



Contract Number: CIT5 / 028501

G-FORS

Governance for Sustainability

Priority 7:	Citizens and Governance in a Knowledge-Based Society
Research area 4:	The Implications of European Integration and Enlargement for Governance and the Citizen
Research topic:	4.2.2 Governance for Sustainable Development

Final Activity Report

Volume I

Period covered:	1 st February 2006 to 31 st May 2009
Date of preparation:	May 2009
Start date:	1 st February 2006
Duration:	40 months
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1. Executive Summary

The contents of this report are based on research carried out as part of the Governance for Sustainability (G-FORS) research project, a three-year project financed by the European Union's Sixth Framework Programme for Research and Development. The objective of G-FORS is to develop an innovative analytical model for the study of governance for sustainability with a particular emphasis on how knowledge was drawn upon and utilised in practice in the so called knowledge society. These issues are of vital importance for policies addressing the environment and sustainability where levels of uncertainty and disagreements over how to formulate and implement policy are particularly high.

The G-FORS team developed this analytical model, focusing on the synergy between new governance modes and different forms of knowledge, taking into account the rapid changes in the knowledge society. For this purpose, G-FORS identified a range of different forms of knowledge and analyse how they may interact in the context of particular governance arrangements to produce "reflexive knowledge" and contribute to a more legitimate understanding of sustainability.

Point of reference is "the problem of ignorance": taking decisions against a background of risk. This was and still is especially crucial for environment and sustainability policies. From this point G-FORS team investigated the interplay of governance arrangements and knowledge and analyse the problem solving capacities of specific arrangements/arenas.

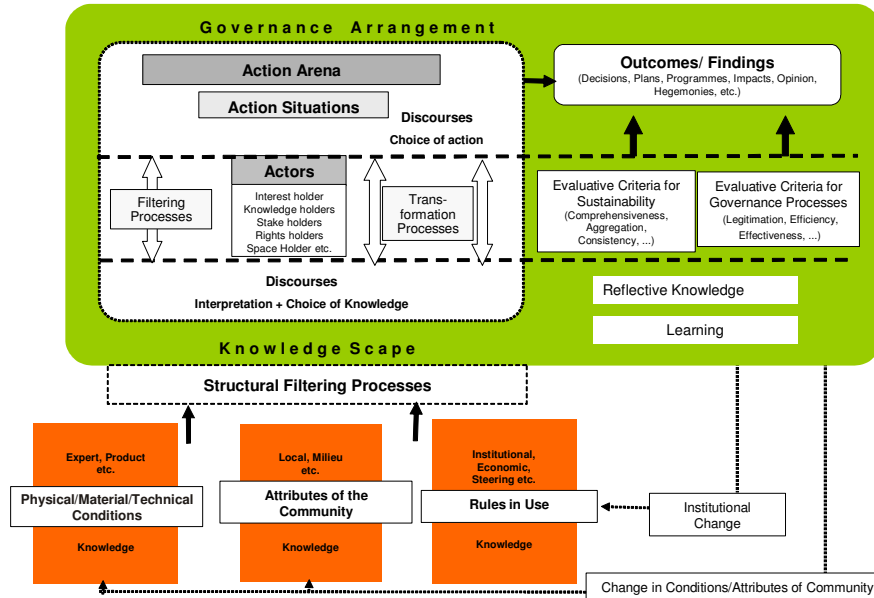
The G-FORS team identified the three areas: emissions trade, air quality management/particulate matter and strategic environmental assessment, and their implementation at local level. These areas have been chosen because they involve different governance modes in a multi-level context that illustrate the positive interactions and potential tensions between certain governance arrangements, different forms of knowledge and sustainable development. Benchmark indicators have been identified that can appraise the effectiveness of current political, economic, administrative and organisational processes and institutional settings in developing economically, socially and environmentally sustainable policies.

Proceeding from the empirical research, the research team assessed how the engagement of a range of actors in new multi-level governance arrangements can be activated to tackle any future threats of democratic deficit and to promote participation and sustainable development. In particular, G-FORS demonstrated the key economic, social and political roles of sub-national actors.

The first year of the project mainly addressed the elaboration of the new conceptual frame and its preparation for the application. The outcome of this work is shown in the following illustration. The complete description is put in the Appendix A and B. This fusion of concepts on governance arrangements

and knowledge scenarios will be analysed by discourse analysis as a primary methodological tool.

Action-oriented Processes of Governance



The crucial insight of the conceptual discussion was a different understanding of policy outcomes. Based on discussion about the impact of knowledge on problem construction and solving, policy outcomes are understood as aggregated effects of governance and knowledge in the context of sustainability. Sustainability is more about experience-based learning processes on causal assumptions, while institutional change and the generation of new knowledge are more concerned with causes and effects. Policies developed to promote sustainability are partial and ineffective unless they effectively incorporate a range of knowledge forms.

The empirical case studies, which started with the end of the first period, focused on the above mentioned structure and investigated the content of the conceptual framework. Moreover, regarding the involved and affected actors, evaluative processes led to learning and reflective knowledge which in turn can result in institutional change and changes of the ‘attributes of the physical world’, the ‘attributes of the community’ and the ‘rules-in-use’ – at least in the perceptions of and knowledge about them. The implication for decision-makers could be multifaceted.

The second year of the project mainly focused on the finalization of the national case studies. The outcome of this work is summarized in the appendix C. Furthermore, dissemination of the first empirical insights became a central task of the coordinator and the whole consortium.

The empirical work was carried out by the eleven members of the project consortium. The Metropolitan region of Hannover as project co-ordinator guaranteed an external input that brought the scientific work and the dissemination of the results to a relevant non-scientific public.

<i>No.</i>	<i>Participant name</i>	<i>Participant abbreviation</i>	<i>Country</i>
1	Metropolitan Region of Hannover	MRH	Germany
2	University of the West of England, Bristol	UWE	United Kingdom
3	Darmstadt University of Technology	DUT	Germany
4	University of Warsaw	UW	Poland
5	University of Twente	UT	The Netherlands
6	Politecnico di Milano	POLIMI-DIAP	Italy
7	University of Göteborg	UG	Sweden
8	Norwegian Institute for Urban and Regional Research	NIBR	Norway
9	Institute of Urban Environment and Human Resources, Panteion University	UEHR	Greece
10	Centre for Regional Studies of Hungarian Academy of Sciences	CRS HAS	Hungary
11	EUROCITIES	EUROCITIES	Belgium
12	Institute for Regional Development and Structural Planning	IRS	Germany

The third period focused on the elaboration of the scientific outcomes and monitoring of the conceptual frame as well as the dissemination and publication activities. Because of the complexity of the results and the different conditions of the political and organisational background of the case studies the scientific work paid attention in addition to the analysis of the conceptual frame. The main scientific results are concentrated in the comparative conclusions appendix D.

As announced in the application, the G-FORS team sought in addition to the innovative scientific work a transfer the results to the local and regional practice. The outcomes of this work led to the handbook for practitioners, which is attached to the report in appendix E

The project work concluded with a conference in Brussels on which the main results and outcomes were presented to a wider public.

