ULYSSES

Urban **L**ifest**Y**les, **S**u**S**tainability and Integrated **E**nvironmental A**S**sessment

ULYSSES Working Paper

Focus Groups in Integrated Assessment

A manual for a participatory tool

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The ULYSSES project

The European research project ULYSSES aims to bridge the gap between environmental science and democratic policy making in the climate domain. For this we study judgements of informed citizens on climate policy and make these judgements available to policy makers. As a support in this process the citizens will be given access to state-of-the-art computer models on environmental change.

Between 1996 and 1999 ULYSSES will conduct and analyse group discussions with citizens in Barcelona, Venice, Athens, Zurich, Frankfurt, Manchester, and Stockholm.

Objective

Policy makers dealing with complex environmental problems need knowledge from environmental science as well as from the social sciences to back up their decisions. Integrated Assessment (IA) research aims at providing useful overviews of relevant problems and elements of possible solutions for this purpose. In this context ULYSSES - short for **U**rban **L**ifest**Y**les, **S**u**S**tainability, and Integrated **E**nvironmental A**S**sessment - develops procedures for including public participation in IA.

Science can provide neither unique descriptions nor unique solutions for truly complex environmental problems. On the other hand, citizens are used to deal with a variety of conflicting yet legitimate interpretations in democracy which is basically government by public debate. In this situation assessments can improve both in quality and in political relevance by combining expert knowledge with public participation.

Methodology

In order to develop a procedure for public participation in Integrated Assessment, ULYSSES designs a discursive process which is based on the focus group method. In a kind of microcosm of social learning small groups of citizens share a moderated discussion on climate risks and options for climate policy. These **IA-Focus Groups** meet approximately five times. They debate on climate policy, have access to relevant information to support their debates, and express their resulting judgement. The range of arguments and judgements expressed by the citizens will then be condensed and made available to interested decision makers.

One of the basic tasks of ULYSSES is to design an interface between these IA-Focus Groups and computer models. Our hypothesis is that citizens can arrive at reasonable and informed judgements on environmental policy if they have the opportunity to share an in-depth debate and if they are provided with relevant information in a suitable format. For this information the IA-Focus Groups organised by ULYSSES have access to state-of-the-art computer models relevant for decision support on environmental issues. These models include IMAGE (the Integrated Model to Assess the Greenhouse Effect), TARGETS (the Tool for Analysing Regional and Global Environment and Health Targets for Sustainability), PoleStar, and NAIADE (the Novel Approach to Imprecise Assessment and Decision Environments).

ULYSSES tests this IA-Focus Group procedure in the domain of urban lifestyles and their connection to climate change. In order to experience the cultural diversity within Europe in our experiments we will conduct IA-Focus Groups in urban regions throughout Europe: Barcelona, Venice, Athens, Zurich, Frankfurt (Rhine/Main), Manchester, and Stockholm.

See also: http://www.zit.tu-darmstadt.de/ulysses/

The ULYSSES working papers

The ULYSSES working papers present work being done in the context of the ULYSSES network. The responsibility for the contents lies with the individual authors.

The ULYSSES research team

Researchers at 10 institutions throughout Europe contribute to ULYSSES:

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ULYSSES also profits from the collaboration with ZIT, the Center for Interdisciplinary Studies in Technology, at Darmstadt University of Technology.

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Further ULYSSES working papers

Jerome R. Ravetz,
Integrated Environmental Assessment Forum: developing guidelines for "good practice",
ULYSSES WP-97-1

The **ULYSSES** working papers can be ordered at:

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Preface

Decision support for complex environmental problems requires knowledge from a wide range of disciplines. Integrating different bodies of expert knowledge, however, is impossible without a whole array of subjective judgments. In particular, any integrated environmental assessment involves both subjective probabilities and subjective preferences. Unfortunately, perhaps, scientific expertise is a poor guide for forming subjective judgments of this sort.

For simpler problems of decision support, science has often taken on the role of 'speaking truth to power'. But this role doesn't fit complex environmental problems, like climate change, especially when they involve complex social systems, like modern democracies. With such problems, there is no unique true problem description and no unique optimal solution for science to discover. Moreover, with large scale problems related both to technology and to lifestyle choices there is no single social actor with the capability to implement such a solution even if it existed. To deal with this category of problems, researchers and policy makers have begun to develop a variety of methods of public participation. They offer ways of eliciting and aggregating subjective judgments of stakeholders and laypersons so as to bring their common sense to the decision problem at hand.

In this vein, the ULYSSES project has taken the well-established method of focus groups and has combined it with integrated computer models of an environmental problem. Along these lines, a new tool is emerging: the Integrated Assessment Focus Group. The present manual documents work in progress in this area. It shows a way of how IA-Focus groups can be run and puts them in perspective by discussing related experiences and concepts from the literature.

The manual does not show how IA-Focus Groups should be run. Much more research and practical experience will be needed to establish a reasonable set of standards of good practice for IA-Focus Groups. Nevertheless, one such standard can already be stated with the following paradox: no universal standard seems appropriate, as the most important general rule for a sound use of IA-Focus Groups is to tailor them again and again to the specific conditions of the problem at hand. The present manual has been written to enable researchers and practitioners to build cumulative experiences of how to engage in this fascinating endeavour.

Carlo C. Jaeger

1. SCOPE AND CONTEXT OF THE MANUAL

1.1. Focus groups in Integrated Assessment

Global climate change caused by anthropogenic greenhouse gas emissions is a problem created by humans which is of unprecedented scope and complexity. How should societal decision makers respond to such complexity? Integrated Assessment (IA) has evolved as an approach to synthesise the relevant and current scientific knowledge in order to offer decision-makers useful information to resolve complex problems like climate change.

IA has been defined as "an interdisciplinary process of combining, interpreting and communicating knowledge from diverse scientific disciplines in such a way that the whole cause-effect chain of a problem can be evaluated from a synoptic perspective with two characteristics: (i) it should have added value compared to single disciplinary assessment; and (ii) it should provide useful information for decision makers" (Rotmans and Dowlatabadi, 1995). Similarly, Parson (1994) defined the task of IA as "to provide information of use to some significant decision-maker rather than merely advancing understanding for is own sake, and (...) bring together a broader set of areas, methods, styles of study, or degrees of confidence, than would typically characterize a study of the same issue within the bounds of a single research discipline".

Although IA has emerged during the last decades, methods and tools are still relatively immature (Rotmans and Vrieze, 1996; Weyant et al., 1996). So far, IA has been primarily performed as an expert exercise. However, as this exercise is oriented towards policy-making, the inclusion of citizens into the assessment process is both legitimate and desirable. The inclusion is legitimate in view of the democratic tradition of policy making, and it is desirable in view of the growing scepticism towards the professionalisation of policy in general and of environmental decision-making in particular. Framed that way, IA could then be the output of a discourse informed by scientific competence as well as democratic fairness (Renn et al., 1995; Kasemir et al., 1996).

Against that background, we use the term IA in a rather broad sense as "procedures to arrive at an informed judgement on different courses of action with regard to environmental problems. The information required refers to physical, chemical, biological, psychological, socio-economic and institutional phenomena, including the relevant decision-making processes" (Kasemir et al., 1996).

It seems promising to use focus groups as a participatory tool for arriving at policy-oriented IA. Focus groups can serve as a micro-cosmos of social learning that brings together scientific knowledge with preferences and choices of citizens. We use the term "IA-Focus Groups" for those focus groups oriented towards complex policy issues - often global in scope - and equipped with computer models that convey relevant scientific information. Typically, focus groups are used by politicians to provide feedback about their public image, and to convey perceptions and expectations of voters and interest groups. They are used to test the effectiveness of policy campaign drafts, and the dimension of decision-making is generally not explicitly addressed. In contrast, IA-Focus Groups are oriented towards supporting policy-making. In some respects, IA-Focus Groups are close to court-juries: before a jury comes to a judgement, it is thoroughly informed about facts and figures, and about the relevant circumstances in which a deed took place. The verdict then is built on both factual knowledge and moral reasoning. In contrast to court-juries, IA-Focus Groups do not produce legally binding verdicts but policy supporting judgements and recommendations on complex sustainability issues.

Focus groups are generally conducted with lay members of the general public. However, in IA, the inclusion of policy makers, business people and the media might be fruitful, too.

1.2. Aim and audience of the manual

There are hardly any tools available for the participatory dimension of IA. At the moment, two major research projects are conducted, whose aim is to develop such tools. These are the ULYSSES and CLEAR projects (see section 1.3). The Human Ecology Division of the Swiss Federal Institute for Environmental Science and Technology (EAWAG) is participating in both projects and took the lead in developing a default setting, or template, for the focus group work within ULYSSES. *"Default" is meant to offer a standard that is available in case a user does not want to do things his or her own way*. In the pilot phase of ULYSSES, some of the research groups conformed to the default setting documented in this manual, other groups developed and tested other methodological settings, e.g. with regard to questionnaires (see paragraph 3.5.2), citizen reports (paragraph 3.5.3) or the use of computer models (paragraph 3.4.2). All of these experiences will be carefully documented (for a compilation of pilot experiences, see: ULYSSES working paper 4 "Focus Groups in Integrated Assessment: The ULYSSES Pilot Experience").

The aim of the manual is twofold. First, it gives a short introduction to the focus group technique from which the concept of IA-Focus Groups is derived. We review the general knowledge and experience accumulated over the past fifty years. Second, the manual discusses selected methodological issues with regard to focus groups and suggests a default setting for the ULYSSES IA-Focus Groups. Several appendices provide examples of material and output from the pilot phase of ULYSSES.

The reader should bear in mind two important limitations of this text. First, this is a preliminary manual. It is a first step on the way to a set of guidelines for IA-Focus Groups which can be used by those interested in applying this participatory tool in IA efforts. A more comprehensive manual will be available at the end of the project, i.e. mid 1999. Second, this text does not show the full range of methods that characterise current work within ULYSSES. The emphasis is on the default setting. For selected topics, however, the plurality of views is indicated.

The primary target audience of the manual are members of the ULYSSES research team, who perform IA-Focus Groups themselves. As the tool is also applied in the CLEAR II project, the manual is certainly of relevance for researchers engaged in that effort. Furthermore, the manual is intended to be helpful to those who want to make first practical experiences with applying IA-Focus Groups in their own field of research. Currently, this is the case with research teams in Vancouver, Canada (Sustainable Development Research Institute, University of British Columbia), Pittsburgh, U.S.A. (Engineering and Public Policy, Carnegie Mellon University) and York, U.K. (Stockholm Environment Institute).

Apart from developing an advanced tool for IA, we hope to encourage others to consider using focus groups and IA-Focus Groups in their own research where appropriate. To this end, we will systematically address issues relevant for designing and using this tool. Thus, experiences gained in CLEAR and ULYSSES might enhance the interest in the focus group methodology and the application of focus groups in IA research at large.

A note on the terminology we adopt in this working paper: we will generally use the term "Focus Group" when we refer to the standard practice of conducting focus groups. However, when we point to specific ULYSSES and CLEAR applications and to the overall IA-methodology introduced above, we will apply the term "IA-Focus Group".

1.3. The research context

1.3.1 The ULYSSES project

ULYSSES (see Box 1) addresses the issue of the interplay between science, policy and society in the field of sustainability issues. Two main principles are guiding the research efforts within ULYSSES. First, integration of knowledge accumulated in both social and natural sciences into a comprehensive assessment is needed to provide adequate policy support. Such an integrated assessment is hardly to be achieved with traditional means of scientific inquiry. Second, in democracies it is crucial that policy goals and means are acceptable to citizens. Current IA activities (for an overview see Parson, 1996; Weyant *et al.*, 1996; Rotmans and Dowlatabadi, 1996) primarily focus on the development of so-called Integrated Assessment models (IA-models), and thereby neglect the importance of social discourse and public participation. Within the ULYSSES community the hypothesis is shared that addressing these social dimensions is needed to arrive at IA relevant for the policy-making community and society at large. To advance IA the ULYSSES project aims to develop a social procedure for democratic debates about sustainability issues. The present paragraph shortly outlines the scope of the research programme. A comprehensive description of the research proposal can be found in Jaeger *et al.* (1995).

A central feature of ULYSSES is to highlight the uncertainties associated with expert knowledge offered by isolated disciplines. ULYSSES will explore how to use state-of-the-art scientific inputs, such as computer models, to support democratic debates on climate change and other sustainability issues. To this end, ULYSSES will create experimental settings in which such discussions can be simulated, by using focus groups. These monitored social processes will be informed by a variety of computer models. In order to develop the method of IA-Focus Groups and to identify its potential as advanced method of IA, ULYSSES will carry out many IA-Focus Groups on climate policy options for urban regions. The challenge of this application is that it combines a global change issue, i.e. climate change, with local issues pertaining to urban lifestyles. This theme obviously requires integration on two crucial dimensions, namely: i) integration of scientific knowledge with preferences and choices of citizens, and ii) integration of local and global issues.

Box 1 - The ULYSSES research team

ULYSSES, an acronym for '**U**rban **L**ifest**y**les, **S**u**s**tainability, and Integrated **E**nvironmental A**s**sessment,' is a collaborative research effort supported by the European Commission (DG XII, RTD Programme Environment and Climate, Area "Human Dimensions of Environmental Change").

Ten research institutes throughout Europe contribute to ULYSSES, i.e. (primary researchers are indicated):

- Darmstadt University of Technology, Germany (C. Jaeger)
- Joint Research Centre of the EC, Italy (S. Funtowicz)
- Centre for the Study of Environmental Change, United Kingdom (B. Wynne)
- Instituto de Estudios Sociales Avanzados de Barcelona, Spain (S. Giner)
- Stockholm Environment Institute, Sweden (A. Gerger)
- National Technical University of Athens, Greece (M. Giaoutzi)
- Potsdam Institute for Climate Impact Research, Germany (F. Toth)
- International Institute for Applied Systems Analysis, Austria (J. Jäger)
- Research Methods Consultancy, United Kingdom (J. Ravetz)
- Swiss Federal Institute for Environmental Science and Technology, Switzerland (G. Dürrenberger).

ULYSSES is coordinated by C. Jaeger.

The research goals of the ULYSSES project can be summarised as follows:

1. To develop a procedure for IA at the interface of science, policy and society, in which scientific issues are combined with issues of fairness. To this end, we explore a new method, combining focus groups with IA-computer models.
2. To develop suggestions for the design of IA-computer models to be used in focus group applications.
3. To perform integrated assessments, which are informed by both scientific expertise and social valuation, and which produce policy recommendations.

