, questions, relevant expertise, and the composition of concerned publics may vary over time. Yet, at the same time, political decisions do need to be remarkably robust. Political governance in politics of life domains that is not socially robust stands little chance of political success. Social robustness is typically more important than scientific credibility in the narrow sense or, else, regulatory coherence. Note, however, that social robustness is not, in any sense, a direct substitute for scientific credibility—rather, social robustness is a more stringent standard. Socially robust knowledge is simply a *subset* of scientific knowledge. A political compromise that is socially robust is, by definition, also scientifically credible. Yet, scientific credibility is only one facet of social robustness—only a fraction of the knowledge produced by scientists at any given point in time will also satisfy the criteria of social robustness.

5. Develop an empirically rich understanding of the various types of publics involved in politics of life domains

The case studies undertaken within the PAGANINI project clearly suggest that participation in politics of life domains is extremely rich, highly varied, and often happening in surprising locations and under circumstances that nobody would have predicted. For political actors there are simply no mechanisms to predict what form participation will actually take. Still, the empirical evidence suggests that, for political actors, an important step toward societal robustness is to develop an empirically rich, well informed, and in-depth understanding of the various types of "publics" that are related to a given politics of life domain at any point in time.

6. Acknowledge ethics and emotions as legitimate, and complementary, forms of political discourse about politic of life issues

In all case studies the surge in importance of ethical discourses was broadly documented. In ethical and moral discourses scientific knowledge as basis for normative action has been partially replaced by considerations of values, concern, and what is deemed as "right" or "wrong". At the same time, a strongly emotional language characterizes many of the discussions in areas such as stem cell research or on GM Food. Government agencies would often do good to acknowledge that values and even sentiments about a given question are a legitimate form of political discourse—rather than simply ignore those who use such arguments. This is certainly not to suggest that, in politics of life domains, government organizations or the European Union should base their regulatory decisions mainly on arguments about values and emotions rather than facts. But creating legitimate political spaces for articulating concerns, values, moral positions, anxieties and hopes might increasingly become a precondition for successful governance in the domain of the politics of life.

7. Early, proactive, and coherent efforts toward political participation are more likely to yield success than half-hearted, delayed and contradictory approaches

From a governance perspective, it is key in the politics of life arenas to develop an early, proactive and coherent effort to deal with new challenges as opposed to half-hearted, delayed, and contradictory approaches. Here, the interaction with the various publics and an open understanding of participation form central elements. Time tends to be essential in many politics of life fields. Neither can trust be generated ad-hoc, nor can political institutions be rebuilt quickly on demand. Trust in the quality of highly contentious political decisions must be created pro-actively through a variety of discursive and institutional mechanisms, reforms, designs and strategies. Only through acknowledging the special character of politics of life domains will governments be able to face up to the multitude of currents and future challenges in this domain in Europe.

V. References

The following bibliography gives the full bibliographies of the Working Packages on which the research of the PAGANINI project (and with it the Final Report) is based on. In order to make this bibliography more useful for the readers, we give the bibliography separately for each Working Package.

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Interviews United Kingdom

All interviews in the UK were conducted by Herbert Gottweis.

Interview 2-2, House of Lords, Officer, London, July 2, 2002.

Interview 2-3, House of Commons, Member of Parliament, London, July 3, 2002.

Interview 2-4, Human Genetics Alert, London, July 2, 2002.

Interview 2-5, Department of Health, London, July 2, 2002.

Interview 2-6, Hammersmith Hospital, MRC, Clinical Sciences Center, London, July 3, 2002.

Interview 2-7, Department of Zoology, Oxford University, Oxford, July 3, 2002.

Interview 2-8, Guy´s Hospital/Thomas Hospital, Assisted Conception Unit, London, July 3, 2002.

Interview 2-9, Church of England, London, July 4, 2002.

Interview 2-10, The Welcome Trust, London, July 4, 2002.

Interview 2-11, Comment on Reproductive Ethics, London, July 4, 2002.

Interview 2-12, HFEA/Oxford University, Oxford, July 5, 2002.

Interview 2-13, UK Stem Cell Bank, National Institute for Biological Standards and Control, Potters Bar, January 17, 2006.

Interview 2-14, Department of Health, London, January 17, 2006.

Interview 2-15, Comment on Reproductive Ethics, London, January 18, 2006.

Interview 2-16, HFEA, London, January 18, 2006.

Interviews United States

All interviews in the United States, were conducted by Herbert Gottweis

Interview 2-17, Institute of Cell Biology, Stanford University, Palo Alto, May 22, 2006,

Interview 2-18, California Institute for Regenerative Medicine, Sanf Francisco, May 22, 2006.