GFORS, like any serious piece of research, set out to develop and empirically apply a sophisticated theoretical and methodological framework. It is in the nature of such research that obstacles are encountered and adaptations are

made during the course of the research process. When that research involves teams and case studies in nine countries the potential problems are multiplied. However, during the course of the project's three year life any problems were recognised and successfully addressed. As a result The G-FORS team has produced a series of empirical case studies conducted within a common theoretical and methodological framework. What conclusions might be drawn from this work?

In terms of governance modes we can clearly conclude that across the case studies hierarchy was (continues to be) the dominant mode within governance arrangements and that networks and market modes operated very much in 'the shadow of hierarchy'. The traditional assumptions about hierarchies are that they are closed and bureaucratic in their mode of operation and monolithic in their form - approximating the traditional Weberian ideal type. What our research clearly demonstrated is that hierarchies can be more or less 'open' or 'closed' to both new participants and/or forms of knowledge. Moreover, we need to take into account the spatial desegregation of hierarchy rather than viewing the governmental hierarchies in each country as monolithic. The distinctions between national and sub-national forms of hierarchy matters, albeit to varying degrees, but we should not treat them as if it were undifferentiated. All of this means that we need to recognise that they are more flexible than often assumed and that they do change and adopt over time and in relation to different policy areas/fields. While this is not a 'defence' of hierarchy it is a plea for the need to acknowledge that hierarchy, as a governance mode, represents a much more varied mode of governance than is often recognised and that it can be surprisingly flexible.

The particular mix of governance modes within governance arrangements varied from country to country and from case study to case study, sometimes within the same country. But within countries there were certain commonalities between the cases indicating the continuing significance of country specific institutionalised settings and the role played by the wider political culture and history – i.e. path dependency. However, the individual policy instruments focused on (i.e. ETS, SEA and AQM) did exert an 'independent' structuring effect on the particular governance arrangements in operation, types of interaction, the forms of knowledge present in the action arena and the interaction between them in terms of filtering processes and learning. The significance and role of hierarchy and network modes (i.e. arguing and bargaining) does, in part, seem to be related to the 'substantive' or 'technical nature' of the issue under consideration as well as to the nature of the wider political system. Market based forms proved much more difficult to identify empirically, although we did detect elements or traces of their operation.

In all of our case studies expert/scientific knowledge from Knowledge Bundle 1 was dominant. However, this dominance seems to have been filtered (or mediated) by the political process and thus knowledge from Knowledge Bundle 2 frequently structured the 'entry' of knowledge from Bundle 1 into the decision making/policy process. Knowledge from Knowledge Bundle 3 played a much more subordinate role. In all of our case studies market based

knowledge does appear to have played a (indirect) structuring role, by this we mean that decisions and assumptions about the economic impacts of particular courses of action have either limited the scope of debate and/or defined what is 'thinkable' in terms of possible courses of action.

We also detected the presence of *knowledge overload* that may actually produce more confusion/uncertainty and that there is the potential for decision-making systems to become overwhelmed by this proliferation of knowledge. Rational policy models have always assumed that it is possible for all knowledge to be taken into account when taking decisions, clearly this was never possible and there will inevitably be a process of selection. However, we are not seeking to defend approaches that arbitrarily exclude forms of knowledge; our contention is that the processes which lead to inclusion/exclusion of knowledge should be open, transparent and accountable whether this takes place in hierarchies, networks or markers (or any particular combination of these). Such decisions should be based upon 'good arguments' that are open to scrutiny and challenge.

Reflective knowledge proved difficult to detect, even in its weak sense, but we were able to see a number of examples of it in the case studies. Although even here it was often used in a strategic sense to reinforce pre-existing positions, interests and aims. In its most positive sense we were able to detect/observe the use of reflectivity in the actions of some citizen/civil society groups to open up the decision making process to wider public scrutiny and engagement. Here knowledge was used strategically and deliberately to propose alternative courses of action. In particular this involved utilising knowledge relating to the European level to open up domestic action arenas. Much, however, depends upon the capacities and knowledge base of domestic actors in civil society and where that is lacking (or there is a deficit) such actors proved relatively ineffective.

In general terms we found that the three dimensions of sustainability – consistency, comprehensiveness and aggregation – were hard to reconcile. Inevitably there were trade-offs between the three dimensions which often resulted in the dominance of one dimension or a degree of policy incoherence. As we noted the national and sub-national governance structures within which these policy instruments were implemented placed limits on the extent that other relevant policies/activities could be taken into account and other actors involved. This is a 'structural problem' that affects all policy fields seeking to develop an integrated approach; there is an inevitable dilemma – when developing and implementing a policy should we seek to include *all* relevant factors/aspects or only those over which we can exercise some form of control?

More specifically with regard to AQM we identified the following outcomes:

- In terms of innovation local urban and environmental policy has gained a new, albeit at times limited, forum for discussion and knowledge transfer about urban air pollution management and control;

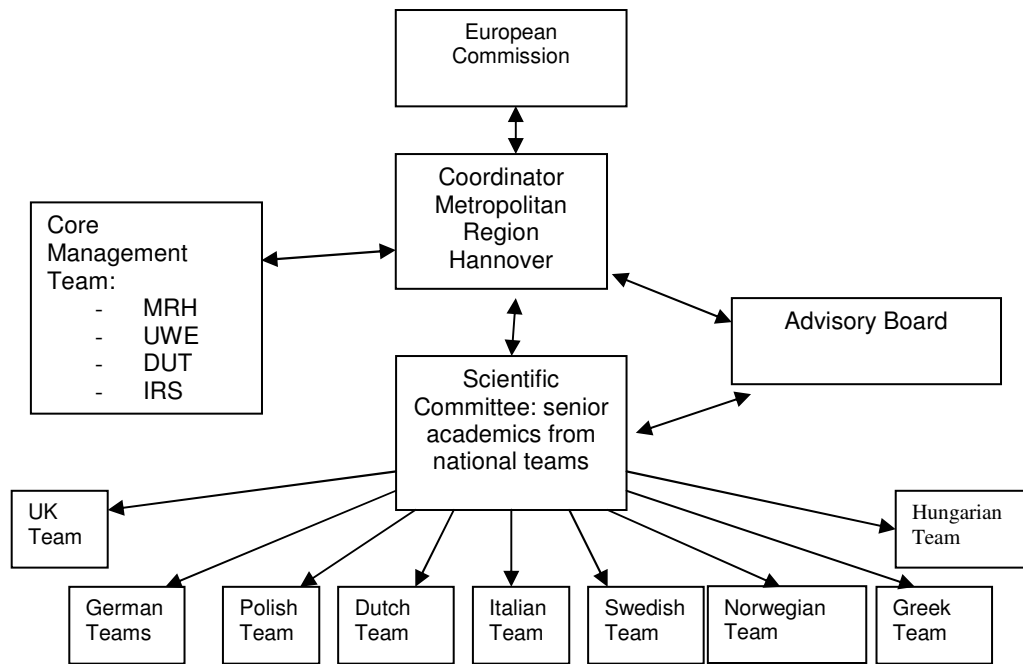
- There is a lack of resources invested (or available) to produce “good policy solution”;
- There are a number of difficulties associated with, or lack of interest in, vertical and horizontal integration in terms of governance. This problem needs to be addressed if AQM is to be effective.