1.3.2. The CLEAR II-project

The Swiss transdisciplinary project CLEAR II is a follow up to the original CLEAR project. (CLEAR stands for **CL**imate and **E**nvironment in **A**lpine **R**egions) This is an effort to increase understanding of the potential impacts of climate change for Switzerland and to provide information which can support decision-making. The aims of the CLEAR project are:

1) to provide increased understanding of the pertinent issues, especially with respect to uncertainty and complexity,
2) to deliver a range of state-of-the-art modelling tools,
3) to develop an overall methodology for integrated climate risk assessment, and
4) to provide policy-relevant information on response strategies and a mechanism for evaluation measures

CLEAR II comprises 13 subprojects (see Box 2). A more comprehensive description can be found in Davies and Jaeger (1995). With regard to this manual, especially the ICRA-project (Integrated Climate Risk Assessment) is of interest. Within this project, several focus groups using computer models will be run. One of the rationales behind this project is to integrate lay people in policy-supporting activities. The goals of the ICRA-project, which serves within the overall CLEAR research as a platform project, are:

1) to develop a procedure for IA
2) to provide a platform for modellers, especially for those in CLEAR
3) to generate and analyse integrated assessments, which comprise the following areas of inquiry: i) the role of scientific uncertainty in the formation of lay-judgements about climate risk, ii) the identification of options for and constraints on new policy strategies, and the social acceptance of likely measures, and iii) the symbolic meaning and significance of the Alps with regard to people's feelings of moral obligation and willingness to act.

CLEAR uses a similar research approach to IA as ULYSSES. Both ULYSSES and CLEAR try to organise the assessment process as a social discourse between scientists and lay people. Both work with computer models as an important medium of scientific expertise. However, there are some important differences that make the two programmes complementary:

• First, CLEAR is a transdisciplinary research effort that involves natural as well as social scientists, with natural scientists as the predominant group. ULYSSES brings together social scientists, primarily.

• Second, CLEAR aims to do both disciplinary research as well as IA, while ULYSSES is concerned with IA only.

• Third, CLEAR will develop new model tools that simulate the complex dynamics of selected phenomena. ULYSSES will use existing highly integrated models.

• Fourth, CLEAR looks at the Alpine region, ULYSSES at seven urban regions in Europe.

Box 2 - The CLEAR research team

CLEAR is a collaborative effort sponsored by the Swiss National Science Foundation. The following projects are part of CLEAR II (primary researchers are indicated):

- Industrial innovation triggered by ecology (R. Boutellier)
- Climate changes in the subalpine-alpine ecocline (F. Felber)
- Sensitivity and uncertainty analysis of climate scenarios and ecosystem responses in the Alps:
    * Bioclimatic scenarios (H. Wanner)
    * Forest ecosystems (A. Fischlin)
- Agricultural ecosystems (J. Fuhrer)
- Integrated climate risk assessment (C. Jaeger)
- Lake-sediments as proxy-archives for the reconstruction of environmental dynamics in space and time (A.F. Lotter)
- The role of simulation models in Integrated Assessment (C. Pahl-Wostl)
- Climate change and the atmospheric water cycle in the Alpine region (C. Schär)
- Processes of past climate variations in the North Atlantic as revealed by ice core analysis and the link to Europe and the Alps (T. Stocker)
- Climate change at and above the subalpine-alpine ecocline (J.P. Theurillat)
- Climate change and tourism in the Alps (H. Elsasser)
- The international framework and the domestic bases of Switzerland's climate policy in the Alpine region (S. Kux)

The overall responsibility for CLEAR lies with H. Davies and C. Jaeger

2. FOCUS GROUPS: AN INTRODUCTORY OVERVIEW

2.1. The focus group method

2.1.1. Focus groups in research

The term "focus group" is a combination of two social scientific research methods, i.e.: (i) the *focused* interview, in which an interviewer elicits information on a topic without the use of a fixed questionnaire guide, and (ii) a *group* discussion, in which a small number of a relatively heterogeneous, but carefully selected group of people with some common or similar characteristics or a shared cultural background discuss a topic raised by a skilled moderator. A focus group can thus be described as a guided group discussion that is focused on a specific topic. In contrast to an ordinary group discussion, purposive information on the focal issue is given as input and/or stimulus to the focus groups. The paradigm case here is political propaganda that marks the beginning of focus group research (see: Merton, 1946, 1987): In a seminal experiment, a war propaganda film was presented as stimulus to an audience that had to react on its cuts by pressing buttons, a green one for positive feelings and a red one for negative feelings. Following the presentation, the reactions were discussed by the group with the help of a moderator. The intention of this discussion was to learn about people's attitudes in order to produce a better film, i.e. to increase its effectiveness to influence public attitudes.

However, focus groups are not always conducted for such straightforward instrumental purposes. Purposes to run focus groups may be manifold. One may distinguish between three main objectives which, in practice, can't be neatly separated.

- Normative aim: Focus groups may be seen as a means to induce social learning and to raise awareness vis-a-vis particular social, economic or policy issues. This is, for instance the explicit aim in the case of "Planungszelle" (Dienel, 1992) or "Rapid Appraisal" (Kumar, 1993). Another normative argument concerns public participation. Focus groups may be seen as an instrument to strenghten democracy by systematically including citizens in decision making processes. The same argument applies to science when lay people participate in policy oriented research (Joss and Durant, 1995).
- Substantive aim: This implies that the public has a substantive, that is, information-based, contribution to the topic in question. This is, for instance, the case when programmes in fields like health care or agricultural reform are prepared. The recognition of contingent behaviours and of cultural patterns is crucial for the success of such programmes. Focus groups may serve as platforms that disclose relevant information and knowledge (Richter et al., 1991).
- Instrumental aim: By involving the public in designing marketing or policy campaigns, those campaigns, policies and products are more likely to be effective, implemented and accepted, respectively. Substantive and instrumental purposes may go hand-in-hand, as in the case of adjusting international programmes to the circumstances of a particular (often local) context in a developing country (Kumar, 1987).

In research focus groups are generally oriented towards substantive purposes. A very specific substantive purpose is researching what happens within a small group setting, i.e. to focus on focus groups. Instances of such interests may concern small group dynamics, conflict and bargaining behaviour, and the like. Framed that way, focus groups are close to social experiments. Another case of focusing on focus groups is methods development. Improving focus group methodologies requires to investigate, for instance, framing effects created by the moderator, by the discussion guide, or by the procedure itself. In the pilot phase ULYSSES and CLEAR were strongly focused on methods

development. In the first phase, substantive research will complement this original research interest. The present manual documents insights from the pilot phase, i.e. insights and experiences from research about IA-Focus Groups.

One might expect that the methodological literature about the focus group tool is both extensive and highly consolidated. Despite the relatively long tradition of focus groups, however, most of the literature is of an introductory character (Krueger 1988, Stewart and Shamdasani 1990, Morgan 1993, Greenbaum 1993). There is a lack of systematic academic research on the focus group method itself, with the notable exception of organising and moderating focus groups. The conclusion can be drawn that, notwithstanding the extensive use for marketing and campaigning purposes (cf. paragraph 2.1.2.), focus groups are still an "under-utilised technique" (Basch 1987) in social science (see also: Mayring 1993, Lamnek 1995). It is only recently that focus groups are receiving increasing attention as a means to obtain qualitative data in an interactive context (Goss, 1996). This has obviously to do with the "argumentative turn" (Fischer and Forester, 1993) in policy analysis.

IA-Focus Groups applied in substantive research will be impregnated with normative and instrumental components, too. By definition, so to speak, participatory IA is instrumental and normative. These aspects cannot and should not be disguised. On the contrary: increasing participation in policy oriented research and providing decision support for policy making, should be communicated and made transparent to the participants of IA-Focus Groups.

2.1.2. Fields of application

The focus group method is very popular in marketing research (Cox et al. 1976), health and family research (Basch 1987), and policy, media and communication research (Desvouges and Smith 1988, Byers and Wilcox 1991, Conner et al. 1991). Only in recent years, environmental scientists make increasing use of focus groups (for instance: Liebow 1993, Löwstedt 1993, Macnaghten et al. 1995, Dahinden und Dürrenberger 1997. For a selected bibliography see appendix 7). Focus groups yield qualitative information and data on specific topics within a short time and with a relatively small budget. This is especially valuable for topics that are new and which depend on public opinion or consumer preferences, like the investigation of:

- characteristics of new products (e.g. software needs)
- messages of new products (e.g. eith respect to symbolics, prices, etc.)
- new intervention programs (e.g. education, public health)
- political campaigns (tuning of agendas, attracting of new voters)
- risk communication (e.g. between physicians and patients)

In order to give the reader a quick impression about the broad field of focus group practice, we list a series of examples from diverse applications:

• *Family planning.* Folch-Lyon (1981) ran focus groups in order to investigate motives and reasons for the use and non-use of contraceptives in the general population of Mexico. Ward et al. (1991) investigated knowledge and attitudes of men in Honduras towards vasectomy as means of family planning. In the same article, data is presented from studies on the experiences of women that underwent tubal litigation in Guatemala and Zaire.

• *Traffic Safety*. Basch (1987) used focus groups with young drivers in order to determine fears that serve as barriers to safety conscious driving behavior, i.e. wearing seat belts. One result was that the fear of going into the water or being trapped if the car catches fire prevents people from wearing seat-belts. Furthermore, buckling-up as passenger is often interpreted by the driver as lack of trust in his driving abilities.

• *Media research.* In a study conducted by Morrison and MacGregor (1995) participants did not only discuss different news coverages of the same event, but had also the opportunity to edit their own version of a TV-information. Though this was a rather time consuming procedure, it helped the participants to express their criticism and to develop and produce a cast that was closer to their ideals.

• *Hazardous waste incineration risk*. Liebow et al. (1993) ran focus groups on the perception of local residents towards a planned waste incinerator. They found that participants considered minimizing the amount of waste material as the most appropriate approach to hazardous waste management. Faced with a specific choice between hazardous waste landfill and incineration, the latter was judged in a less negative light than often suggested.

• *Health education*. Kitzinger (1994) investigated the production, content and effect of media messages about AIDS. She was working with pre-existing groups in order to gather realistic data.

• *Political campaigns*. Little academic work exists in that field. However, it is known that political campaigns heavily rely on focus groups. A current example is the Yeltsin campaign that has commandeered "all the best focus-group research, direct mailings, polling data, political consulting and advertising expertise money can buy" (International Herald Tribune, 14.5.96, p.1 and 12).

• *Energy policy*. Dahinden and Duerrenberger (1997) used focus groups to investigate the acceptance of different long-term energy consumption's goals and political means to realise these goals. The groups were asked to develop an unanimous recommendation (group consensus). Results indicate a preference for stabilising or slightly reducing national energy consumption. With respect to means, a policy mix of information and energy taxation was preferred.

2.2. Workings of focus groups

In this section we will first give a short sketch of some general characteristics of focus groups. A detailed discussion of the more general workings of focus groups (groups design, process design, recruitment, input and output material, running of sessions) will be given in chapter 3. Discussion will be oriented towards the application of focus groups in IA. In the second and third paragraph, we will emphasise two cruical topics in focus group research: the workings of moderation, including moderation styles and techniques, and impacts on the discussion process; and data generation, a somewhat neglected aspect in focus group literature.

2.2.1. General workings

Focus groups are guided group discussions with half a dozen to a dozen persons. The group may meet once or several times. Discussions generally last two to three hours. Sometimes, groups may discuss for one or several days. In such cases, however, groups mostly consist of more than a dozen people and the methodological design varies from what we term in this working paper as a focus group:

We denote as a focus group a small-group discussion that lasts a few hours and that is focused on a specific topic. Purposive information on that topic is given as input to the group. The discussion is guided by a skilled moderator. Data gathering is done by means of notes, audio- or video taping, probably questionnaires and the output produced by the group (e.g. reports, pictures, computer output, etc.). Data analysis ranges from brief summaries with selected quotes to full transcription analysed by means of content analysis software.

The information input is a decisive characteristic of a focus group that contrasts in this respect to a "simple" group-discussion. The information can be supplied to the participants before a discussion, e.g. by means of a written documentation, and/or it may be conveyed during a meeting by means of additional documents, expert lectures, demonstrations (e.g. computer models), etc..

The selection of participants strongly depends on the topics in question: in case of marketing research, for instance, potential consumers will be recruited. If a health programme oriented towards AIDS prevention is designed, focus groups with persons that are particularly exposed to these risks may be formed. In other cases, for instance family planning, so called real groups like couples and families can be approached. Further selection criteria that relate to demographics, political or cultural orientations may also superimpose such basic choices. Due to the fact that for a specific topic only a limited number of focus groups is conducted (a few to a dozen, in general), focus groups cannot achieve statistical representativeness with regard to both participation and results.

Against that background, focus groups can be considered as social experiments. Inputs and rules are used to generate and/or to simulate individual and group reactions, for instance with regard to producing collective judgements, to revealing communication barriers, to studying conflict behaviour, to acquiring local knowledge, to creating acceptable options, to synthesizing information, etc. To generalise results from a series of focus groups to the general popultation would be very misleading. However, focus group research helps to increase insights on specific topics, attitudes and behaviours and to make these insights available to a wider research community, to decision makers, and to society at large. Of particular interest are insights into (i) opinions in fields where people are not yet well informed, (ii) barriers to the public understanding of expert knowledge, (iii) options for conflict resolution, (iv) informed judgments and valuations by laypersons and stakeholders on complex policy issues, and (v) new research focii, e.g. with regard to a standardised survey.

2.2.2. Moderation

In this paragrph, we will discuss the following points: (1) the roles a moderator might or should play, (2) the roles participants might play, (3) traits and skills a moderator should have, (4) some basic moderation techniques, and (5) language and gender.

(1) What is the appropriate role a moderator should play? There are (at least) three potential roles a moderator can adopt, especially if he or she is a researcher: the convener role, the expert role, and the participant role; and blends of these roles (see fig. 2).