Interview 2-19, Pacific Fertility Center, May 23, 2006.

Interview 2-20, Stem Cell Program, University of California, San Francisco, May 23, 2006.

Interview 2-21, California Pacific Medical Center Research Institute, San Francisco, May 23, 2006.

Interview 2-22, Archdiocese of San Francisco, San Francisco, May 23, 2006.

Interviews Austria

All Interviews in Austria were conducted by Erich Grießler.

Interview 2-23, Dialog <> Gentechnik, Vienna, March 16, 2006, Erich Grießler

Interview 2-24, Member of Austrian Parliament, ÖVP, April 7, 2006, Vienna, Erich Grießler

Interview 2-25, Austrian Bioethics Commission, Vienna, March 16, 2006, Erich Grießler

Interview 2-26, Member of Austrian Parliament, Vienna, April 28, 2006, Erich Grießler

Interview 2-27, Federal Ministry for Education, Science and Culture, Vienna, March 14, 2004, Erich Grießler

Interview 2-28, Parliament, Vienna, March 14, 2006, the did not agree to recording.

Interview 2-29, Federal Ministry for Education, Science and Culture, Vienna, March 9, 2006.

Interview 2-30, Community of Vienna, Vienna, April 7, 2006.

Interview 2-31, Community of Vienna, Vienna, April 4, 2006.

Interview 2-32, venture capitalist, Vienna, March 16, 2006.

Interview 2-33, researcher, Vienna, September 2006.

Interview 2-34, former Member of Parliament, Vienna, January 13, 2006.

Interview 2-51, Member of the Bioethics Commission at the Federal Chancellery, Vienna.

Interview 2-52, Member of the Bioethics Commission at the Federal Chancellery, Vienna, November, 10 2002.

Interviews Italy

Interview 2-35, Deputy, Palazzo Marini, Rome, September 27, 2006.

Interview 2-36, Associazione Luca Coscioni, Rome, September 28, 2006.

Interview 2-37, Senator, Rome, September 28, 2006.

Interview 2-38, Former Minister of Health, Milan, October 3, 2006.

Interview 2-39, Policy Maker, Istituto Superiore di Sanità, Rome, September 29, 2006.

Interview 2-40, Scientists, University of Milan, October 2, 2006.

Interview 2-41, former Deputy, Piazza Montecitorio, Rome, September 27, 2006.

Interview 2-42, Senator, Palazzo Madama, Rome, September 28, 2006.

Interview 2-43, Scientist, Università di Milano, Rome, February 17, 2006.

Interview 2-44, Associazione Luca Coscioni, Rome, February 17, 2006.

Intervie 2-45, Scientist, Dibit, San Raffaele, Milan, February 10, 2006.

Interview 2-46, Philosopher, Comitato Nazionale per la Bioetica, Roma, February 14, 2006.

Interview 2-47, Geneticist, private laboratory, Rome, February 14, 2006.

Interview 2-48, Head of Patients' Organization, Rome, February 20, 2006.

Interview 2-49, Geneticist, President of the Associazione Scienza & Vita, Rome, February 21, 2006.

Interview Israel

Interview 2-50, Member of Supreme Helsinki Comittee, Jerusalem, July 2004.

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Interview 2-3: Austrian Academy of Science, Institute for Technology Assessment, Vienna, Austria, June, 28, 2006.

Interview 3-3: Member of the European Parliament, Green Party, telephone interview Berlin-Strasbourg, France, April, 4, 2006.

Interview 4-3: Secretary of the HGC, London, UK, February, 2, 2006.

Interview 5-3: Institut Mensch, Ethik, Wissenschaft, Berlin, Germany, March, 31, 2006.

Interview 6-3: Member of the HGC, London, UK, February, 2, 2006.

Interview 7-3: Geneticist, Medical University Vienna, Univ.-Klinik für Frauenheilkunde, Vienna, Austria, September, 20, 2005.

Interview 8-3: Member of Parliament, Austrian Peoples Party, Vienna, Austria, August, 21, 2006.

Interview 9- 3: Disability Awareness in Action, telephone interview Berlin-UK, March, 6, 2006.

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Interview 13-3: Genetic Interest Group, HGC, London, UK, January, 31, 2006.

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Interview 20-3: Member of the HGC (until 2005), London, UK, January, 28, 2006.

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Interview 26-3: Gen-Ethisches Netzwerk, Berlin, February 15, 2006.

Interview 27-3: Heilpädagogische Fakultät der Universität Köln, Research Project on 1000fragen.de September, 9, 2005.