As regards ETS the economic justification for the instrument assumed that the market mechanism would be sufficient to provide all the knowledge that was required for enterprises to make their decisions. The case studies suggest that this is not correct. Other forms of knowledge need to be taken into consideration. But gathering or generating this knowledge has transactions costs which may reduce the market’s effectiveness. This in turn could impair emissions trading’s ambition to initiate a minimal cost emissions reduction process that does not place unacceptable costs on enterprises or create a degree of uncertainty that makes it difficult for enterprises and the system as a whole to achieve the aim of emissions reduction.

Broadly speaking SEA was viewed in two ways (constituting opposite ends of a continuum). At one extreme it was seen as a sectoral ‘environmental tool’ that was imposed by higher authorities and had to be complied with. Here a ‘tick box’ approach was adopted. At the other extreme it was seen as an opportunity for politicians to foster a network mode of governance that ‘aspired’ to arguing. However, in practice politicians did seem to see it as a strategic political tool that could be deployed to achieve particular (pre-given) ends.

Finally we need to note that all three environmental policy instruments are relatively new and that participants are still familiarising themselves with them. As participants develop more understanding of how these instruments operate it can reasonably be expected that a learning process will take place. However, it may also require action at the European level to ensure that governmental actors do not simply conform to the letter of each instrument but also reflect the spirit of the instruments. This is of particular importance when it comes to involving actors from civil society and ensuring that they have a genuine input to and impact on the domestic decision-making processes associated with each instrument. In part this depends upon the manner in which domestic political and policy systems incorporate the instruments, but the European level can also provide more guidance on their operation with regard to the technical aspects of the instruments but also in terms of encouraging greater citizen engagement and transparency while of course respecting subsidiarity.

The G-FORS project has had a complex structure (see next illustration). Apart from the co-ordination team and the project partners, an advisory board and a core management team were established. The advisory board will provide additional external feedback and the core management supports the MRH in strategic decisions.



As usual for EC funded all project the G-FORS project activities and especially the publications are identifiable by a specific elaborated logo.

The logo of the GFORS project:



All papers mentioned in this report are available on the webpage of the G-FORS project (www.gfors.eu or www.g-fors.eu).

2. Objectives and Main Products

2.1 The objectives of the Project

The fundamental aim of the project was to determine how the specific institutionalization and practical enactment of certain governance modes impact upon the effectiveness and legitimacy of policies aimed at sustainability objectives by using and developing different types of knowledge. This will be achieved by addressing the following tasks, whereby some have already been completed:

- Appraisal of existing analytical approaches to sustainable development.
- Specification of a range of different forms of knowledge that contribute to our understanding of sustainability.
- Analysis of how these different forms of knowledge may interact under certain institutional conditions to produce 'reflexive knowledge'.
- Empirical case studies examining EU policies involving different governance modes that illustrate positive interactive effects (but also potential tensions) between knowledge forms and achieving sustainable development.
- Specifying the key roles of sub-national actors (including citizens) in fostering positive interactive effects, and addressing potential tensions, between certain processes of democratic decision-making, different governance modes, forms of knowledge and sustainable development
- Develop policy reports based on research finding aimed at EU, national and sub-national policy-makers.
- Implement a systematic dissemination strategy.
- Maintain and develop links with similar projects.

2.2 Main products

In general the G-FORS team elaborated the product in following the work plan.

The conceptual framework and methodological tools (WP 2 and WP 3)

The conceptual frame is essentially based on existing literature and research both from consortium members and from outside sources, in order to underpin in a more precise way the working hypothesis and better understanding of its components, in particular multi-level governance, types of knowledge, sustainability and sustainable development. The environmental economist, but also the multi-disciplinarity of the research team have played an important role by addressing both the theoretical and potential synergies and trade offs between competitiveness and sustainability. A milestone for this activity has been the workshop in Bristol examining the importance of interaction between

governance and knowledge for sustainable development. The resulting deliverable could successfully be offered to a European wide known publisher who is going to disseminate the innovative approach by a book. The complete results are attached in appendix A.

Construction of methodological tools (WP3): in particular common measurement framework, based upon the conceptual framework. The methodological tool was elaborated taking into account the research questions identified in the section choosing the case studies. It contains a common questionnaire for interviews and surveys, a guide for data collection in case studies and the criteria for measuring performance will be produced. The tools were reviewed by experts in European Environmental Law and have had an important role to play in terms of informing and alerting teams to key legal issues. They have been needed by the national teams during the case studies. In order to ensure a match between concepts and methodological tools, the research team has presented and discussed the results in the workshop in Bristol where the experts participated.

The complete result is attached in appendix B.

Country case studies of the UK, Germany, Poland, The Netherlands, Italy, Sweden, Norway, Greece and Hungary (WP 4 – WP12)

After the elaboration of the conceptual frame and the methodological tools the work of G-FORS focused on empirical research on 9 country case studies (WP4 to WP12):

In order to examine research questions, the consortium needed to choose carefully the case studies. First the consortium identified different kinds of governance systems. Nine countries have been selected to reflect different national socio-economic conditions, geo-political situations, different approaches and standards to sustainability and to environmental resource management. The Northern approach is represented by Norway and Sweden; the Southern approach by Italy and Greece; the Western approach by the UK, Germany and the Netherlands and the Eastern approach by two new EU members Hungary and Poland. These four clusters present very different methods to deal with environment resource management, and within each cluster, variations also appear. This geographical spread was necessary to reflect, comprehend and ultimately address the real nature of the global challenge facing the EU and its governance system as well as national governments in the area of sustainable development.

The empirical analysis in G-FORS is based on a total of 18 case studies. In these case studies, quantitative as well as qualitative data will be gathered. Some of these data will be analysed by the individual national teams and fed into WP13 for comparative analysis by means of the case study reports. Other data have been compiled into data sets for project-encompassing comparative statistical analysis.

Both approaches required the research efforts of the national teams to be guided by the elaborated consistent and comprehensive methodological framework. This framework included precise definitions of the basic terminology of the project, guides on the selection of informants, standardized questionnaires to be translated into the relevant languages, templates for the case study reports and definitions of variables to be included in the data sets. As G-FORS involved nine national research teams, it was crucial to the scientific and technological objectives of the project that the case studies are carried out in strict observance of this framework. Securing this was one of the priorities for the project management.

Interviews and questionnaires brought a bulk of data for the empirical analysis. G-FORS however also drew on statistical data, budgetary data and other forms of information available from government agencies and other sources. Such data were needed among other things for assessing the issues addressed by the policies. As the policy initiatives were evaluated according to the overall challenges they pose, it was necessary to obtain precise and comparable information on the nature of the problems in question. Other forms of information have been obtained for describing the exact contents of plans and initiatives, assessing the resources made available and the potential impact of the measures that are implemented.

To ensure comparability, G-FORS took variations in national contexts as well as particulars of the local and regional contexts into consideration. The methodological framework will identify key contextual elements and provide specifications on data for measuring these. However it will also be necessary for national teams to identify sources of contextual variation.