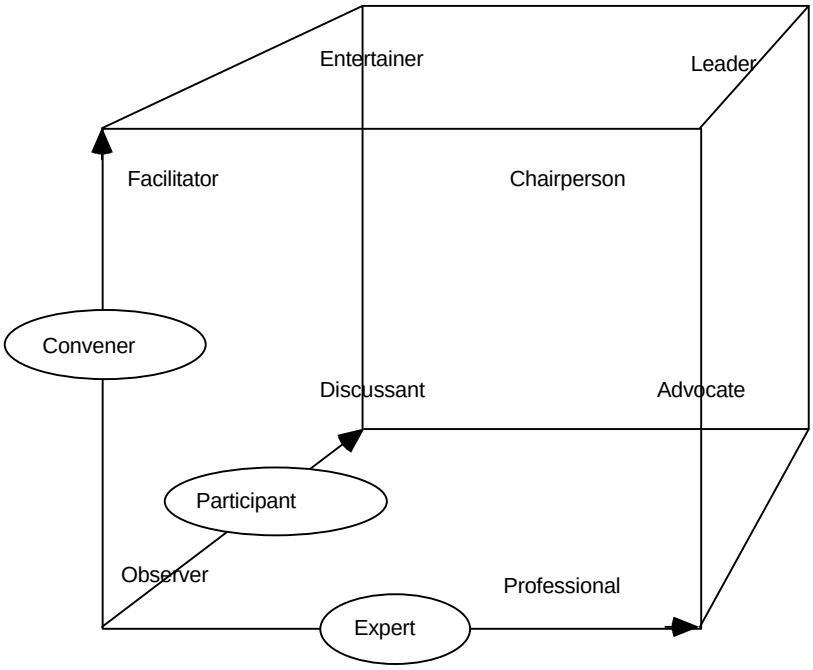

Figure 2: Potential roles of a moderator

In focus groups, the appropriate role of a moderator is the role of a convener that facilitates a discussion. Playing multiple roles – i.e. switching from one role to another – should be avoided. If a particular discussion needs expert knowledge as input, the required competences should be provided by a separate person (or persons) - the expert(s) - and not by the moderator. If the moderator plays the double role of a conversation facilitator and an expert, he or she might strongly frame (or even dominate) the discussion. Focus group moderators should also restrain from the role of a participant, i.e. from trying to convince the discussants of their personal opinion. Cumulating all three roles would even be worse because such moderation is likely to manipulate conversation and outcome.

(2) Moderators should make explicit in which capacity the participants are invited to inform researchers and to contribute to problem-solving and/or decision-making. In focus group research, participants are invited, for instance, in their capacity as consumer (in marketing research), citizen (Goss and Leinbach, 1996), victim of hurricanes (Zeigler *et al.*, 1996), pregnant woman (Longhurst, 1996), etc. In the field of IA the participants are invited in their capacity as citizens.

(3) The genuine role of a moderator is the convener role. A moderator is in first instance responsible for the process, not for the content of the discussions. This role demands a series of skills (Stewart and Shamdasani, 1990; Greenbaum, 1993):

- Superior listening ability in order to be attentive to all comments.
- Excellent short-term memory in order to be able to paraphrase, restate, summarise participants' comments when required, and to clarify vague and cryptic statements.
- Good conversation skills with regard to active communication (talking).
- Ability to convey enthusiasm in order to stimulate conversation and to inject energy into the group if needed.

- Open-mindedness and unbiasedness in order to develop an instant rapport with the participants.
- Flexibility in adopting different styles of leadership, such as supportive, directive, participative and goal-oriented leadership, in order to encourage timid and shy people to speak and to participate, to suppress dominant individuals, to steer the conversation productively along the pre-defined agenda, etc. If social dynamics are the explicit research topic, however, moderation should not intervene in the unfolding of conversation and interaction patterns.

(4) Successful moderators can handle a series of moderation techniques (see also: Greenbaum, 1993):

• *Interviewing techniques*. Open-ended questions that cannot be answered by affirmation or negation only, or by giving quantitative numbers, are most stimulating. Addressing a specific question explicitly to all participants is a strong intervention into the natural flow of conversation. Such interventions should be done rather selectively. However, it may encourage introverted people to participate. Another aspect concerns the sequence of the questions. It is common to start with general questions and to move to more specific ones.

• *Projective techniques*. These techniques stimulate participants to express feelings and valuations. This can be done, for instance, by using photos on which the participants project their feelings. Another technique is to ask questions referring to social actors outside the focus group: Who might be in favour of that? And who might be against it? Another possibility is given by role plays in which participants are representatives of specific actors in the field. However, this technique is not easy to introduce when participants are not well informed and/or not willing to participate. Other, non-verbal projective techniques like collages were already mentioned (see also paragraph 3.5.3).

• *Probing techniques*. These techniques elicit information from the participants by mapping, scaling or laddering exercises. A simple probing tool is conceptual mapping. The participants are asked to map similar objects according to their main overall characteristic. Attitudinal Scaling, in contrast, maps objects with regard to two dimensions which are generally defined by the researchers. Another very directive technique is laddering. The moderator asks a participant to justify his or her initial response/argument. Then the participant might be ask to explain his justification, i.e. to give a more detailed explanation, and so on. Process and result is documented on a flip chart (e.g. as a tree) and then discussed within the group.

• *Control techniques*. These techniques are used to guide unfavourable group dynamics. One of the most important tasks is to encourage participants to say what they really think, for instance by letting participants write down their opinions before they share them with the group. This way, participants tend to stick more easily to their original answers even in case the majority of the group expresses opposite attitudes. Helpful are also techniques for controlling dominant individuals, for instance by active control (cutting-off, indicating when people can and cannot talk, etc.), by enforced silence (omit some time calling on the person), by forming sub-groups (in a more informal setting participants themselves tend to control dominant individuals), by explaining the problem to the dominant person (this is delicate because it might alienate that person).

(5) Language is an important restriction. Ideally, participants and moderators should use their mother tongue in focus group discussions. Even advanced knowledge of a foreign language may not suffice to understand every subtlety of a discussion, which is a prerequisite for an effective management and reporting of focus groups. In addition, some participants may not feel at ease when a discussion is moderated by a foreigner. If the issue under investigation is sensitive with regard to regional differences, participants may treat a neighbour idiom as a "foreign language". If this is the case, the dialect of the moderator may matter and should be taken into account.

A special aspect concerns gender: one-gender focus groups suggest that the moderator should have the same gender as the group, in order for the group to be productive. This is especially important in

case of male groups. Experience indicates that men often tend to exhibit courting behaviour to a female moderator which may dominate more relevant group dynamics and the initial research interests.

2.2.3. Data generation

Group discussions are complex and generate a lot of information. It is difficult to decide what kind of data should be recorded and analysed:

"Whenever people encounter one another in social interaction, most of the things social psychologists talk and write about are happening all at once ... . No theory can possibly encompass it all. No mind can apprehend and comprehend it all at once. Thus, the aim of any theoretical perspective is to separate out a few attributes to be examined in purely analytic isolation... . We hope to gain intellectual orderliness within the narrow slice of reality we have chosen to study. " (Emerson 1990, 31).

Focus groups yield individual, interaction and group data (see fig. 3) with respect to both the social process and the topic of discussion. Generally, group data are of primary interest. Such data may encompass explicit group opinions (consensus, dissensus) and tacit group material like a collage. Group data are generally derived from analysing discussions and material. The latter could also be a report written or approved by the participants (we call this a "citizen report". See paragraph 3.5.3). Writing reports, however, is not commonplace in focus group practice. Interaction data are indispensable for interpreting and understanding group results and processes of opinion formation. Both verbal and non-verbal data are relevant.

Individual data, finally, help to document learning processes. Using focus groups to study individual learning, however, is not general practice in focus group research. One reason is that focus groups will yield less rich and less comprehensive information on individuals than personal interviews or extensive questionnaires. One possibility to obtain insights into individual learning is to distribute questionnaires before and after group discussion. Another possibility is interviewing the participants after a session. We will comment on the use of questionnaires in focus groups in paragraph 3.5.2.

Figure 3: Data-types and tools

The default tool for data gathering in focus groups is audio- or video-recording. Video-tapes can be used as source data for monitoring the social process, for producing transcripts, checking interpretations or analysing non-verbal interactions. In addition, researchers that did not participate the discussion can easily engage in the analysis. This is especially important when focus groups are used as exploratory tool, i.e. to get familiar with and to increase the understanding of a topic, and to generate hypotheses.

Tool	**Pros**	**Cons**
Video	Completeness (verbal and non-verbal data) Recognition of individuals	Costs (equipment) Scanning time
Audio	Completeness (verbal data)	Recognition of voices Scanning time
Collages	Symbolic, emotional, and expressive elements	Analysis/interpretation Comparability
Notes	Direct perception Interaction with moderator	Selection Re-writing/refinement necessary
Transcripts	Completeness of verbal data Scanning time	Costs Required time
Summaries	Structured group data Comparability Scanning time	Selection criteria Verification (source data)

Table 1: Standard tools for gathering data in focus groups

In table 1, the standard tools for gathering data in focus groups are listed. In addition to primary data, we have also included secondary data derived from primary sources. Secondary data can be collected after discussions. Its degree of comprehensiveness and detail varies, ranging from transcripts to summaries.

• Audio and video-tapes: They guarantee a full recording of the discussions, in latter case also of the non-verbal communication. The recognition of voices from audio-tapes is not always easy. Video-recording is much more convenient. We recommend to use video for recording group discussions for the following reasons: (i) Voices can be identified much easier on video tapes than on audio tapes. (ii) Non-verbal interaction (direction of glances, gestures, pointing to people or items in the room, working with flip-charts, etc.) is visible. (iii) Automatic registration of time function allows a more precise and quick access to the material. (iv) Attractive material for presentation at scientific conferences, for policy members, for the media, as input to other focus groups and for the training of moderators.

In order to avoid an unfamiliar atmosphere and interruptions in the discussion, it is advised that the recording equipment is not moved during the meeting. The camera should run without an operator. Today's video equipment has reached a price level and a degree of user-friendliness that can be handled rather easily. However, in most cases an external, highly sensitive micro is necessary because built-in micros generally do not meet the quality that is required for quick and reliable data analysis

or for presentations. No matter whether either video-tapes or audio-tapes or both are used, it is advantageous to have an additional recorder at hand in case of technical difficulties or failures.

Below (fig. 4) you find possible arrangements of the infrastructure

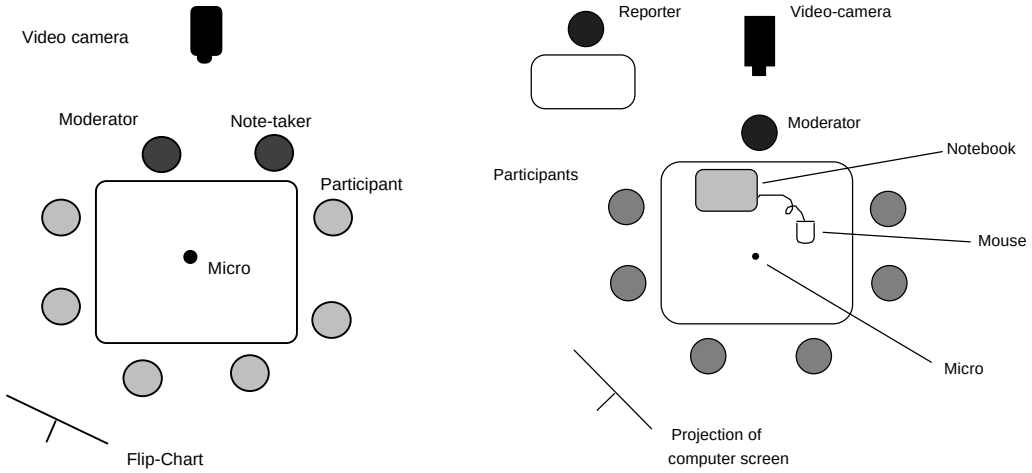

Figure 4: Possible focus group arrangements

• Collages: Tangible material produced and, hence, approved by the group is a valuable output that complements verbal expressions. In addition, producing symbolic material like a collage or graphics/diagrams etc. generally fosters group processes. Working on a collage allows for informal group interactions and personal exchanges. Projective techniques have also the advantage to stimulate people emotionally. Collages should be presented and explained/commented by the producers.

• Minutes: Taking notes of a group discussion is difficult and requires skills and experience. A single person cannot do both moderation and note-taking. No default procedure for note taking exists. Rules for note-taking (what is to be noted, to what extent, what can be ignored) strongly depends on the research interests. Experience has shown, that note-taking "statement-by-statement" is easier to perform than some kind of synthesis minutes that are critical with respect to subjective biases (selection and framing).

Producing minutes may encompass two steps. During the discussion, speakers and their statements are listed by the note-taker. After the discussions, the minutes are enriched: keywords that relate to discussed topics, i.e. to series of statements, and keywords that relate to the social process may be added. Furthermore, interesting parts worth transcription can be identified and marked. Good note-taking produces data that reflect the flow of discussion very precisely. However, note-takers that are not familiar with the research topics are likely to fail in producing such high-quality notes.

• Transcripts: Verbatim minutes derived from audio- or video-tapes, that may also include comments on non-verbal communication, are the most complete secondary data. Scanning time of transcripts is much quicker than of the primary sources. Transcripts allow a systematic, detailed analysis that can be verified by other researchers. Furthermore, excerpts can be easily derived, and text-analysis software can be applied to transcripts. However, transcripts require a lot of resources. Transcribing

one hour of discussion needs roughly 5 hours of transcription time, excluding time for analysis, i.e. interpreting, coding, etc.

• Summaries: Summaries of group discussions are very convenient for identifying and documenting the most general outcome with respect to settings, flow of discussion, participation, moderation, major findings (research questions), etc. As with minutes, the research interests define the requirements for summaries. Three basic functions of summaries can be distinguished: First, summaries should document the main topics and the main arguments discussed. Second, comments on the social process, including the role of the moderator, should be part of a summary. Third, summaries should synthesise the discussion with respect to the research questions.

Summaries should be produced right after the discussion and cross-checked with note-taker or moderator. Summaries may be based upon the minutes.

2.3. Validity

2.3.1. Strengths and limitations of focus groups

Compared to personal interviews, the most widely used social science research tool, the small-group atmosphere of a focus group is experienced by the participants as more natural and more relaxed. This generally stimulates them to feel free to talk. One reason for this is that an individual in a group feels generally less exposed to the "power" of the interviewer/moderator. As a consequence, people tend to think fresh, and the exchange of ideas is much more creative than in a standard interview situation. However, qualitative interviews generally disclose more detailed information and richer insights into a person's attitudes, judgments, and valuations about a particular topic.