Conferences/Meetings/Workshops (taped or taken notes)

"Forum Biopolitik" Bundeskoordination Internationalismus (BUKO), 5-9.May 2005, Hamburg; (notes).

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Work Package 4:

Building Trust through Public Participation: Learning from Conflicts over the Implementation of the Habitats Directive.

Final Report (Deliverable Number 14)

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Interviews

Interviews in Finland:

Helsinki

(The interviewees gave permission to disclose their names)

1a Mr. Esko Jaakkola, Environmental Counsellor, Division of Nature Conservation, Ministry of the Environment; May 13, 2005

2a, Mr. Veikko Marttila, Environmental Director, Ministry of Agriculture and Forestry; August 24, 2005

3a, Mr. Jussi Laanikari, Research officer, Ministry of Agriculture and Forestry; August 31, 2005

4a, Mrs. Helena Korhonen, Director, Legal Affairs, Ministry of the Environment; June 6, 2006

5a, Mr. Erkki Pulliainen, Member of Parliament (Green Party); September 7, 2005

6a, Mr. Tapani Veistola, project coordinator, Finnish Association for Nature Conservation; May 18, 2005

7a, Mr. Markku Tornberg, Director of environmental issues, Central Union of Agricultural Producers and Forest Owners (MTK); August 22, 2005

The Tampere Region

(Because of the heated nature of the local controversies, the interviews were strictly confidential and only five of them were taped (x); we have used the interviews as background material).

Tampere, city planner, June 23, 2004.

Tampere, regional authority, October 27, 2004 (x)

Municipality, city planner, November 8, 2004

Tampere, NGO, December 14, 2004

Municipality, mamber of the city council, December 20, 2004

Municipality, nature surveyor, December 20, 2004

Tampere, regional authority, January 4, 2005

Municipality, surveyor consultant, January 13, 2005

Regional Forestry Center, February 16, 2005

Municipality, civil servant, March 3, 2005

Municipality, civil servant, March 3, 2005

Municipality, city planner, March 7, 2005

Municipality, city planner, March 18, 2005

Municipality, NGO (nature surveyor) March 23, 2005

Tampere, nature surveyor, April 4, 2005 (x)

Tampere, regional authority, April 6, 2005

Municipality, forester, June 3, 2005 (x)

Tampere, NGO, Juna 23, 2005

Municipality, civil servant, August 11, 2005 (x)

Municipality, civil servant, August 13, 2005

Tampere, regional authority, September 8, 2005

Municipality, October 3, 2005 (x)

Greece:

Athens:

interview 1b-4, 14/07/05, Ministry of Environment (YPEHODE) , 14/07/06 Athens .

interview 2b-4, Ministry of Environment (YPEHODE), 14/07/05 Athens.

interview 3b-4 , Office of Public Inspectors, 14/07/05 Athens.

interview 4b-4 , WWF-GROffice, 15/07/05 Athens.

interview 5b-4, GRECOTEL Office, 15/07/05 Athens.

interview 6b-4, ARCHELON Office, 18/07/05 Athens.

interview 7b-4 , Ministry of Tourism, 18/07/05 Athens.

Heraklion:

interview 8b-4 , NMPZ MA former-president, 06/04/2006, Heraklion, Crete.

interview 9b-4, Representative of the 'Ecological Initiative of Zakinthian People' and RAPORTO publisher, 06/04/06, Heraklion.

interview 10b-4, Representative of the 'Environmental Group of Rethimnians' and Local Newspaper Journalist, 06/04/06, Herkclion.

interview 11b-04, Medasset Representative, 06/04/06 Heraklion.

Zakinthos:

interview 12b-4, Representative of the 'Ecological Initiative of Zakinthian People' and RAPORTO publisher, 02/07/06, Zakinthos.

interview 13b-4 , Hotel Owner, 02/07/06, Zakinthos.

interview 14b-4, local resident, 02/07/06, Zakinthos.

interview 15b-4, Perfecture of Zakinthos, 04/07/06, Zakinthos.

interview 16b-4, Town Hall of Laganas, 04/07/06, Zakinthos.

Interview 17b-4, hotel and land owner, 04/07/06, Zakinthos.

interview 18b-4, ARCHELON Representative, 04/07/06, Zakinthos.

interview 19b-4, NMPZ Management Agency, 05/07/06 Zakinthos.

interview 20b-4, Technological Institute Representative, 05/07/06 Zakinthos.

interview 21b-4, fishermen representative, 05/07/06, Zakinthos.

interview 22b-4, Perfecture of Zakinthos, 06/07/06, Zakinthos.

interview 23b-4, Perfecture of Zakinthos, 06/07/06, Zakinthos

Chania:

interview 24b-4, Local NGO representative, /08/06

Timbaki

interview 25b-4, Local NGO representative, /04/06

Work Package 5:

Learning after the Event. Assessing the Institutional Role of Civic Participation after Food Scandals and Food Scares.