Each case study research resulted in a case study report to feed into phase 3 of the project as well as in a publishable article targeted at refereed journals of international standards. Draft articles have been produced and been peer reviewed to ensure equal standards across the case studies.

Transnational review and monitoring of empirical work: in phase 2, the advisory board has been asked to consider issues emerging during the collection of empirical data in month 19, i.e. half-way through data collection. As in phase 1, the advisory board was made of academics and practitioners not part of the consortium. They were asked to consider WP4-12 progresses, advised G-FORS consortium on existing database in the field and made suggestions to improve on WP4-12 if necessary. In addition, before completion of national reports, the consortium started a review process for WP4-12, addressing any emerging issues in a transnational workshop where national results were presented. Core management team and scientific committee also addressed any emerging issues at regular interval during the empirical data collection to avoid any discrepancies across cases and to ensure good progression of tasks in hand.

The detailed results are attached in appendix C.

Comparative conclusions (WP 13)

Against the background of the conceptual frame on the one hand and the outcomes of the national case studies the final scientific work focused in comparative conclusions and in monitoring the conceptual framework and methodological tools.

The advisory board, made of academics and practitioners not part of the consortium have been asked to consider both WP2 and WP3 progresses, and to advise G-FORS consortium on existing research in the field. The members have been invited to the final workshop in Milan in November 2008 giving a platform to make suggestions to improve on WP2 and WP3.

The detailed result is attached in appendix D.

Definition of the dissemination strategy (WP1 and WP14): the G-FORS consortium has set a number of working principles for dissemination (intellectual process, long-term process, dual purpose, democratic process, flexible process, broad coverage). In the first phase of the project, the strategy focused particularly on gathering intelligence on target audiences and developing a stakeholder database as well as creating a website for the project. In addition, the consortium ensured that phase 1 deliverables are widely disseminated including the “Decision-Makers Handbook” and through other related projects such as URBAN MATRIX, EUKN and COST C20. Hence, all reports and workshop proceedings and findings have been made available either immediately on the website or have been published.

The start of production of web and paper based reports and workshop will help support the dissemination of good practice across Europe in relation to governance for sustainable governance. The identification of a database of stakeholders and target audiences ensured greater visibility of the research findings in the latter part of the project and beyond; The setting up of a regular newsletter, in addition, should ensure that new research findings were regularly disseminated throughout the project life of web and paper based reports and workshop. The identification of a database of stakeholders and target audiences aimed to ensure greater visibility of the research findings in the latter part of the project and beyond; The setting up of a regular newsletter should ensure that new research findings are regularly disseminated throughout the project life.

The decision Makers’ Handbook is attached in appendix E.

3. Work Package Progress

During the contracted project time most of the results could be elaborated. Because of the intention of the partners to have a wide dissemination platform for the results they applied for an extension of three month and for the preparation of the final workshop of one additional month. The first phase emphasised the conceptual framework and methodology. Both have been discussed throughout the project. Concurrently, the search for appropriate case studies was started and a complete set of detailed case studies has been defined. The second phase was devoted to the national case studies, the beginning of the analysis of the outcomes and the start of dissemination activities. The third phase focused on the internal discussion of the outcomes the elaboration of the comparative conclusions and the dissemination of the results.

3.1 Work Package 1: Project Management

The project is co-ordinated by the Metropolitan Region Hannover, which was responsible for the project management work package (WP1), which started in February 2006 and ran throughout the project.

Metropolitan Region of Hannover (MRH), had responsibilities in two directions. The CO was in charge of the scientific, financial and administrative co-ordination of the project and the CO acted as intermediary between the principal contractors and the European Commission.

The partners founded a project management structure based on an consortium agreement during the project time. MRH 's work included co-ordination at consortium level of the technical activities of the project; the overall legal, contractual, financial and administrative management of the consortium; preparing, updating and managing the consortium agreement between the participants; co-ordination at consortium level of knowledge management and other innovation-related activities; overseeing the promotion of gender equality in the project; overseeing science and society issues, related to the research activities conducted within the project. The CO will also take care of the projection of the project to the wider world via the website and the organisation of the various scheduled meetings with the consortium members.

During the whole project time the academic partners agreed in this kind of an external coordination seen through the perspective of the scientific side. It was regarded as helpful for the scientific work to have a coordinating unit from the side of the possible end user of the results.

As in other trans-national projects the single activities in this work package are proceeding in line with the description of work.

At the beginning of the project the co-ordinator has established a website for the project at www.gfors.eu or www.g-fors.eu. It included introductory information about the aims of the project, details of the consortium, publications by the project, information about meetings, external links to relevant legal documents, and contact information to the co-ordinator. A members' section was open to the consortium members. Additionally, a newsletter has been designed and will commence publication in January/February 2007. The co-ordination team continued to develop and add to the website during the project time.

During the project time MRH has organised the complex project activities by a number of meetings: three workshops, eight core management meetings and scientific committee meetings and four advisory board meetings. These meetings are held in Darmstadt, Hannover, Bristol, Pécz, Oslo, Warsaw and Milan in close cooperation with the local hosts. At the end of the project MRH organised the final conference in Brussels.

In order to optimise the management activities of the different organisational units, all meetings of the coordinator, the core management team, the scientific committee have been coordinated during the lifetime of the project. In addition all workshops and meetings of the advisory board were scheduled within the meeting of the management meetings. This guaranteed the immediate reaction on any changes and unforeseen results during the project work and led to decision either on the scientific or on the practical management level. This will be demonstrated by the short report of the core management team meetings.

The core management team meetings

The core management comprised members from UWE, DUT, IRS and MRH.

- Prof. Rob Atkinson, University West of England, Cities Research Center
- Prof. Dr. Hubert Heinelt, Technische Universität Darmstadt, Institut für Politikwissenschaft
- Prof. Dr. Ulf Matthiesen, Humboldt Universität, Institut für Regionale- und Strukturplanung
- The coordinator

It assisted the MRH as coordinator and made basic strategic decisions, in particular concerning the scientific content of the project, its reporting to the EC and the responsibilities of each participant to contribute to reports and other deliverables. The core management team met nine times during the life of the project. During the project all core management members stayed in regular contact via e-mail and telephone. The core management team also took care for the gender plan.

The scientific committee

The scientific committee was chaired by MRH and was composed of senior academics from each research institution. The role of the scientific committee was to ensure that work proceeds diligently and to consider all scientific questions relating to the project. The scientific committee has been informed by the MRH of any day to day management issues concerning the whole of the consortium and requests their input in reports to the commission.

The meetings of the scientific committee were scheduled in combination of the core management meetings in order to ensure a close cooperation and optimisation of the time for meetings.

The partners acted in mutual cooperation and promoted the ongoing activities by planning the necessary activities during the three periods of the project.

The advisory board

The advisory board made of 5 academics, policy-makers and end-users acted as an important link between the internal work of the teams and the external academic and political world. The advisory board was responsible for advising the coordinator and scientific committee on policy tools, reflecting on comparative results and suggesting dissemination opportunities of the project amongst academic and practitioner audiences. They ensured the influx of new ideas from outside the consortium. Gender balance and women interests have been a specific aspect by appointing the members of the advisory board so that women's interests were taken into account when evaluating the progress of the research carried out.