Qualitative data gathered in focus groups are very rich and challenging with regard to analysis. The data can be considered to be rather reliable with respect to the "cheap-talk" syndrome well known from standardised surveys. Because expressed opinions actually are and potentially might be discussed within the group, participants generally utter "real" arguments with relatively high face-value (however, little statistical evidence is available). This is especially important for research topics that are not yet widely recognised by the general public. For such topics, focus groups are a sensible and useful exploratory instrument with high flexibility that allows to get in-depth insights into, for instance, visions and options about what is desirable and socially acceptable.

Furthermore, a decisive advantage of focus groups, compared to interviews, is that focus groups exhibit social dynamics which offer insights on the social acceptance and social relevance of arguments, on interaction patterns, conflict behaviour, and social learning processes (see: Kitzinger 1994). However, very little is known about, for instance, the permanence of such learning. Therefore, documenting learning processes (e.g. by polling opinions before and after discussions, or by interviewing participants), can be an interesting aspect of focus group research.

Last but not least, focus groups can be organised and performed within a relatively short time span and with a relatively low budget because they do not require the up-front specificities of a survey. Thus, one can convene a focus group with little preconceived notions of what might come out of it.

If focus groups are organised in such spirit, i.e. to provide an opportunity for the participants to talk and for the researchers to listen, primarily, the technique can be considered to belong to the type of methods along the lines of "grounded theory" (Glaser and Strauss 1967). In the grounded theory approach researchers merely use focus group experience as a base from which to construct theory. Focus groups in social science research are then especially useful to increase the understanding of a

specific, "underinvestigated" research topic and to generate new research hypotheses. To test theory, survey techniques are more appropriate.

Potential limitations in performing focus groups are: First, the impact of group dynamics is difficult to control. Little is known about the effects of group composition (social status), or the influence of dominant participants. Second, and linked to that, group subculture may repress the free expression of opinions that do not correspond to the perceived group opinion. Third, it is difficult to control the impact of the moderation style (and of the moderator) on the process. Framing effects might be substantial. However, a focus group should not be an artificial setting of "power-free discourse" that substitutes for all social tensions, status and power differences, and interests. Organised, designed and controlled in such a way, results would be rather insignificant. Fourth, the systematic collection, documentation and analysis of focus group data is by no means trivial (cf. paragraph 2.2.3.). Fifth, focus group data cannot easily be generalised (see paragraph 2.3.2.). Experience shows that generalisations tend to be more valid if research is oriented towards a specific strata of the population, e.g. elderly people, or persons that suffer from a specific illness, etc. Generalisations from a couple of focus groups to the population at large is a risky venture. Nevertheless, insights derived from focus group research may help to structure and to stimulate research interested in statistical robustness and significance.

2.3.2. Validity of results

Can results from a limited number of focus group discussions be generalised to larger populations? This question points at the very heart of the debate about differences between qualitative and quantitative methods. For a majority of researchers qualitative methods like focus groups are useful and indispensable for explorative research. They help to generate hypotheses, to increase insights, and to produce preliminary results. The spirit of qualitative research is not oriented towards projectability but towards "Learning from samples of one or fewer", as March et al. (1991) put it in a sardonic way.

In the non-academic arena, especially in marketing and in policy research, a rather high validity is attributed to focus group results - despite of the fact that most researchers warn their sponsors not to generalise insights. An important reason for this credibility is the fact, as several authors (Ward et al. 1991, Krueger 1988) point out, that trends found in focus groups are often rather consistent with trends in larger social units. This is especially the case if the research is oriented towards specific social strata and/or in-depth topic knowledge.

This is illustrated in a careful methodological investigation by Ward et al. (1991) that compared the data of three case studies (topic: attitudes towards vasectomy and tubal ligation) which used both focus groups (up to a dozen) and surveys. For the large majority of the variables, the result from the two methods were similar. In half of the cases, focus groups provided additional detail. The study shows that qualitative generalisations from focus groups can be appropriate and can yield valid results. However, two disclaimers apply:

First, such generalisation strongly depends on the number of focus groups and the number of sessions per group performed. The results of a single focus group are not very reliable. They may be biased, for example due to dominant individuals or a particular moderation style. This implies that a series of focus groups should be conducted if trusty results are to be obtained. The quality of the results also depends on the number of sessions conducted, i.e. on the overall discussion time. The more complex the issue at stake, the more sessions per group have to be conducted. For IA-Focus Groups, for instance, we currently consider 5 sessions, each about 3 hours long, as appropriate (cf. chapter 3).

Second, generalisations and trend-analysis derived from focus groups must not signal a pseudo-precision by displaying numerical data and statistical detail that is not warranted by the size of the sample. A categorical ordinary language vocabulary referring to quantities (e.g. none, a few, some, most, all) may be more appropriate than flimsy statistics.

The validity of focus group insights is based on qualitative criteria like the credibility of information providers, the framing of the topic by the researcher and the moderator, the presentation of evidence and counter evidence, etc. In line with Mayring (1993) the following rules help to increase the trustworthiness of qualitative results: (1) document properly what you have done and why you have done it. (2) Substantiate all your interpretations by communicating assumptions and presenting evidence and counter evidence. (3) Explain the procedure of analysis in detail. (4) Try to be as close to the lifeworld of the people as possible. (5) Secure that the data are analysed by more than one researcher, and in an iterative way, in order to check against subjectivity. (6) Try to validate results communicatively with the people themselves. (7) Try to increase robustness by means of triangulation, i.e. using multiple data sources, different analysts, competing theories and methods.

2.4. In view of Integrated Assessment

2.4.1. The policy context

Focus groups are a tool for qualitative participatory research. In this paragraph, we will focus on its potential to support policy processes and, hence, to serve as a participatory tool for IA. In the broad field of participatory policy instruments (see e.g. Renn et al., 1995), focus groups are a relatively new element. The most widely used tools are Planning Cells or Citizens' Juries (Dienel, 1992; Stewart et al., 1994), Consensus Conferences (Joss and Durant, 1994), hearings, Citizen Advisory Committees (Lynn and Busenberg, 1995), and mediation (Susskind and Ozawa, 1985). In contrast to representative methods like elections, referendums, and polls, participatory policy instruments are explicitly oriented towards discourse, i.e. assembling information, generating recommendations, or reaching decisions by means of commuinication.

Participatory policy instruments can be distinguished according to their formal embeddedness in the policy process and according to their role in conflict resolution (see. fig.1). So far, the instruments do not produce legally binding decisions like elections, referendums, and court-juries. The highest degree of formal political embeddedness is achieved by Citizen Advisory Committees and mediation procedures. Rather close to the policy process are Planning Cells, Consensus Conferences and hearings. However, the role of public hearings is not not to directly shape policy but to inform citizens. Focus groups have the opposite purpose, i.e. to inform decision makers about citizens' preferences, opinions, and concerns. IA-Focus Groups, finally, aim at providing decision support for complex policy issues. Up to now, however, formal advisory status is achieved in a few cases only.

With respect to the second dimension, participatory policy instruments can be distinguished according to their degree of conflict involvement. Hearings and mediation procedures are applied when a conflict is in its acute stage, i.e. when it needs clarification and settlement. Focus groups and Citizen Advosory Committees are used in cases of both acute and latent conflits. Planning Cells are oriented towards preventing (latent) conflicts in a medium term planning perspective. Consensus Conferences and IA-Focus Groups are appropriate for investigating long term policy options and choices with regard, for instance, to identify potential future conflicts.

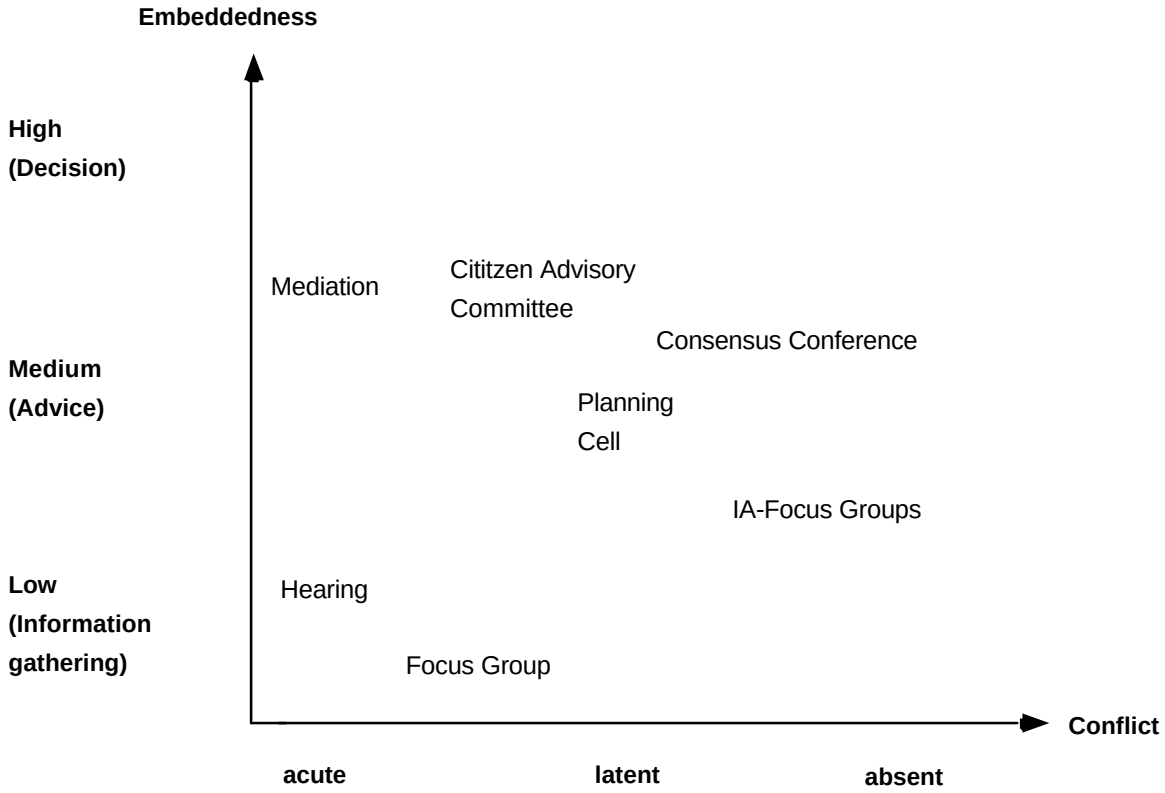

Figure 1: Focus groups and other participatory instruments

Non-discursive instruments like elections, referendums, and surveys, are not oriented towards collective decision making. Group opinions are represented by aggregated individual opinions. In contrast, participatory policy tools allow to debate, to evaluate and, presumably, to decide collectively about policy options. The rules that guide collective decision making may embrace consensus, compromise, minority rules, or majority rules. However, because participatory policy tools do not take legally binding decision, there is no obligation and, in fact, no necessity for reaching closure. However, in many policy contexts closure is an effective means to increase visibility and impact and a precondition for implementation. Furthermore, the task to reach closure might be valuable for uncovering incommensurable positions among the participants and/or for identifying negotiation flexibilities.

A this place, a short note about Policy Exercises is needed. The Policy Exercise has been defined (Toth, 1989) as a flexibly structured process designed as an interface between scientists and policymakers (not citizens). Its function is to synthesize and assess knowledge accumulated in several relevant fields of science for policy purposes in light of complex management problems. It is carried out in one or more periods of joint work involving scientists, policymakers, and support staff. A period consists of three phases (preparations, workshop, evaluation) and can be repeated several times. At the heart of the process are scenario writing of "future histories" and scenario analysis via the interactive formulation and testing of alternative policies that respond to challenges in the scenarios. These scenario-based activities take place in an organizational setting reflecting the institutional features of the problem at hand.

The methodological roots of policy exercises go back to several sources. Probably the most important forerunners were the scenario-based free-form games extensively used since the 1950s (Brewer and Shubik, 1979; Brewer, 1986). Techniques to structure Policy Exercise workshops were

adopted from operational gaming (Duke and Greenblat, 1981). The rich experience accumulated in participatory model building exercises by stakeholders in a regional/local environmental decision problem helped formulate additional design elements (see the literature on Adaptive Environmental Assessment and Management, especially: Holling, 1978).

The policy exercise approach has been successfully used as a tool for policy oriented scientific syntheses for a broad variety of complex environmental issues under diverse political and cultural settings (Duinker et al., 1993; Jaeger et al., 1990; Toth, 1992a, 1992b). The popularity of the approach is demonstrated by the fact that activities and products belonging to other categories of small-group techniques have also been characterized as policy exercises (Vries, 1993).

When defined very broadly, the methodological toolbox of IA does include the Policy Exercise technique as well. Nevertheless, design elements, procedures for small-group interaction, the input material, activity assignments, preparatory and follow-up activities are all conceived with a science-policy interaction in mind. The central objective is to enhance this science-policy interface. This is a more limited objective than the fairly broad range of possible goals which can be served by appropriately devised IA-Focus Groups.

2.4.2. IA-Focus Groups

Why use focus groups as starting point to develop an advanced method of IA? The two major reasons deal with expectations with respect to social learning and democratisation of scientific inquiry.

While relevant scientific knowledge on the complex issues which IA aims to address (e.g. climate change) is not yet widely distributed, group settings such as focus groups seem to be effective means to inform lay people and to encourage learning by discussing. Polling of (uninformed) opinions would be a rather inadequate instrument for the task of IA. Furthermore, group settings allow to discuss complex issues from multiple perspectives. Such perspectives are both necessary as well as legitimate views for framing and valuing complex issues characterised by various forms of uncertainty (statistical, methodological, epistemological).

The very nature of complex issues requires new forms of the science-policy dialogue (see for instance: Hellström, 1996; Shackley and Wynne, 1995; Funtowicz and Ravetz, 1990). Because there is no definite scientific knowledge about every aspect of global environmental change problems, the sciences cannot always provide decision makers with unambiguous facts and diagnoses. Consequently, a democratic debate about the risks of complex environmental problems and possible measures to respond to these risks is required. The role of the sciences in such dialogue is twofold: first, they are a stakeholder with respect to the accuracy and the limits of the various knowledge claims put forward by social actors in the public debate. Second, the sciences can actively participate and support such dialogue by engaging in transdisciplinary research.

The call for public participation in science builds on the confidence that lay people are able to discuss complex sustainability issues under the condition that they receive adequate and understandable information. The focus group method is a promising scientific tool and a suitable social setting for organising such social debate (Kasemir et al., 1996). It seems challenging to explore whether such well-informed groups are able to synthesise the information with social valuation and in this way arrive at integrated assessments. With regard to the social valuation dimension, it is important to realise that IA-Focus Groups generate policy recommendations that reflect and take into account scientific evidence as well as fairness issues. Furthermore, focus group discussions are likely to highlight both important areas of social conflict and possible roads for consensus building.