Final Report (Deliverable Number 15).

List of interviewees[16]

1. Employee Food Standards Agency. Chief Scientist Team. London, 5-7-06.
2. Civil servant Ministerium für Ernährung und Ländlichen Raum. Stuttgart Baden-Würtemberg, 1-9-06. ***
3. Employee Federal Institute for Risk Assessment BfR. Risk Communication division. Berlin 15-8-06.***
4. Scientist University of Hamburg. German expert on BSE and food chain developments. Budapest, 9-9-05.
5. Spokesperson British consumer organisation. Tel. consultation, 6-7-2006.
6. Employee Food Standards Agency. Corporate and Board Secretariat Division. London, 5-7-06
7. Employee Federal Institute for Risk Assessment BfR. Risk Communication division. Berlin 15-8-06.***
8. Employee Federal Institute for Risk Assessment BfR. Risk Communication division. Berlin, 16-8-06***
9. Independent TSE specialist Germany. Interview per e-mail July – August 2006.
10. Employee Food Standards Agency. TSE Division. London, 5-7-06.
11. Researcher Fraunhofer-Institüt für System- und Innovationsforschung. Tel. consultation, 6 -7-2006.
12. Farmer; member of the Consumer Platform of the Ministry of Agriculture. Raamsdonksveer, 20-6-2006.
13. Former consumer representative on UK scientific committee. Weybridge, 19-7-06 .
14. Journalist, expert on food chain issues; former member of the Consumer Platform of the Dutch Ministry of Agriculture. 19-2-06.
15. Member of Parliament; standing committee on agriculture. The Hague, 7-6-2006.****

[16] Anonymised as according to project specifications.

16. Appointee Food Standards Agency. London, n.d.s. **
17. Employee Food and Consumer Product Safety Authority VWA. Communication division. The Hague, 30-6-06.
18. Scientist Open University, Milton Keynes. British expert on agriculture and food chain developments. Amsterdam, 25-11-05.
19. Spokesperson Royal Netherlands Butchers Organisation KNS. Tel. consultation, 10-7-2006.
20. Committee specialist Environment, Food and Rural Affairs. London, 18-7-06.
21. Former civil servant Dutch Ministry of Agriculture. Utrecht, 19-12-2006.
22. Scientist University of Tokyo. Japanese expert on BSE and food chain developments. Amsterdam, 16-6-2006.
23. Scientist Wageningen University. Dutch expert on BSE and food chain developments. Nijmegen, 19-1-06.
24. Employee Food Standards Agency. Communications Division. London, 5-7-06.
25. Former employee EFSA. London, 21-7-06.*
26. Civil servant Dutch Ministry of Agriculture. The Hague, 27-6-2006.
27. Former UK consumer organisation's representative. St. Albans, 19-7-06.
28. Employee Federal Institute for Risk Assessment BfR. Risk Communication division. Berlin, 15-8-06.***
29. Member of Parliament; standing committee on agriculture. The Hague, 7-6-2006.****
30. Researcher Wageningen UR; participant in Food-of-the Future project. Amsterdam, 10-8-06.
31. Former project leader Rathenau Institute. Amsterdam, 27-3-06.
32. Researcher; initiator of the '24-hour ministry of food safety'. Haarlem, 10-7-2006.
33. Project leader Rathenau Institute. Tel. consultation, 22-3-06.
34. Civil servant Dutch Ministry of Health; member of the former Codex Committee on Meat Hygiene. The Hague, 31-3-06.
35. Member of Parliament; standing committee on agriculture. The Hague, 7-6-2006.****
36. Member of Parliament; EFRA Select committee. London, 18-7-06.
37. Employee Federal Institute for Risk Assessment BfR. Risk Communication division. Berlin, 16-8-06.***
38. Employee slaughterhouse. Amsterdam, 10-7-2006.
39. Appointee Food Standards Agency. London, 29-5-2002**

All interviews conducted by Anne Loeber, unless otherwise specified: *conducted by Maarten Hajer; **conducted by Maarten Hajer and David Laws; ***conducted by Katharina Paul, in the context of the PhD project 'Food for Thought' A Comparative Study of Administrative Innovations in Food Safety

Regulation in Western Europe after the BSE Crisis, funded by NWO and ASSR, conducted under the supervision of Maarten Hajer; ****conducted by Jan Rube, Nanke Verloo and Fleur Cools in the context of a BA project assignment, conducted under the supervision of Anne Loeber.

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