Shortly after the beginning of the project the advisory board has been established:

- Professor Dr. Frank Nullmeier, University of Bremen, Zentrum für Sozialpolitik
- Professor Dr. Axel Priebes, Region of Hannover, Head of environmental office
- Professor Dr. Viktória Szirmai, Kodolányi János University Budapest, Environmental and Urban Sociology Department
- Dipl.-Sozwiss. Silke Moschitz, EUROCITIES (Brussels), Project Manager
- Dipl.-Geol. J. Traupe, Salzgitter AG, environmental consultant
- Core management group

The advisory board met four times during the life of the project. They received all deliverables and information about the progression of G-FORS research. Each meeting of the advisory board dealt with a key milestone of the project (one meeting during phase 1 to assess the conceptual framework; one meeting during phase 2 to assess the empirical work and two meetings during phase 3 to assess the comparative analysis carried out and advise on dissemination of end results and future research cooperation).

The meetings took place in Berlin, Bristol, and Milan.

All relevant activities of coordination were steered by the core management group. The launch meeting was held in Darmstadt, Germany, on 10-11/03/2006, instead of the intended venue of Hannover, Germany, which was at that time fully booked by trade fair visitors. The meeting reviewed the aims of the project, theoretical and methodological issues were discussed, and events were planned. In Darmstadt both a core management meeting and a scientific committee meeting were held.

The second core management meeting was held in Hannover, Germany, on 19/06/2006. It considered the outcomes of the concept group, methodological implications and further strategic decisions.

The third core management meeting took place in Bristol, UK, 11-12/10/2006 starting with the organisation and selection of the national case studies and continuing with the discussion of the conceptual frame.

The fourth core management meeting was held in Berlin, Germany, 20/11/2006 and concluded the first version of the conceptual frame and finalising the structure of the national case studies.

The fifth core management meeting was held in Pécs in Hungary, on 23-24/03/2007. The national teams presented the draft of the case studies and gave an insight view of the case study areas. The core management also discussed the possibilities of different publications.

The sixth core management meeting took place in Hannover 27-29/09/2007 instead of Athens, which could not offer a venue for the meeting at that time. Topics of the meetings have been the first empirical findings and the dissemination strategy of the project and the insight of the national teams and the planning of the third year.

The seventh core management meeting was organised in Warsaw, Poland, 16/02/2008. Mains focus was the presentation of the case studies and the preparation of the work of the comparative conclusions.

The eight core management meeting took place in Oslo 06/06/2008 and was devoted to the preparation of the publications and the ongoing work of the comparative conclusions.

The last core management meeting was held in Milan 09/11/2008 in combination of the scientific and advisory board meeting. At the end of the project the meetings focused on the outcomes and the dissemination activities.

Workshops

The ongoing work of the different partners have been designed, prepared, discussed and agreed within the workshops, which functioned as back bone of scientific work during the project time. The workshops ensured especially

the participation of the younger researchers of all relevant steps of the project and gave an opportunity for inputs of national teams.

The first workshop was held in Bristol, UK, on 11-12/10/2006 and included a core management meeting and a workshop. It considered the action points from the previous steering committee meeting and a discussion on the conceptual framework of the project as well as a first idea of the case studies.

The second workshop was held in Berlin, Germany, on 19-20/11/2006 and included a workshop, a scientific committee, a core management and an advisory board meeting. It considered a workshop on methods, launching of the advisory board, and reflections on our concept. The advisory board introduced the research framework developed by the academic partners, considered the dissemination and exploitation of research results, and discussed the role of the advisory board in the project.

The third workshop, held in Warsaw, Poland, 16/02/2008 was devoted to the presentation of the case studies and the first outcomes in respect of the conceptual frame.

The work concerning the case studies was continued by another workshop held at the end of the project in Milan, Italy, 5/11/2008. The national teams elaborated the major outcomes of the case studies in combination with the comparative conclusions.

The final conference in Brussels took place on the 12/05/2009. The project partners presented the results of G-FORS project to a wider public and the representatives of the European Commission.

3.2 Work Package 2: Conceptual Framework

The conceptual framework informs the comparative analysis on sustainable governance and has received detailed attention from the research team. In particular, the aim has been to clarify and explore the inter-relationships between governance and knowledge and analyse different approaches in the political and academic debate about governance for sustainability and the interaction between governance and knowledge. Furthermore key legal approaches as enshrined within EU law were identified. One important outcome is the development of an innovative analytical model, presented in the working paper, "Governance for Sustainability".

This work package was led by DUT and IRS, and ran from month 2 to month 6. It also included the partners from UWE and close collaboration with MRH.

The main tasks for this work package in this period have been:

- Furthering the concept of institutional performance in the spirit of achieving sustainable development.

- Attaining a better theoretical understanding of the possible interactions between systems of governance and knowledge in realising reflective knowledge and sustainable development; this implies summarising the existing political and academic debate on sustainability and the knowledge society.
- Identifying basic research questions which can pave the way for single case studies as well as comparisons between countries.
- Drawing up guidelines on how specific combinations of governance and knowledge would have to be rearranged in order to fulfil the requirements of democratic governance and sustainable development; these considerations will underpin the case studies.

This work package's objective was to provide a conceptual framework for the comparative analysis of governance for sustainable development. Therefore a conceptual framework for case studies and an article to be published on theoretical approach had to be delivered. A first draft of the conceptual frame was presented to all partners at the kick-off meeting in Darmstadt on March 10-11, 2006, and the final version of the conceptual framework paper was finished in August 2006. It was, as prescribed in the technical annex as a deliverable of this work package, presented and discussed in a workshop on the importance of interaction between knowledge and governance for sustainable development in Bristol on September 11-12, 2006. In Bristol it was agreed that research hypotheses should be developed for further clarification of the conceptual frame. At the Bristol workshop there was a wide-ranging discussion on these approaches and further on the theoretical approach. An initial version of the framework was presented in the subsequent paper, "Governance for Sustainability" (G-FORS working paper No. 1 http://www.gfors.eu/fileadmin/download/papers/GFORS_ConceptualFrame_Bristol.pdf). This draft will be published as an article, expected by mid-2007. This paper was extensively commented upon, leading to several additions, refinements, and responses on such aspects of the conceptual framework as:

- Fundamental research idea
- The concept of sustainability
- The cognitive turn in political science
- Gaps in research
- Conceptual framework and the G-FORS model

The DUT and IRS teams worked out a paper on research hypotheses regarding the interaction between knowledge and governance in October 2006.

Since the work on the conceptual frame and on the research hypotheses for the G-FORS project took place in co-operation with the IRS team, several meetings of the DUT team, the IRS team and the project co-ordinators took place in Hannover (02/07, 02/21 in Berlin, 04/05, 05/05, 06/07, 07/19, 10/04 in Hannover).