Last, but not least, practical arguments in favour of the focus group method pertain to its flexibility in experimenting with transdisciplinary methods, especially in connection with computer modelling tools (see below). Furthermore, the required resources in terms of time and money are comparatively modest.

A crucial feature of IA-Focus Groups concerns the overall task of producing policy-oriented assessments on complex problems. Generally, focus groups are oriented towards well structured topics people feel fully competent to speak about. In case of IA-Focus Groups, most topics are perceived by ordinary citizen as being too scientific to be adequately discussed by such a group. This is partly true. On the one hand, basic input of expert knowledge is necessary if the group should come to informed assessments. This information input needs a lot of time, much more than with "ordinary" focus group topics. On the other hand, however, complex policy problems - like those associated with global environmental risks - should not be shaped by experts only. Because complex problems have no unequivocal solution due to inherent and unreducible uncertainties, a complex problem can be legitimately framed in multiple perspectives. This calls for a policy dialogue in which experts play an important, but not the only relevant role. Against that background, citizen are both legitimised and demanded to engage in the science-policy dialogue.

One of the most basic challenges of IA-Focus Groups is to create a link from day-to-day issues to the complex IA-issues at stake, in the case of ULYSSES and CLEAR: climate change and climate policy. If no such links can be activated, discussions tend to be difficult, uncreative and for both the researchers and the participants frustrating. A possibility is to link the climate change issue to regional problems and questions of personal lifestyles.

A second feature of IA-Focus Groups is the use of computer models as a tool to inform participants about the environmental issue at stake. Ideally, this tool serves as stimulus for the group process. It is hypothesised that IA-models, which aim to represent current scientific knowledge on economic, social and environmental processes and their interlinkages, can support social learning about complex environmental problems. However, to meet this task, the interfaces of the models need to be tuned to the lay people as users.

Interesting questions to explore in this context are whether and to what extent the effectiveness of the social learning process depends on (1) the characteristics of the computer models, and (2) the style of model moderation. Concerning model characteristics, the structure of the model, the treatment of uncertainty and the gadgets of the user interface seem to be relevant. It is often argued that the quality people ascribe to computer models is whether they adequately represent what they experience in their own lives and that lay people are not able to use a model effectively if it represents other aspects and perceptions of reality. The IA-Focus Groups offer the opportunity to assess whether such and other user related questions are valid. Concerning model moderation: it is likely that the way and the style a model is presented to the participants and how it is integrated into the group process strongly frames and facilitates (or prohibits) group communication and group decision making. So far, no experience exists in this field.

A third crucial feature of IA-Focus Groups is the output orientation. A characteristic of focus groups is that a collective focus is installed by providing an input (stimulus) to the group. In IA-Focus Groups an additional group focus is created via an output task. One can think of different forms of output. For the default setting we propose that IA-Focus Groups produce a written document (a "citizen report"). The common goal to produce a tangible output generally increases motivation. Furthermore, it structures the process in the form of work packages, intermediate results and, finally, the production of the document. Ideally, citizen reports serve as an input into the policy process. They might complement output produced by scientists, authorities, or interest groups. However, potentials and limitations of such use of citizen reports need to be explored in detail. Of particular significance in this context is the relevance of the media.

A fourth characteristic of IA-Focus Groups concerns synthesis. The task of IA is to integrate knowledge in order to generate policy oriented assessments. IA-Focus Groups contribute to this task by exploring policy options in light of state-of-the-art scientific evidence. Such exploration is oriented towards making manifest the plurality of perspectives and identifying potentials for consensus. Against that background, IA-Focus Groups help to highlight conflicting topics in future policy debates and to pinpoint obstacles in the design and implementation of specific policy measures.

The first step in creating a successful tool is to develop a feasible experimental setting. To this end, pilot groups were carried out within ULYSSES and CLEAR from 1996 to the beginning of 1997. This pilot phase encompassed the conducting of about 70 IA-Focus Group sessions in 7 European urban regions. On the basis of part of the acquired and accumulated experience and knowledge, a procedure and sensible first setting for IA-Focus Groups has been developed. In the following chapter, this "default setting" (for its meaning see section 1.2) will be presented together with general information about focus group technicalities.

3. IA-FOCUS GROUPS

In this chapter, we will look at a series of practical issues relevant for designing, preparing and conducting focus groups. For every issue we will first summarise general experience and then give suggestions for IA-Focus Groups. These suggestions are tied to the ULYSSES research. They are a result of the pilot phase and a starting position for the first phase. In the pilot phase different settings and techniques were tested by the ULYSSES teams of Athens, Barcelona, Darmstadt, Manchester, Stockholm, Venice, and Zürich. The Zürich focus groups were also oriented towards the CLEAR-process. For CLEAR, similar but not identical choices for the design and conducting of focus groups will be made.

3.1. Group design

3.1.1. Composition of the group

There are two general dimensions for selecting participants. First, the homogeneity /heterogeneity criteria, second, the real group/sampled group distinction.

In many cases, focus groups do not consist of samples of the general population, but of specific - homogeneous - strata. Such composition of a group generally allows an ordinary and natural talk. Conversation will not be impeded by huge cultural and social barriers. Evoking conversation in heterogeneous groups often requires a rather time-consuming social process of trust building. Therefore, focus groups generally consist of participants from a similar background. The criterion for homogeneity varies from study to study and may be cast in terms of geography (inhabitants of a town), profession (i.e. nurses), political orientation (i.e. activists of a social movement), personal interests (patients with the same illness), gender, etc.

Heterogeneous focus groups sampled according to quota criteria reflecting the general population serve best for investigating attitudes and opinions of the general public. In such focus groups, communication barriers between social strata can be investigated; differences in interest are likely to be present; and power-relations might be experienced straightforwardly. The aim of (such) a focus group is not to filter out social tension, but to discuss the issue at stake within and against the background of social stratification, i.e. uneven distributions of power, wealth, and competences. Such sampling is especially appropriate for policy-oriented discussions.

Another important issue pertaining to group composition is whether the groups should consist of people who know each other (so-called 'real groups') or whether the participants are selected randomly according to some pre-defined criteria (so-called 'sampled groups'). Which type of group is more appropriate for applying the focus group technique depends on the research topic in question. In real groups, conversation can often be stimulated more easily than in groups of strangers. However, established patterns of social interaction, of conversation rules and discussion topics may strongly shape group dynamics. In cases where the research focus is on how information is processed in social groups, such phenomena are not obstacles to data gathering but the very subject of research. Social sciences teach us that individuals do not form their attitudes in splendid isolation, but with regard to rules embedded in social networks of friends, professionals, relatives etc. Following this argument, real groups present an excellent opportunity to reveal the socially relevant values, rules and attitudes. Obviously, when focus groups meet regularly, participants of sampled groups get to know each other and a specific group culture may evolve.

Due to that somewhat anonymous social setting, emotional constraints against chatting and speaking about personal attitudes and feelings tend to be low. Timid and shy persons might be encouraged to speak and actively participate by listening to others' stories. However, dominant individuals can also suppress other voices. If such social dynamics are observed and are not a research topic, candid moderation is required that checks against such domination. A clear advantage of sampled groups against real groups is that the former allow for a systematic variation of social variables, because there are no pre-existing informal social structures in the group.

ULYSSES specific

In the pilot phase, the research teams have experimented with real groups (i.e. families, members of an association) and with sampled groups. The sampled groups were built according to different socio-demographic (age, gender, education) and ideological (political orientation, environmental attitudes) criteria. Many groups turned out to be rather homogeneous with respect to education/occupation (white-collar people acquainted to discussions) and ideology ("green", pro-environment, or, in terms of the cultural theory of risk: egalitarian). For the first phase of ULYSSES, it was pragmatically decided to recruit heterogeneous (and most likely: sampled) groups (see quota criteria below). For the second phase other criteria, for instance in line with the cultural theory, will be evaluated. This might imply to recruit participants from real groups, i.e. interest groups, associations, etc.

The default quota criteria for selecting participants from the general public are the following:

- Age: Parity between under and above age of 40
- Gender: Parity between male and female,
- Education: Major educational strata represented in at least one focus group
- Political Attitudes: Major political attitudes represented in at least one focus group.

The criteria should not superimpose in such a way that, for instance, all women are below 40 and all men are above 40.

3.1.2. Group size

Focus groups generally include half a dozen to a dozen participants. Less than 4 persons do not really exhibit the characteristics of a social group, which makes it difficult to study social processes. On the other hand, focus group settings consisting of more than a dozen people do not allow for sufficient speaking time for everybody, and small-group dynamics disappear. A hierarchisation of the group is likely, with a few speakers and the rest of the participants as audience. Therefore, large groups do not yield richer data than smaller groups.

ULYSSES specific

It is advocated that the groups consist of 6 to 8 participants, because this is generally the best size for a discussion. Overrecruitment is required (see paragraph 3.3.2).

3.2 Process design

3.2.1 Number of groups

There is considerable uncertainty about the number of groups that are needed for convincing results. One needs to search for a balance between necessity with regard to the research questions, and possibility in terms of time and money. However, the general rule is that one should never rely on the results of a single focus group, no matter how carefully the group was designed, conducted, and analysed. The results may be biased due to dominant individuals, to the moderation style, to

unexpected local knowledge, etc. In some cases, half a dozen focus groups may generate enough information for the research needs in question. In others, one or two dozen groups will be necessary to defend the insights vis-a-vis the peer-communities. The number of groups strongly depends on the research design, of course. If systematic research is undertaken, every independent variable (roughly) doubles the number of groups.

A rule-of-thumb criterion is the marginal value of the information obtained by running additional focus groups. This marginal value may be the best indicator to determine the most appropriate number of focus groups. In general, this cannot be done in advance but has to be settled on-the-job. However, this requires on-going documentation and analysis of the results.

ULYSSES specific

The ULYSSES network as a whole will run about 40 IA-Focus Groups. It is set as a default that 5 to 6 groups should be run in the main research regions, i.e. Barcelona, Darmstadt, Manchester, Venice, and Stockholm.

3.2.2 Number of sessions

Another aspect relevant for designing IA-Focus Groups is the number of meetings per group. Focus groups which aim to reveal opinions with regard to, for instance, a new product on the market or a well specified topic/problem of everyday-life generally meet once for a two hour discussion. If the group is focused on the complex issues of global environmental change, much more time is needed for the participants to inform, reflect, and discuss the topic, and to generate policy suggestions. If the latter is done by producing a citizen report an extra meeting oriented to this task only is necessary. There is almost no information available in the literature with regard to several-shot focus groups.

The number of meetings required for discussing thoroughly a specific topic and for producing the desired output depends of course on the duration of the session. There are at least two very different ways of designing the process. First, organising a bunch of interlinked single-shots, each of about 2 to 3 hours duration. Such sessions can take place in the evening. Participation of employed people is then not restricted. On the other hand, the group discussions can be organised in a workshop format that takes place, for instance, at a weekend. Such design will allow for about 12 hours of discussion, roughly corresponding to 5 evening sessions.

ULYSSES specific

Experiences with one-shot, two-shot and three-shot groups gathered in the pilot phase of ULYSSES have shown that much more time is needed to discuss complex issues like climate change. As default ULYSSES will run groups with 5 sessions of 2.5 hour duration each. The 12 hours of discussion can also be allocated to two workshop days. However, different group dynamics will presumably influence the discussion process.

3.2.3 Frequency of sessions

If evening sessions are chosen, the groups should meet on a regular basis. The breaks between the sessions should not be too long so that discussions can be experienced by the participants as a process.

ULYSSES specific

As default ULYSSES will run the 5-shot groups within 6 weeks, at longest. As a rule, a weekly rhythm will be used. Preferably, the sessions take place on the same weekdays. If the workshop format is adopted, a weekend seems to be most convenient.

3.2.4 Location of sessions

Focus groups should be organised at neutral places. Offices of the sponsor, a particular party, or a stakeholder in the issue are not very suited for that purpose. Meeting rooms in schools, restaurants, churches, research institutes, or rooms that the participants visit themselves (club rooms and the like) are much better places. In all these cases, the organiser should make sure that discussions and data gathering are not impeded by noise or other disturbances.

ULYSSES specific

No additional recommendations.

3.3 Recruitment

3.3.1. Procedure

In case of sampled groups standard techniques known from quantitative approaches can be applied, i.e. random selection from existing lists (phone books etc.) or quota selection. Because the number of people participating in a focus group is small, quota selection is appropriate. For real groups, existing social structures like professional associations, trade unions, churches, sports clubs, political parties, or non-governmental organisations can be contacted. We first focus at some length on the recruitment of sampled groups.

The recruitment procedure should guarantee that a pre-defined sample of people will meet and discuss. For the potential participant, the procedure has a different function. It should provide him or her with the basic information that allows for deciding whether to participate or not. Among others, the following motives are relevant for participation or for refusing to take part: personal interest in the topic, opportunity for social contacts, opportunity to get informed, curiosity, financial incentives, logistics (place, time, duration), trust in the person who recruits, trust in the interviewing institution, trust in the sponsor of the study.

In the recruiting interview, these issues should be touched in order to increase positive response rates. Such interviews are generally done by phone. Response rate in the ULYSSES research in Zurich region, for instance, was around 1 participant per 20 phone calls. Recruitment by mail yields a much lower response rate, in general in the order of magnitude of 1 participant per 100 letters. Recruiting is a time-consuming effort. This is especially true for general issues that are not closely tied to daily life like global environmental change, the core topic of IA-Focus Groups. First experience are that recruitment by phone takes about one hour per participant, including unsuccessful calls and notetaking. A full-scale recruiting by phone may comprise the following steps:

1. Pre-information by letter (mostly not done)
2. First recruitment interview by phone

3. If interested in participation: Mailing of a letter with general information about the project (for instance: purpose, sponsor, organiser, reimbursement, anonymity, time, place), a registration form and a return envelope. This mailing has to be sent directly after the phone call.
4. If registration is not sent back: second phone contact5
5. Last phone call to remind people about the event, the day before discussion.

However, one should bear in mind that recruitment procedures strongly depend on cultural context. What works in Germany may fail in Greece, or vice versa. In some countries, for instance, a signed registration form is considered by the participants as a contract, and no additional call before the meeting is required.

The rationale for recruiting real groups may be manifold. First, the research interest may be oriented towards studying established social networks like families, neighbourhoods or working environments. Second, the research focus may be on comparing social reality in specific institutional settings. Third, involvement of people that would otherwise never participate in a focus group may be more easily motivated. Fourth, real groups generally allow a quicker recruitment. In the case of IA-Focus Groups, latter two reasons are especially important.

Recruiting real groups is often less time consuming, especially when several groups can be recruited within the same institutional network. Moreover, if the contact person of a specific organisation can be motivated to support the study active assistance in recruiting is mostly secured. Another advantage of selecting real groups is that people not interested in a specific topic may participate. Generally, it is rather difficult to include such people into focus groups via phone recruitment. In most cases people in real groups will know each other, but if large organisations are contacted, the recruited people may be strangers.

Concerning timing of recruitment, it should begin no later than two or three weeks before the date of the discussion. Because ordinary citizens, in general, do not organise their private life along an agenda, the time-span between recruitment and group discussion should not exceed approximately a month.

ULYSSES specific

In order to be as flexible as possible and to account for the cultural diversity between the ULYSSES research regions, no standard procedure for selecting participants has been developed. For the first phase, recruitment of both sampled groups as well as real groups is sensible, as long as the general quota criteria are met. It is agreed that the research will be presented during the recruitment interview in a very general fashion only as environment related and with a regional focus. Climate change will not be mentioned because this topic might strongly influence and bias participation.

3.3.2. Over-recruitment

Even with the best of all possible recruitment procedures, it is not guaranteed that all selected and committed people will show up for the discussion, and it is very hard to anticipate absences. ULYSSES experience with phone recruitment (sampled groups) shows that it is exceptional when all expected people show up. Consequently, one has to compensate for that by over-recruitment.

ULYSSES specific

To be on the safe side, about 8 to 9 people should be recruited in order to realise a 6 person IA-Focus Group.

3.3.3. Reimbursement

Financial incentives should be of secondary importance for participation. Nevertheless, they are helpful because they highlight the social value attributed to the discussion. Furthermore, people do not consider participation as a form of compulsory labour when they are compensated for it. The level of reimbursement can be adapted to the income of the group under investigation, or it can be tied to reimbursement levels in political institutions, for instance a local parliament.

ULYSSES specific

A moderate amount as both incentive and compensation is offered to the participants

3.3.4. Pre-information

If information material is sent to the participants beforehand, this should be done one or two weeks before the meeting. Such material allows participants to prepare for the discussion, e.g. by formulating key questions. Generally, mailed documentation will be carefully studied by the participants. Nevertheless, it is not certain that everybody will read it. Another issue concerns framing. Pre-sendings may frame people. If such shaping is not wanted, no documentation's should be handed out before the meetings.

ULYSSES specific

No pre-information will be sent to the participants.

3.4. Input

3.4.1. Written input

Focus group discussions are stimulated by information input that is provided by the organisers. The very first focus groups organised by Merton used a movie as input (see paragraph 2.1.1). Such input is aimed at establishing an emotional as well as a cognitive group focus. Input material suited for focus groups are: videos, pictures, music, written material such as information sheets or short stories, expert lectures, radio broadcastings, and so forth. Decisive input for IA-Focus Groups are computer models (see below point 3.4.2).

Inputs have to be pre-tested, in order to find out whether the chosen material facilitates discussion or whether it merely evokes debates on issues which are not considered to be relevant with regard to the research interests. In the worst case inputs can even close discussions. This tends to be the case when the input is not tuned to knowledge and competence of the participants. Highly sophisticated expert input into focus groups of lay people is not well received.

ULYSSES specific

While the computer model is the most prominent input, other inputs will be used as well. With regard to written input fact sheets, which summarise expert knowledge with regard to different issues related to climate change, can be distributed. Other written material may comprise newspaper articles on climate change and sustainability topics in general. Such written input will be used at least in some research regions. Other input material is optional. If optional material is used, at least one group is run without it for comparison. Inputs will be used in most sessions. The very first introductory session, however, does not start with an expert input (see discussion guide 3.6.1).

3.4.2. Computer models

To inform participants of IA-Focus Groups about the sustainability issues at stake, IA-models will be used. So far, this information media is not yet widely used in focus groups. Some experiences are collected with policy exercises (cf. paragraph 2.4.1.).

It is still an unresolved question how the interaction between lay people and computer models should be best organised and moderated in focus groups, and what the value added of using computer models in addition to traditional input is. These questions are at the core of the research projects of CLEAR and ULYSSES. So far, the very preliminary experiences show that many participants are rather keen to use computer models. As is known from the reception of professional software, the graphic quality of the interface, the possibility to run a model interactively, and the visualisation of processes (i.e. dynamics) are key features that make a model attractive. The closer a model is related to the experiences of participants, the better they receive it. At a minimum, one hour is needed to introduce a model and to experiment with it in the group. For interactive use, subgroups of 3 persons or so are very convenient. However, forming subgroups will inevitably change the group dynamics. It seems, that models as a means of information transfer are especially useful in combination with other inputs like lectures and written material.

ULYSSES specific

For the ULYSSES project, the intention is to use as input a regional and a global model. However, not all research teams will use models as input into the focus groups. PoleStar (Raskin et al., 1994) serves as common framework for the regional focus. It will be fed with data from the ULYSSES regions in order to allow focus groups to explore local sustainability options. As global models the teams can use either IMAGE (Alcamo, 1994) or TARGETS (Rotmans et al., 1994; Rotmans and De Vries, 1996). IMAGE cannot be run interactively, and therefore only selected model output is used. In contrast, TARGETS can be run interactively. In order to communicate with and use TARGETS as conveniently as possible, modified user interfaces have been developed, so-called "views", covering the topic of global climate change. As a default, model introduction and model use will be performed and facilitated by a special model moderator who is not the same person as the group moderator.

3.5 Output

3.5.1. Videos, transcripts, minutes, summaries

Standard output of focus group discussions are video (or audio) tapes, minutes and possibly notes (cf. paragraph 2.2.3).

Whether to produce full transcripts or not strongly depends on the research interests, the resources available, and the sheer amount of discussions to be transcribed. What is recommended as minimum is to produce short transcripts of interesting parts of a discussion. If a long series of focus groups are conducted, a limited number may be analysed in depth, and results may be validated with the help of the remaining groups.

Minutes can be taken in at least two different ways: first, by reporting all statements in an abbreviated form, second by subjectively summarising interesting parts, spanning from statements to non-verbal observations.

Summaries produced shortly after the sessions ensure that the general insights of a discussion are documented. These insights may concern social, methodological and substantive aspects. A brief discussion between the moderator and the reporter is recommended. The following checklist may be helpful for producing such summaries:

• How was the discussion? What was easy, what was difficult?

• Which parts of the discussion were especially interesting? Which ones were not?

• How was the composition of the group? Who was dominant, who hardly participated?

• How can the moderation be improved? Which topics took time without yielding interesting data? Which topics should be further elaborated? Which spontaneous questions are worth integrating in the guide? In which direction could or should the discussion guide be changed?

ULYSSES specific

All research teams record the discussion by audio or video and produce minutes. No default for transcription and for the minutes is defined. Short descriptions of every session will be written and distributed among the teams.

3.5.2. Questionnaires

In general, questionnaires are not used in focus group research. The main reason is that the qualitative methodology is more devoted to dealing with in-depth interpretations than with the quantification of 'social facts'. Focus groups do not generate data that can be statistically generalised and extrapolated to society at large. In that sense, focus group data is not representative for the population. Therefore, questionnaires are more suited to complement focus group discussions.

Questionnaires can help (1) to provide a quick picture of the diversity of opinions within a focus group. If a questionnaire is distributed twice, before and after a discussion, changes of individual opinions and judgements can be documented, and the results can be related to the discussion. Furthermore, differences between individual opinions and a group opinion - if it exists - can be studied. In order to obtain information about the constancy of changes in opinions and attitudes, it might be useful to send the participants the questionnaire some time after the IA-Focus Group discussion again. (2) Questionnaires can also allow for heuristic comparisons of results between, for instance, European regions and cultures. In either case, questionnaires for focus groups should be short and selective. Otherwise, they consume too much time and the focus group setting might be perceived by participants as a masked survey exercise.

ULYSSES specific

Within the ULYSSES methodology, questionnaires are auxiliary tools that complement the focus groups discussions. A short questionnaire that covers sustainability issues was developed (see appendix 4) and can be used by the teams as a default (not all teams will work with questionnaires). The questionnaire is distributed twice: in the very first and, in some slightly revised form, in the last session (cf. paragraph 3.6.1). In addition to such a general questionnaire, a model questionnaire that focuses on the specificities of a particular model (or of several models) could make sense. However, no model questionnaire is suggested here.

3.5.3. Collages and citizen reports

Assigning to the group a specific task like the production of tacit output (consensus or synthesis statements, reports, model runs, collages) shifts the burden of producing conclusive statements with regard to collective opinions from the researchers to the group. One can argue that this increases the validity of the data, since the participants determine themselves the main insight from the discussion. Such output orientation may help to structure discussions and to increase participants' motivation.

This is especially true if discussions and tangible output are perceived to have a potential policy impact.

Collages are a valuable technique to stimulate symbolic, expressive and emotional capacities that are generally undervalued in discussions. In the context of IA-Focus Groups, producing collages may be a welcome ”group warm-up” for discussion on the future, for instance on future lifestyles, or sustainability visions. However, analysis of collages may be difficult and somewhat vague. To reduce the risk of mis-interpretation it is recommended that the group comments on the final product and produces a short synthesis description about message and important elements. For working on a collage, participants have to be provided with material. The kind of material given to the group (magazines, newspapers, scissors, glue, paper sheets, etc.) depends on the topic in question and the time allocated to the task of producing a collage.

Written output is easier to analyse than symbolic material. However, the process of writing a document is rather difficult to manage. Generally, a report cannot be written during a single session if no raw material has been produced in preceding sessions. Producing a citizen report requires much more time than making a collage and, according to our preliminary experiences, the task has to be organised as a process that spans over large parts of the IA-Focus Group panel. The final report can be written by the participants themselves or it can be drafted by the organisers. In the former case, assistance by the research team should be limited to writing services and other ancillary tasks. Approval can be made explicit by communicative validation of the final product. This is a "must" in the case that the report is drafted by the researchers on the basis of their understanding of the discussions. This procedure comes close to policy negotiation practices.

A decisive advantage of written output concerns the fact that it is a synthesis-document produced and approved by the participants. A citizen report written in an IA-Focus Group documents the integrated assessments made by the participants and lists the policy judgements and recommendations derived from these assessments. A citizen report is not necessarily a consensus document. In some cases, consensus might be achieved. In many cases, however, a citizen report documents dissensus that stem from the plurality of opinions, views, interests and valuations.

However, there is a series of legitimate reservations towards citizen reports: First, the process is very time-consuming. The time for in-depth discussions will be substantially reduced. Second, writing reports is not a widespread skill and a general practice among the population. Many participants might not be able to cope with this task or might be unwilling to perform it. Third, due to the strong output orientation, process organisation and moderation might much more frame the participants' assessments and judgments than in the case of "free" conversation. Fourth, if the utility of the report in the policy process is not factual, participants might perceive the whole exercise as a waste of time.

Within CLEAR and ULYSSES, first experiences with producing citizen reports have been collected. They show (i) that such output can be produced, (ii) that one session has to be devoted to the writing, editing and approval task, (iii) that questions/answers, statements and conclusions discussed and given in previous sessions are a necessary input into the writing session (the research team has to prepare these inputs), (iv) the writing task might have the form of producing a text collage based on the input material. Participants arrange, edit, and enrich this material by using the basic structure or some revised form of it. The research team then creates out of this collage the final text document that will be discussed and approved by the group.

ULYSSES specific

In the default setting, the focus groups will produce both, collages and citizen reports. The default for collages is to produce two collages, one on the region in question in 30 years from now if energy consumption will further increase (business as usual scenario), one on the region in 30 years from

now if energy consumption will be dramatically reduced to half or so of present consumption. The two collages can be produced in two parallel sub-groups.

Concerning citizen reports, default is to produce one report per IA-Focus Group. The experiences collected by the teams will guide the direction in which the citizen-report process will be further developed within ULYSSES. For the first phase, we developed the following template (see below) in order to provide the focus groups with a basic structure. The common format will facilitate and enhance the comparability of the reports. In every session, a time window is devoted to the preparation of the citizen report (see discussion guide in paragraph 3.6.1). The document should not evaluate and reiterate scientific insights, but document (climate) concerns and present judgments about policy options and measures. The default structure of the citizen report is the following:

1. Assessments
    - Global Climate Change
    - Regional Impacts
2. Options
    - Regional energy consumption goals for 2030
    - Regional development options
3. Policy suggestions (brief)
    - Regional policy suggestions
    - European policy suggestions
4. Evaluation of process (optional)

3.6. Running IA-Focus Groups

3.6.1 Discussion guide

Guiding a group discussion involves two tasks: first, facilitating the social process and second, steering the debate along a pre-defined discussion guide. In this paragraph, we focus on the discussion guide. In the next paragraph, the task of facilitating and moderating the social process will be addressed.

A discussion guide ensures that the topics relevant for the research are addressed and data on key variables are produced. There is no general agreement on how structured and detailed a discussion guide should be. This depends on factors like time and resources available for conducting and analysing the focus group discussions, complexity and particularity of the research questions, moderation skills and topic knowledge of the moderator. As a rough estimate, a discussion guide should not cover more than half a dozen issues on the focus group topic. In a two-hour session, more issues are only processed by groups that share a common discussion background, with respect to both discourse style and topic knowledge.

Discussion guides should be pre-tested. A quick and efficient way is to perform a limited number of individual interviews. Results will allow for first adjustments. Then, the discussion guide should be tested in a group-setting. Generally, two or three group discussions should suffice to produce a final version. If experiences from group discussions on similar topics are available, the pre-testing may be confined to a single group-test.

If the project focuses on issues where scientific and technical information is relevant, which is clearly the fact in the case of IA research, the discussion guide should reserve time for both informing participants as well as for getting informed about the participants' perceptions and valuations of the issue at stake. In a first part, the moderator may ask people to present their insights, knowledge and framings of the topic. Then relevant expert knowledge can be conveyed, e.g. by distributing

documents or by working with computer models. The participants understanding of such expert knowledge may be checked by asking for brief oral summaries. This procedure may be instrumental in creating a shared awareness of a topic. Furthermore, it may give straight-forward insights about possible barriers for and limitations of the understanding of the issue under investigation.