While the conceptual framework was under discussion various contributions helped to refine the analysis. For example the UEHR team provided some

hypothesis on this concept and in the next workshop the first empirical findings on the background of this concept will be discussed.

Activities in this work package could be proceeded in line with the Description of Work (DoW).

All papers mentioned in this scientific report are available on the G-FORS project webpage (www.gfors.eu or www.g-fors.eu).

3.3 Work Package 3: Methodological Tools

WP3 used the material generated from WP2 and produced the research design for use by the case study teams. This workpackage developed context sensitive measures for key concepts. WPs 2 and 3 ensured a consistent approach across the case study teams. A workshop held in Bristol aimed at finalising the match between WP2 concepts and the right methodology in WP3 to allow national teams to use a coherent conceptual framework and methodological tools to conduct their case studies (WPs 4 to 12).

This Work Package is led by the UWE. It officially started in month 3 of the project and ran until month 7. It was designed to operationalise the conceptual framework, to underpin the empirical research and ensure consistency across the case studies. It will guide the qualitative and quantitative data collection.

The main tasks for this work package in this period were:

- Based on inputs from WP2, developing measures for the dependent variable institutional performance in achieving sustainability with reference to the policy fields of air pollution and environmental planning.
- Devising an analytical tool to describe the relationship between governance modes and knowledge forms.
- Providing information and advice to the national teams on relevant EU law.
- Publishing an article on concept and methodology and completing the conceptual and theoretical work in WP2 and WP3 to enable the empirical work (WP4-12) to begin.

This work package's objective was to operationalise the conceptual framework to underpin the empirical research and ensure consistency across the case studies. Guidance on the qualitative and quantitative data collection and measures for key concepts should be provided in order to help answer the basic research questions. Therefore a guide for data collection and a publishable article on methodology had to be provided. The paper on the methodological framework was finished in October 2006. First it gives an overview of the range of methods available for the work on the case studies, i.e. analysis of documents, interviews, participant observation and discourse analysis. Secondly, it elucidates the main research questions and proposals and how to address them methodologically. The methodological framework was presented and discussed in a workshop in Berlin on November 19-20

2006 including a meeting of the scientific board. The case study selection for work packages 4-12 as well as the paper on research hypotheses were also discussed in Berlin. The Berlin workshop therefore provided a successful starting point for the empirical work of all national teams.

Parallel to the work for WP 2 and 3, the DUT team developed framework papers on the case study fields, i.e. on Emissions Trading, Particulate Matter, and Strategic Environmental Assessment, to record the common basis of the national case studies in EU regulations and relate it to the key concepts of the G-FORS project, "Methodological Framework" (G-FORS working paper No. 3 <http://www.gfors.eu/fileadmin/download/papers/MethodologicalFramework.pdf>). This paper describes the methodological toolbox of the G-FORS project. It also illustrates the main research questions and provides a grid. The methodological framework combined with the conceptual framework is the basis for a publication that should illustrate current knowledge and expertise in this area.

Activities in this work package are proceeding in line with the DoW.

All papers mentioned in this scientific report are available on the G-FORS project webpage (www.gfors.eu or www.g-fors.eu).

3.4 Work Package 4-12: Case studies

The aim of these work packages is to test the working hypothesis about the relationship between the components of the conceptual framework in a number of practical cases.

On the basis of the GFORS concept, every team made a case study selection and started its investigations. At the meeting in Pécs on 23-24/03/2007 there will be a kick off discussion on the first outcomes of the case studies.

Every team will investigate two or three case study areas: SEA has to be investigated (2001/42/EC). The second case study has to be either Particulate Matter (96/92/EC) or Emission Trade (2003/87/EC). Particulate Matter in this sense is about the "Fine Particulate Matter" issue (PM₁₀ and PM_{2,5}). If emission trade is chosen as the second case study area a third case study area (namely Air Quality Management instead of Particulate Matter) will have to be investigated. Air Quality is understood here in a broader sense and refers to a more general discussion about Air Quality Management and Clean Air Policies. This opens up space for case studies that are not fully comparable at European level. This complex agreement will guarantee a comparison at the end of the project and provides flexibility for the national teams to take the local context into account.

The reporting of the project members are contained in **Appendix F**.

This work package was elaborated in line with the DoW.

<i>Country</i>	<i>SEA</i>	<i>Air Quality Management/Particulate Matter</i>	<i>Emission Trading</i>
<i>Germany (WP 5)</i>	Region of Braunschweig Rhein-Neckar Region Regional Plan Mittelhessen/Gießen	Leipzig Frankfurt/Oder	Steel Manufacturer/ Energy Supplier
<i>Greece (WP 11)</i>	The meta-olympic use of the Olympic Constructions in the Athens area	The Athens area	
<i>Great Britain B (WP 4)</i>	Case study on the Regional Spatial Strategy for the South West of England (incorporating the Regional Transport Strategy) and the Joint Local Transport Plan for the West of England	City of Southampton	
<i>The Netherlands (WP 7)</i>	Territorial plan Watervisie Lauwersmeer, Provinces Friesland and Groningen	Deventer	
<i>Italy (WP 8)</i>	SEA of the Territorial Plan in the of Province of Milan (2002-03; 2006-ongoing)	The Milan urban region area	
<i>Hungary (WP 12)</i>	South-Transdanubia		Ponnonpower Power Plant Company in Pécs
<i>Norway (WP 10)</i>	Stavanger station, local development plan with SEA		Norwegian Pollution Control Authority (SFT): One or two enterprises in the system will be studied
<i>Poland (WP 6)</i>	SEA of the Environmental Impact of the Development Strategy for Podlasie Region		Polish-Danish project of utilizing methane from solid waste disposal and waste water plants to produce clean energy in Zakopane
<i>Sweden (WP 9)</i>	An SEA carried out by the municipality of Uppsala of the municipal long-term plan	Program formulated by the regional and municipal governments in Göteborg to reduce levels of PM10	

3.5 Comparative Conclusions (WP 13)

This part of G-FORS project identified effective combination of governance and knowledge and produced a number of analytical outcomes on various forms of governance and reflexive knowledge development. Because of the results of the case studies the scientific work has to be changed during the preparation of the outcomes.

In work package 13 the following deliverables are listed:

15. Report and publishable draft on hierarchy and reflexive knowledge development
16. Report and publishable draft on markets and reflexive knowledge development
17. Report and publishable draft on networks/systems of governance and reflexive knowledge development
18. Report and publishable draft on civil society and reflexive knowledge development
19. Synthetic report on the production of reflexive knowledge

The description of deliverables 15-19 was based on the key assumption in G-FORS: that the different governance modes affect knowledge filtering and the possibilities for the achievement of reflectivity in different ways and with different results. The intention of the conceptual framework was to contrast hierarchical coordination with coordination in markets and networks. We expected that in the case studies one of the mentioned governance modes was dominant and that the production of reflective knowledge could clearly be attributed to one of these modes.