Experience shows that the very first minutes of a focus group generally strongly shape the participants attitudes, goodwill, and expectations. Therefore, a professional, skillful guidance of the social process at the beginning of the session is pivotal. This may start with the welcome of the participants that show up too early. The key period, however, is the official welcome and the introduction into the aim of the session, including expectations, and into the research context. Joyful self-introductions of the participants and the staff very much help to enter the conversation in a relaxed mood. Drinks and snacks support the creation of a favourable atmosphere, and name tags help to get in quick personal contact. If the moderator can establish an atmosphere that is socially relaxed, professional, and egalitarian in spirit, fruitful and creative discussions are not guaranteed but very likely to take place.

ULYSSES specific

A template of a discussion guide that covers a 5-shot panel was developed in the pilot phase. The template can be tuned to specific research needs and regional circumstances, e.g. if problems with regard to the cultural context arise. Following this template will allow to compare methodological experiences as well as results. On the basis of our experiences, the template will be improved, or additional versions will be developed. Below the default structure of the discussion guide is given. The entire template is to be found in appendix 2.

Session 1: Visions and concerns

1.1. Social warming-up
1.2. General questionnaire 1
1.3. Issue warming-up: Collage "our region in 2030"
  • one subgroup: business-as-usual energy scenario
  • other subgroup: 50% energy reduction scenario
1.4. Mutual presentation of collages
1.5. Discussion: Personal concern about environmental and climate change
1.6. Presentation of research project and programme
1.7. Flash (feedback by participants)

Session 2: Global Climate Change

2.1. Expert knowledge about climate change using TARGETS or IMAGE
2.2. Two Subgroups with switching tasks:
  • Citizen report group
  • Modelling group (TARGETS or IMAGE):
    - interactive session with TARGETS or discussion with IMAGE
2.3. Plenum on citizen report
2.4. Flash (feedback by participants)

Session 3: Region and lifestyles

3.1. Feedback to questions
3.2. Plenum on Citizen report
3.3. Introduction to PoleStar in Plenum
3.4. Plenum on narratives of regional lifestyles
3.5. Flash (feedback by participants)

Session 4: Regional options and policy suggestions

4.1. Feedback to questions

4.2. Plenum on

• regional options using PoleStar scenarios

• implications for policy: regional/national, European

4.3. Plenum on citizen report

4.4. Flash (feedback by participants)

Session 5: Citizen Report

5.1. Feedback to questions

5.2. Introduction

5.3. Writing of report by participants

5.4. General Questionnaire 2

5.5. Evaluation of the whole process

3.6.2 Group moderation

The main task of a moderator is to guide the discussion and to facilitate the social process. The role a moderator should play is that of a convener, or more precisely: that of a facilitator, in contrast to the role of an expert (that embodies scientific authority) and of a participant (that brings in his or her personal preferences; see paragaph 2.2.2). In the case of IA-Focus Groups, the input of scientific expert knowledge is crucial. If such knowledge is provided verbally, this task should be separated from group moderation and externalised to a separate person. The same applies in case computer models are used. Such models should not be introduced by the group moderator but by a separate person (model-moderator). In this paragraph, we will first focus on group moderation (1), then on model moderation (2), and finally on training (3).

(1) Guiding a focus group is a balance between the realisation of a preconceived plan and a flexible reaction to unexpected and challenging statements, questions and answers. Therefore, a moderator should allow detours and develop spontaneously new questions, without diverging too much and too long from the discussion guide. However, sometimes fundamental changes may be justified by the creative insights a specific focus group produces. Successful moderation requires the flexible handling of a series of moderation techniques and leadership styles (see paragraph 2.2.2.).

Generally speaking, the researchers are not always the best moderators. This is especially true if a researcher is not trained as moderator. In such cases the researcher(s) should be observer(s). Although the researchers are most familiar with the purpose of the study, its theoretical and its empirical background, practical reasons may limit the effectiveness of the researcher-moderator, for instance:

- Lack of moderation skills
- Language barriers
- Social and cultural distance to the groups
- The quantity of group discussions to be conducted

(2) In IA-Focus Groups, expert knowledge is often embodied in computer models. To communicate such knowledge to the participants, a special expert - we will call him or her "model moderator" - is needed. Model moderation and general group moderation should be organised as separate tasks performed by separate persons. A model moderator brings in the relevant expert knowledge and computer skills in order to facilitate the use of computer models by the participants. Model moderators should understand the model so as they can explain its possibilities and limitations, and relate the interests and questions of the participants to the model. Furthermore, model moderators should be able to communicate with the modelling experts in order to find ways to address unanticipated questions.

(3) A sensible curriculum for the training of moderators may consist of the following three subsequent steps:

- first, learning by observation
- second, learning by tutorial training
- third, learning by doing

The first two learning steps help beginners and inexperienced moderators to acquire the basic moderation skills and the necessary knowledge on the topic in question. The first step can be conducted either by direct observation of an advanced colleague during a series of focus group sessions or indirectly by inspecting video-tapes. The second learning stage is the crucial one. The trainee will facilitate focus group discussions monitored by an experienced moderator. Afterwards feedback is provided by the advanced moderator. Furthermore, inspection of the video-tapes by the trainees themselves is an effective way of self-control with regard to both, verifying weaknesses and detecting progress. If several moderators have to be trained, simulated focus group discussions among the trainees can be organised. The third stage concerns on-the-job learning. This learning by doing is probably the most intensive and often most effective training. However, it is strongly discouraged that unskilled moderators are urged to collect their skills in a learning-by-doing style only.

ULYSSES specific

Group moderation encompasses the task to facilitate the social process and to hold the conversation on track according to the discussion guide. The group moderator plays the role of a convener. If models are used, a model moderator is required. The model moderator enters the IA-Focus Group as an expert and, hence, brings in scientific authority.

With respect to the training of the group moderators, it is advised to follow the above procedure. With respect to the training of model moderators, for PoleStar and TARGETS tailored tutorials and working packages are available, and training courses have been organised. IMAGE will not be used interactively.

3.6.3. Overall procedure

Fig. 5 summarises in the form of an overall procedure the main points discussed in detail in the preceding paragraphs.

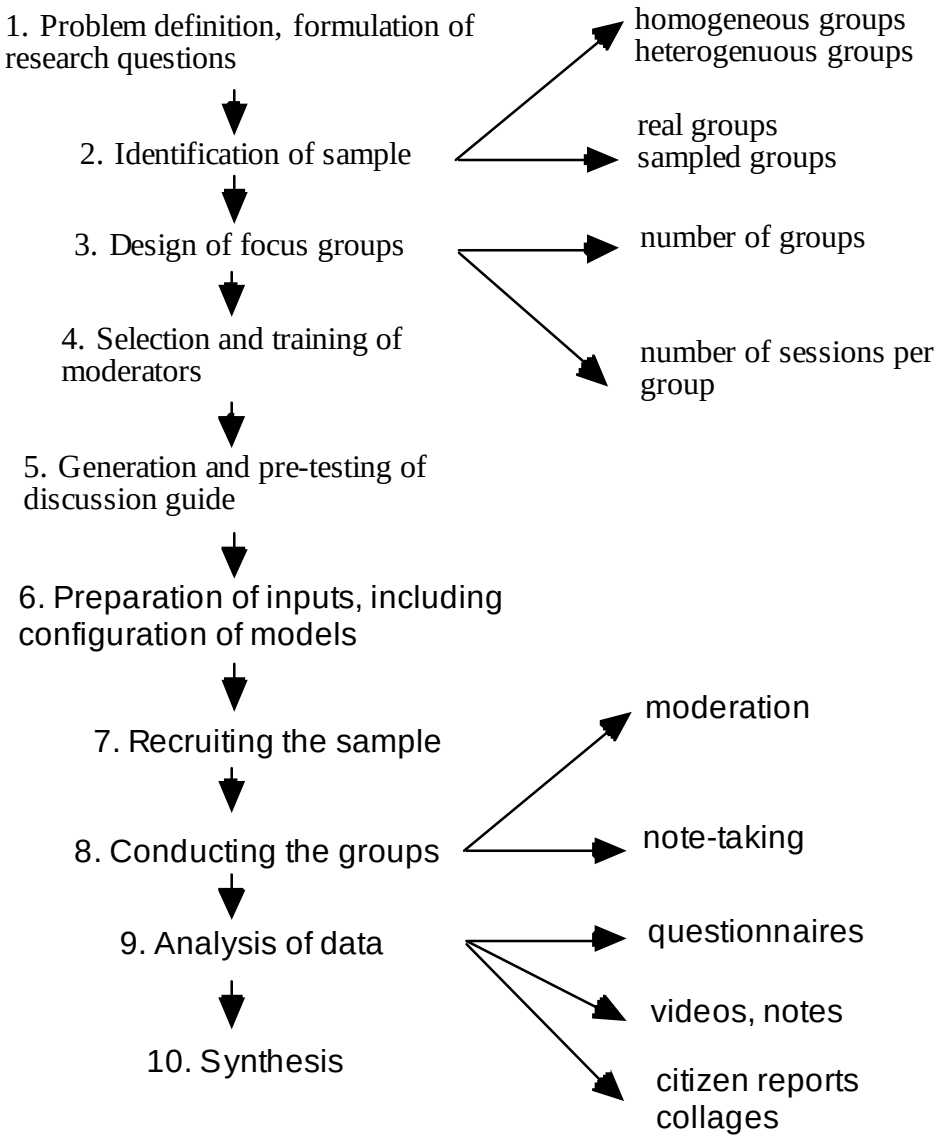

Figure 5: Flow chart for IA-Focus Group research

4. OPEN QUESTIONS

In the second and (partly) third chapter, we have assembled general insights from focus group research. Against that background and on the basis of the experiences collected within CLEAR and ULYSSES, we then developed suggestions for conducting IA-Focus Groups. These suggestions (see appendix 1) work as the default settings for the first phase of ULYSSES.

Our preliminary experiences have shown that methodological flexibility is needed in order to develop a coherent procedure (or procedures) for participatory IA research in view of the fact that a plurality of legitimate approaches exist in qualitative research. Against that background, the developed suggestions are a first step towards a more comprehensive and more complete manual about IA-Focus Groups. And they cover one possible approach only. Furthermore, some of the defaults seem to be critical and/or need more attention. This applies to the following elements:

• Participants: Do we need gender groups in order to avoid male dominance? This might be especially important in the context of ULYSSES that focuses on (urban) lifestyles, including mobility patterns. Lifestyles are very much gender biased. Do we need risk-communities, i.e. people with shared risk-preferences. In that case, we should recruit "egalitarians", "entrepreneurs" and "hierarchists" by approaching appropriate organisations and institutions.

• Questionnaires: Questionnaire data may help to interpret and analyse qualitative focus group data, and/or may complement such data. In any case, however, questionnaires should not be used if the added value with regard to the research questions is small (compared to a purely qualitative data gathering), and the filling out consumes too much time or is not welcomed by the participants.

• Model Input: As with questionnaires, we do not yet know very much about the added value of computer models as a medium for informing focus groups. There is an urgent need to run comparable focus groups with and without models, and with different types of models. Concerning the latter, CLEAR might contribute substantially to this task. In CLEAR, a series of small and handy models that are tuned to the needs of IA-Focus Groups will be developed and tested. The models will be tailored to the "general user" with respect to both model structure and user interface. Furthermore, in both projects, the integration of computer models into the group discussions is not yet convincing. Here, much more extensive and diverse experience is needed.

• Citizen reports: The procedure discussed in paragraph 3.5.2 and outlined in the templates (appendices 2 and 3) is a first approach. Important insufficiencies and a series of unsettled questions need to be addressed and resolved. First, the utility of the citizen report for the policy process needs to be tested. The plausibility of and the motivation to produce such a document strongly depends on the potential policy impacts a citizen report may have. Second, it has to be tested whether it is appropriate to use a pre-defined structure of the report. Experience shows that the groups change such structures only slightly. Third, the same applies to writing: the person that drafts the report strongly frames the final product. Does this imply that drafting has to be organised as a group task? Fourth, how to deal with people that are not used or reluctant to write a report? Fifth, how to organise the approval of the final document if this cannot be produced/finished during the last session? Furthermore, the value added of the report in research terms (variables) seems to be rather low. It might be more appropriate to operationalise variables in a more straight forward way, for instance by means of voting about discussed options.

• Discussion guideline: The template given in appendix 2 seems to be overloaded with inputs, tasks and topics. It has to be made lean. Which parts are required, which parts can be omitted? Some teams within ULYSSES think that two large computer models like TARGETS and PoleStar within one panel are simply too much. Other teams tend to drop the citizen report – which would free up to 4 hours for discussions, reduce the perceived discomfort of some of the participants with this task,

etc. – or to leave out the filling-in of the questionnaires. Further possibilities concern the reduction of the topics discussed, or to add an additional session. No single optimal solution will be found. However, it has to be assured that the different approaches are well documented and the experiences exchanged.

• Documentation: The suggestions given in paragraph 2.2.3 are preliminary and rough and need to be tested on the basis of both methodological and practical considerations. A crucial question that is closely tied to the analysis tools concerns transcripts: how fully and comprehensively should the discussions be transcribed? And what is the value added of video recording compared to audio recording?

• Data Analysis: In focus group literature (see Appendix 7 for a bibliography) little is said about the analysis and interpretation of the data. One of the challenges of CLEAR and ULYSSES is to contribute to the development of this methodological task. Standard approach for analysing focus groups is content analysis of transcripts. For a detailed investigation of the group process, interaction and/or discourse analysis might also be appropriate. However, if a large number of focus group sessions has to be analysed, the production and analysis of full transcipts might be too expensive and time-consuming. Instead, one has to experiment with producing selective transcripts, qualitative summaries, or other approaches and tools. The second phase of ULYSSES will provide an excellent field for collecting experiences.

REFERENCES

Alcamo, J. (Ed.) (1994). IMAGE 2.0: Integrated Modeling of Global Climate Change, Dordrecht, Kluwer Academics Publishers.

Bales, R.F., Cohen, S.P., Williamson, S.A. (1979). SYMLOG: A System for the Multiple Level Observation of Groups. New York, Free Press.

Basch, C.E. (1987). Focus Group Interview: An underutilized Research Technique for improving Theory and Practice in Health Education. Health Education Quarterly 14(4): 411-448.

Bertrand, J.T., Brown, J.E., Ward, V.M. (1992). Techniques for Analyzing Focus Group Data. Evaluation Review 16(2): 98-209.

Brewer, G.D. (1986). Methods for Synthesis: Policy Exercises. In Clark, W.C. and Munn, R.E. (Eds.), Sustainable Development of the Biosphere, Cambridge, Cambridge University Press.