Against our expectations the results of the 19 case studies demonstrated that the different modes of governance were not identifiable in an unambiguous manner. We found out that in our cases different arenas of policy-making were connected. In each of these arenas the distinguished governance modes are operating. One arena may be dominated by hierarchy while a second one is dominated by networks. The different arenas are nevertheless connected. For example, in an arena where a decision has to be taken by consent a network-based governance mode may dominate. But hierarchy can be prevailing in the arena in which the implementation of this decision is taking place. More specifically, the Emissions Trading Scheme is a market based instrument but it has to be applied in hierarchical organisational setting. The market rationale may dominate decision-making and knowledge production on firm level but the targets of the national allocation plan are implemented in a strict manner. Furthermore, decisions of an enterprise lead by a market rationale can be linked to an implementation for which a planning permission is needed. And to get this planning permission arenas have to be entered in which either a network-based governance mode or hierarchy is dominating – or a mixture of both of them. Even the expression of a “market in the shadow of a hierarchy” is not an appropriate description.

Against this background we argue that reflexive knowledge is not a result of a particular governance mode dominating a certain action arena. Instead, reflexive knowledge refers to the quest for strategies of actors to achieve their goals in an institutional setting of interdependent arenas. Or more precisely, actors have to know in which arena(s) they can achieve their goals. In this respect actors not only have to know how to address issues in a particular arena. They also have to mobilise the ability (and knowledge) to change arenas (dominated for instance by hierarchy or a network-based governance mode) to achieve their goals.

In this sense reflexive knowledge must be considered as meta-knowledge making the contingent character of other forms of knowledge visible for its holder. This is the first step towards intentionally influencing the way an actor (and others) interpret the world, i.e. of the choice of knowledge the actor makes. Shedding light on the character of all kinds of knowledge as action enabling resources of their holder this is the precondition for the actor to intentionally impact upon this choice of knowledge in a second step thereby making it a free choice. One can argue that in this general sense reflexive knowledge can be found not only at the level of implementing a given policy or applying a particular policy instrument in a certain case but also at the levels of designing a policy or even a particular policy instrument and taking binding decisions on the concrete content of a policy (or instrument) and the way it has to be applied. However, we relate the term reflexive knowledge to the processes in which actors have to consider how to adopt a policy instrument in a concrete case. In such processes actors not only have to reflect and interpret the case-specific conditions for applying a policy instrument. Actors also have to interpret the generally defined content of the policy and the rules to implement a policy instrument, and these processes of interpretation can hardly be understood without considering preferences and interests of the involved or affected actors. Instead, how actors use an instrument in a concrete case has to be related to the way it makes sense for them, and such a sense-making relies not at least on the mobilization of knowledge which enables actors to apply the instrument purposefully and strategically according to their preferences and interest.

Hence, for reasons explained in detail in the paper mentioned below, we cannot easily state that one mode of governance is more likely to produce reflective knowledge than another. Furthermore, markets and networks are less dominant in the case studies than expected. Hierarchy appeared to prevail in almost all cases.

Therefore, we merged deliverables 15, 16, 17, 18, and 19 in one report on "Reflections on Governance and Knowledge" (R. Atkinson; H. Heinelt; J.E. Klausen; P.-J. Klok; S. Löber and K. Zimmermann 2009). Furthermore, H. Heinelt and S. Löber wrote a paper ("Implementing Emissions Trading – The Impacts of Reflexive Knowledge: How great expectations in Brussels are dashed in Großkrotzenburg") in which the aforementioned notion of reflexive knowledge is clarified by drawing on results of one of our case studies.

The culmination for WP13 was the presentation of results in a major international conference organised by Metropolitan Region Hannover.

3.6 Dissemination and Facilitation of Cross-National Policy Transfer (WP14)

These activities ran along the life of the project to ensure the implementation of the dissemination strategy and the link between research and end-user friendly results, keeping in mind the European dimension of the project. All results obtained in WPs, whether theoretical, empirical or analytical have been first discussed with the advisory board and then disseminated using a variety of media. The purpose of both WP1 from a management perspective and WP14, from a dissemination perspective is also to ensure that G-FORS does not reinvent the wheel but that all partners are aware of on-going research in the same field.

The major activities during the project were:

Plan for using and disseminating the knowledge

The project's visibility is guaranteed by various channels of dissemination. The two main pillars are publications in the scientific community and dissemination via newsletter and webpage for an interested public. Moreover the dissemination channel is building up links to other projects, agencies or initiatives.

Planned or actual dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible
4/2006	Journal article by Viktor Varju	Academic public	Hungary	Small	CRS
06/2006	Webpage	Project consortium and interested public	Virtually all	Medium	MRH
07/2006	Newspaper articles about the project	Larger public	Germany	Large	MRH
11/2006	Workshop 2 on methods	Consortium, Advisory Board	All partner countries	Small	MRH, IRS
02/2007	Newspaper article in a daily Newspaper	Larger public	Germany	Large	MRH, DUT
03/2007	Newsletter	Project consortium and interested public	All partner countries	Medium	MRH
4/2007	Newspaper article in University Newspaper in Berlin and Darmstadt	Academic public	Germany	Small	MRH, DUT, IRS
9/2007	ECPR Paper by Karsten Zimmermann and Sonja	Academic public	European	Medium	DUT

	Fahrner				
10/2007	SSH-Newsletter Issue Ten, 4 th Quarter 2007, p. 14.	European sectoral public	European	Large	MRH
11/2007	EPIGOV conference, key note speech and paper presented	Academic experts, policy makers	European	Medium	MRH, POLIMI
11/2007	Publication Karsten Zimmermann (in collaboration with Michael Haus from the Darmstadt University of Technology) in the German PVS journal	Academic public	German	Large	DUT
2/2008	EUKN webpage	Policy makers, academics	European	Large	MRH
2/2008	Hannover science initiative	Academic public	Regional	Medium	MRH
2/2008	Listed in the databank of the Federal Environment Agency of Germany.	Policy makers, academics, public	Germany	Large	MRH
6/2008	Workshop 3	Project consortium, academic experts	All partner countries	Medium	MRH, UW
06/2008	Book proposal or about concept and methods of the project	Academic experts	All partner countries	Medium	MRH, DUT, UWE
6/2008	journal articles in the three thematic fields	Academic experts	All partner countries	Large	All
3/2009	Decision makers handbook	Decision maker, academic experts	All European Countries	Large	MRH
5/2009	Final conference	Academic experts, decision makers,	All European Countries	Large	MRH

The list of all activities is attached in Appendix F.

4. Consortium Management and Deviations from the Work Plan or /and Time Schedule and their Impact to the Project

The project partners agreed to work as consortium. They signed a consortium agreement, which is attached in appendix H.

On the basis of the work plan the partners had to face only minor deviations:

- The main deviation from the project work plan was that WP 13 was opened to all consortium members in order to offer the chance to participate in the comparative conclusions of WP 13. Every team that participates in WP 13 shifts at least one person month from their empirical WP to WP 13. Conversely the IRS team is freed from participation in WP 13 and shifts their person month to the empirical case study Germany WP 5. This change will not affect financial matters.
- The Kick off meeting was held in Darmstadt, Germany on 10-11/03/2006 instead of the intended venue of Hannover, Germany, where the hotels were at that time fully booked by trade fair visitors.
- The second workshop was held in 19-20/11/2006 instead of in January 2007.
- An extra core management meeting (a new CM2) was held in Hannover on 19/07/2006.
- The 2007 meetings originally planned for March in Athens and November in Budapest changed for practical reasons. The first meeting will be held on 24/03/2007 in Pécs and the second in September 2007 in Athens.
- The discussion of the case studies and the publication and dissemination activities at the end of the third year led to a extension of the project time until March 2009, which was agreed by the project officer.
- The search for an appropriate date for the final conference led to a second extension of one month, also agreed by the participants and the project officer. The project ended in May 2009.
- Overall these slight deviations from the work plan have had no significant impact on the project.

Month	2006/07												2007/08												2008/09																										
	F 1	M 2	A 3	M 4	J 5	J 6	A 7	S 8	O 9	N 10	D 11	J 12	F 13	M 14	A 15	M 16	J 17	J 18	A 19	S 20	O 21	N 22	D 23	J 24	F 25	M 26	A 27	M 28	J 29	J 30	A 31	S 32	O 33	N 34	D 35	J 36															
	Phase 1												Phase 2												Phase 3																										
WP1	Project Management																																																		
WP2	Conceptual Framework																																																		
WP3	Methodological Tools																																																		
WP 4-12													Country Case Studies																																						
WP13																									Comparative Conclusions																										
WP14	Dissemination and Facilitation of Cross National Policy Transfer																																																		
Deliverables numbers					1	2				3	4	5,6,7,8	9	10										1,1-2	13	14															15 to 23										
Events			CM1, SC1				CM2		CM3, SC2, AB1, W1		CM4, SC3, W2			CM5, SC4									CM6, SC5, SB2														CM7, SC6, W3				CM8, SC7, AB3				CM9, SC8						CM10, SC9, AB4, FC

2009	F 37	M 38	A 39	M 40
month	Phase 3 extention			
WP1	Project Management			
WP2	Conceptual Framework			
WP3				
WP 4-12				
WP13	Comparative Conclusions			
WP14	Dissemination and Facilitation of Cross National Policy Transfer			
Deliverables numbers			D20 D15 - 19	D22
Events				Final Conference, WP 14

Key:

CM1 Core Management Meeting 1, Germany
CM2 Core Management Meeting 2, Germany
CM3 Core Management Meeting 3, Britain
CM4 Core Management Meeting 4, Germany
CM5 Core Management Meeting 5, Hungary
CM6 Core Management Meeting 6, Greece
CM7 Core Management Meeting 7, Norway
CM8 Core Management Meeting 8, Sweden
CM9 Core Management Meeting 9, Germany

SC1 Scientific Committee Meeting 1, Germany
SC2 Scientific Committee Meeting 2, Germany
SC3 Scientific Committee Meeting 3, Italy
SC4 Scientific Committee Meeting 4, Greece
SC5 Scientific Committee Meeting 5, Hungary
SC6 Scientific Committee Meeting 6, Poland
SC7 Scientific Committee Meeting 7, Norway
SC8 Scientific Committee Meeting 8, Sweden
SC9 Scientific Committee Meeting 9, Germany

AB1 Advisory Board Meeting 1, Germany
AB2 Advisory Board Meeting 2, Hungary
AB3 Advisory Board Meeting 3, Norway
AB4 Advisory Board meeting 4, Germany

W1 Workshop 1 on Concepts, Britain
W2 Workshop 2 on Conceptual Approach and Methodology, Germany
W3 Workshop 3 on Case Study Review, Poland
FC Final Conference, Brussels

5. Co-ordination of the Information Flow between Partners and Communication Activities

- The key co-ordination activities for the project have been the organisation of the meeting and dissemination activities such as the webpage.
- The minutes of the meetings have proved an excellent tool for co-ordination as we have developed an 'action point' style, where the action points agreed in one meeting are reviewed in the next.
- The main form of communication between partners has been via email, generally within the MRH. The circulation of ideas and papers via email was the main communication channel in the first period of the project.
- Outside the project, communication has been via the webpage. Moreover, by January/February 2007 the launch of the newsletter will be a further step in establishing communication channels. The coordinators attended all GFORS meetings and a meeting with the coordinators conference in Brussels 08-07/06/2006, where all other FP5 projects were represented. Interesting future cooperation partners projects are GEMCONBIO (coordinator: Prof. Manos, Salonika, Greece), EPIGOV (Dr. Homeyer, Berlin, Germany) and parts of EUDIMENSIONS (Dr. Wesley Scott, IRS, Berlin, Germany).
- During the project time there have been many contacts and communication activities of the partners within their specific network, which is documented in the national activity reports.

6. Raising Public Participation and Awareness: the Gender Dimension

The project participants of G-FORS are committed to the promotion of gender equality in line with articles 2 and 3 of the Treaty on European Union and the Commission's gender mainstreaming strategy in research, set out in the Communication "Women and Science: mobilising women to enrich European research". The G-FORS partners recognised the need for a threefold approach:

- Women's participation in research must be encouraged (research by women); both as researchers in the project, but also as evaluators of the project through the advisory board.
- Research must address women's needs.
- Research must contribute to an enhanced understanding of gender issues.

The G-FORS project therefore succeeded in the aimed approach as documented in the questionnaires of the national partners. Nearly 50 percent of the project team were female researchers. So the G-FORS project was a good opportunity to address the role of women in research and policies linked to research in the knowledge society.

Gender Action Plan

The gender action plan incorporates the three components identified above:

- 1. Women's participation in research must be encouraged (research by women); both as researchers in the project, but also as evaluators of the project through the advisory board.**

Women were involved in both the management of the G-FORS project through the core management team. The University of the West of England, part of the core management team, has established a women's Research Network, which was undertaking a study of gender-related barriers to research within the university. The findings of this study have been transferred to the gender equality action plan for the G-FORS project. Women were also members of the scientific committee and ensured that their participation in the G-FORS research was strengthened. And the advisory board also consisted also of a female senior scientist.

- 2. Research must address women's needs.**

G-FORS maintained a flexible working culture within the project allowing equal consideration of the needs and interests of women and men (including e.g. exploring alternatives to frequent travel).

3. Research must contribute to an enhanced understanding of gender issues.

G-FORS topic was very suited to integrate a gender dimension and its research questions addressed systematically the issue of gender balance. The social dimension of sustainable development has had a special relevance to women, as inequalities between the sexes may reinforce the effects of social deprivation. Policies for sustainable development on the sub-national level should address the situation for women in challenged areas in particular. Governance modes (the first variable in our conceptual model) should preferably include specific measures to enhance the participation of women.

Gender issues are partially a matter of knowledge (the second variable in our conceptual model). One should ask whether for instance expert knowledge takes unequal opportunities into consideration. There is a danger that such issues are made invisible by certain forms of knowledge.

The knowledge issue is of course partially a function of governance mode. Increasing civil society involvement would perhaps increase the chances of gender issues being addressed.

All these issues will be an intrinsic part of the project research.

Last but not least, information and awareness-raising activities will publicise the work of women in this project. Meetings as well as the final conference will provide an opportunity for women researchers to be publicly visible and seen to be integrated within all leading aspects of the project.