Brewer, G.D. and Shubik, M. (1979) The War Game. A Critique of Military Problem Solving. Cambridge: Harvard University Press.

Byers, P.Y., and Wilcox, J.R. (1991). Focus groups: A qualitative opportunity for researchers, Journal of Business Communication 28 (1): 63-78.

Conner, J., Richardson, K, Fenton, N. (1991). Nuclear reactions. London, John Libby.

Cox, K.K., Higgenbotham, J.B., Burton, J. (1976). Applicatrions jof focus group interviews in marketing; Journal of Marketing, 40, 77-80.

Dahinden, U. and Dürrenberger, G. (1997). Public Participation in Energy Policy. Results from Focus Groups. In Renn, O. (ed.). Proceedings of the Society for Risk Analysis Conference, May 1995, Stuttgart, Germany. Dordrecht, Kluwer Academic Publishers, (in print).

Davies, H. and Jaeger, C.C. (1995). Integrated Project 'Climate in Alpine Regions - CLEAR II'. Umbrella Proposal, ETH & EAWAG, Zürich.

Denzin, N. K. (1994). The Art and Politics of Interpretation. in Denzin, N.K., Lincoln, Y.S. (ed.). Handbook of Qualitative Research. London, Sage. p. 500-515.

Desvouges, W.H., Smith, K.V. (1988). Focus Groups and Risk Communication. The "Science" of Listening to Data. Risk Analysis 8(4): 479-484.

Dienel, P.C. (1992) Die Planungszelle. Eine Alternative zur Establishment-Demokratie. Opladen: Westdeutscher Verlag.

Duinker, P.N., Nilsson, S., Toth, F.L. (1993). Testing the 'Policy Exercise' in studies of Europe's forest sector: Methodological reflections on a bittersweet experience. Laxenburg, IIASA.

Duke, R.D. and Greenblat, C.S. (1981) Principles and Practices of Gaming-Simulation. Beverly Hills: SAGE.

Emerson, R.L. (1990). Social Exchange Theory : sociological perspectives. in M. Rosenberg Turner, Ralph (ed.). Social Psychology: Sociological Perspectives. New Brunswick, Transaction Publishers. 31.

Fischer, F., Forester, J. (eds.) (1993). The argumentative turn. Durham: Duke UP.

Folch-Lyon E. (1981). Conducting Focus Group Sessions. Studies in Family Planning 12; 443-449.

Funtowicz, S., Ravetz, J. R. (1990). Uncertainty and Quality in Science for Policy , Dordrecht, Kluwer.

Glaser, B., Strauss, A.L. (1967). The Discovery of Grounded Theory. Strategies for Qualitative Research. Chicago, Aldine.

Goss, J.D., Leinbach, T.R. (1996). Focus groups as alternative research practice: Experience with transmigrants in Indonesia, Area, 28(2):115-123.

Greenbaum, T.L. (1993). The Handbook for Focus Group Research, New York, Lexington.

Hellström, T. (1996). The science-policy dialogue in transformation: model-uncertainty and environmental policy, Science and Public Policy, 23, 2, 91-97.

Holling, C.S. (1978). Adaptive Environmental Assessment and Management. Chichester: Wiley.

Jaeger, C.C., Chadwick, M., Wynne, B., Funtowicz, S., Giaoutzi, M., Giner, S., Toth, F., Jäger, J., Dürrenberger, G., Ravetz, J., Casilli, C. (1995). ULYSSES: Urban Lifestyles, Sustainability and Integrated Environmental Assessment. A RTD proposal for Framework Programme IV (EC), Environment and Climate.

Jaeger, J., Sonntag, N., Bernard, D., Kurz, W. (1990). The challenge of sustainable development in a greenhouse world: Some visions for the future. Paper presented at the Policy Exercise, Bad Bleiberg, Austria.

Joss, S., Durant, J. (1994) Consensus Conferences. A Review of the Danish, Dutch and U.K. approaches. Basel: BATS.

Joss, S., Durant, J. (1995) Public Participation in Science. London: Science Museum.

Kasemir, B., Jaeger, C., Dürrenberger, G. (1996). Embedding Integrated Assessment Models in Social Discourse, Science and Public Policy, 23, 2, 124-125.

Kitzinger, J. (1994). The methodology of Focus Groups: the importance of interaction between research participants, Sociology-of-Health-and-Illness 16(1): 103-121.

Krueger, R.A. (1988). Focus Groups. A Practical Guide for Applied Research. Newbury Park, Sage.

Kumar, K. (1987) Conducting Group Interviews in Developing Countries. Washington: Agency for International Development.

Kumar, K. (1993) Rapid Appraisal Methods. Washington: International Bank for Reconstruction.

Lamnek, S. (1995). Qualitative Sozialforschung. Band 1 Methodologie. 3., korrigierte Auflage. München, Psychologie Verlags Union.

Lamnek, S. (1995). Qualitative Sozialforschung. Band 2 Methoden und Techniken. München, Psychologie Verlags Union.

Liebow, E., Branch, K., Orians, C. (1993). Perceptions of Hazardous Waste Incineration Risks: Focus Group Findings. Sociological Spectrum 13(1): 153-173.

Löfstedt, R.E.: Hard Habits to Break (1993). Energy Conservation Patterns in Sweden, Environment, 2, 10-15, 33-36.

Longhurst, R. (1996). Refocusing groups: Pregnant women's geographical experiences of Hamilton, New Zealand/Aotearoa, Area 28(2):143-149.

Lynn, F.M., Busenberg, G.J. (1995). Citizen Advisory Committees and Environmental Policy: What we know, what's left to discover. Risk Analysis, 15, 2, 147-162.

Macnaghten, P., Grove-White, R., Jacobs, M., Wynne, B. (1995). Public Perceptions and Sustainability in Lancashire, Centre for the Study of Environmental Change, Lancaster University.

March, J.G., Sproull, L.S., Tamuz, M. (1991). Learning from Samples of One or Fewer. Organisation Science 2: 1-13.

Mayring, P. (1993). Einführung in die qualitative Sozialforschung. Eine Anleitung zu qualitativem Denken. 2. Auflage. München, Psychologie Verlags Union.

Merton, R.K. (1987). The Focused Interview and Focus Groups: Continuities and Discontinuities. Public-Opinion-Quarterly 51(4): 550-566.

Merton, R.K., Kendall, P.L. (1946). The focused interview. American Journal of Sociology 51: 541-557.

Morgan, D.L. (1993). Successful Focus Groups. Advancing the State of the Art. Newbury Park, Sage.

Morrison, D., MacGregor, B. (1995). From focus groups to editing groups; Media, Culture and Society 17, 1, 4.

Parson, E.A. (1996) Integrated Assessment and environmental policy making: In the pursuit of usefulness. Energy Policy 23 (4/5): 463-475.

Raskin, P., Sieber, J., Margolis, R., Heaps, C. (1994). PoleStar System Manual. Stockholm Environment Institute. Boston.

Renn, O., Webler, T., Wiedemann, P. (1995) Fairness and Competence in Citizen Participation. Dordrecht, Kluwer.

Rotmans et al. (1994). Global change and sustainable development: A modelling perspective for the next decade. Globo-report series 4, RIVM Bilthoven.

Rotmans, J. and Dowlatabadi, H. (1996). Integrated Assessment of climate change: Evaluation of models and other methods. In: Rayner, S. and Malone, E. (eds.), Human choice and climate change: An international social science assessment. MIT Press (in preparation).

Rotmans, J. and Vrieze, K. (1996). Preface Integrated Assessment Section. Environmental Modelling and Assessment 1 (1/2).

Rotmans, J. and Vries, H.J.M. de (1996). Global Change and Sustainable Development: Insights, no answers. Cambridge, Cambridge University Press (in preparation).

Shackley, S., Wynne, B. (1995). Global Climate Change: the mutual construction of an emergent science-policy domain. Science and Public Policy, 22, 4, 218-230.

Stewart, D. W., Shamdasani, P.N. (1990). Focus Groups: Theory and Practice. Newbury Park California, Sage.

Steward, J., Kendall, E., Coote, A. (1994) Citizens' Juries. London: Institute for Public Policy Research.

Susskind, L, Ozawa, C. (1985). Mediating Science-Intensive Policy Disputes. Journal of Policy Analysis and Management, 1/85, 23-39.

Toth, F.L. (1988). Policy Exercises. Simulation and Games 19, 3: 235-276.

Toth, F.L. (1992a) Policy implications. In: Parry, M.L., Blantran de Rozari, M., Chong, A.L. and Panich, S. (eds) The Potential Socio-Economic Effects of Climate Change in South-East Asia. United Nations Environment Programme, Nairobi, 109-121.

Toth, F.L. (1992b). Global change and the cross cultural transfer of policy games. In Crookall, D. and Arai, K. (eds.), Global Interdependence, Tokyo, Springer Verlag, 208-215.

Toth, F.L. (1993). Practice and progress in Integrated Assessment of climate change: A review. Paper presented at the Integrative assessment of mitigation, impacts and adaptation to climate change, IIASA.

Vries, H.J.M. de, Fiddaman, T., Janssen, R. (1993). Outline for a Global Environmental Strategic Planning Exercise (GESPE-project). Globo report series 2, RIVM, Bilthoven.

Ward, V.M., Bertrand, J.T., Brown, J.E. (1991). The Comparability of Focus Group and Survey Results: Three Case Studies. Evaluation Review 15(2): 266-283.

Weyant, J., Davidson, O., Dowlatabadi, H., Edmonds, J., Grubb, M., Parson, E.A., Richels, R., Rotmans, J., Shukla, P., Tol, R.S.J., Cline, W., Frankenhauser, S. (1996). Integrated Assessment of climate change: An overview and comparison of approaches and results. In J.P. Bruce, Hoesung Lee and E.F. Haites (eds.) Economic and social dimensions of Climate Change, IPCC (Chapter 10). Cambridge, Cambridge University Press.

Ziegler, D.J., Brunn, S.D., Johnson, J.H. (1996) Focusing on Hurricane Andrew through the eyes of the victims. Area, 28(2):124-129.

APPENDIX 1: DEFAULT SETTINGS FOR ULYSSES FOCUS GROUPS

Process and group design

(1) Size of the focus groups
6 - 8 participants

(2) Number of focus groups
Minimum of 2 groups (5 to 6 groups as the rule)

(3) Number of sessions
(a) Each group 5 sessions of 2 1/2 hours within 6 weeks, or
(b) Two days (e.g. weekend) with 12 hours of discussion

(4) Participants (Quota criteria for mixed groups)
Age: Parity between under and above age of 40
Gender: Parity between male and female,
Education: Major educational strata in at least one focus group
Political Attitudes: Major political attitudes represented in at least one focus group

(5) Reimbursement
A moderate amount as both incentive and compensation

Running of the groups

(6) Pre-information
Recruitment: Very general pre-information only. The project is presented as environment related, climate is not mentioned.
No pre-sendings of information material

(7) Questionnaire
A core of common questions distributed twice:
beginning and end of panel

(8) Moderation
Group moderator: Convener role
Model moderator: Expert role

(9) Topics of Discussion
Sectional topics

- Transportation
- Energy
- Climate

Cross sectional topics

- critical levels
- uncertainty (scientific/implementation)
- costs
- policy measures

Spatial foci

- Household/Lifestyles
- Region/Local Agenda 21
- Europe

(10) Model input

A global model and a regional model in each group
Where possible: Model moderator as separate from group moderator

(11) Other input

optional: videos, fact sheets, articles, expert presentations, etc.
(If optional input is used, at least one group is run without them for comparison)

(12) Citizen reports

One report per group
For the procedure see template

(13) Other output

Collage on regional future (2030). Two energy visions:

- business as usual
- cutting down to half of present consumption

other: optional

(14) Discussion guideline

See template
(If problems with cultural context arise in practice, the discussion guideline should be adapted to by each team)

Documentation of discussions

(15) Documentation

Sessions
• short descriptions

Panels
• short descriptions

Process
• short description

APPENDIX 2: TEMPLATE OF DISCUSSION GUIDE

This template describes the general outline of the different sessions of a typical ULYSSES IA-Focus Group. Such a focus group consists of five sessions in order to allow for in-depth discussions, for the use of computer models to support this discussions, and for the production of a citizen report by the focus group participants.

The program points written in italics are the default elements. Plain text suggests a possible structuring of these elements. The time structure given is a indication only.

gm: group moderator, mm: model moderator, none: no moderation

Session 1: Visions and concerns

1.1. Social warming-up (20')
- introduction of team (gm)
- information on compensation, video-taping, data use, discussion rules, etc. (gm)
- explaining why project is presented at end of the session (gm)
- self-introductions of participants, interests, etc.

1.2. Questionnaire (10')
- if necessary: discussion on the role of the questionnaire

1.3. Issue warming-up: Collage "our region in 2030" (30')
- Introduction (gm)
- one subgroup: business-as-usual energy scenario
- other subgroup: 50% energy reduction scenario

After having finished the collage, the groups could write down the message of the collage and some explanations.

Option: Brainstorming
- Introduction (gm)
- Brainstorming on above energy futures, for each

producing a lists of fears and hopes / pros and cons (use flip-charts or other techniques)

1.4. Mutual presentation of collages or lists (15')

Break (10')

1.5. Discussion: Personal concern about environmental and climate change (30') (gm)
- Environmental concerns
- Contextuality: environmental vs. other concerns
- Concerns about climate change (e.g. rating on a scale)
- Contextuality: climate and environment
- Perceived impacts (collecting on flip-chart)
- links to lifestyle issue

1.6. Presentation of research project and programme (30') (gm)
- institutional setting, sponsor, etc.
- objectives of research, research questions
- state of research
- expectations (science, policy)

- programme (overview; if fact sheets are used: explanation, distribution; citizen report: objectives, format, procedure)

1.7. Flash (feedback by participants) (5')

Session 2: Global Climate Change

2.1. Expert knowledge about climate change (20')

(a) when using TARGETS under 2.2

- Introduction to TARGETS (mm)
- discussion, collecting questions (gm)

(b) when using IMAGE under 2.2

Option 1:

- Introduction to IMAGE (mm)
- discussion, collecting questions (gm)

Option 2:

- presentation of video (e.g. WWF, Greenpeace, national TV-production)
- discussion, collecting questions (gm)

2.2. Two Subgroups with switching tasks (100'):

• Citizen report group (gm):

- objectives, goals, general structure
- identification of shortcomings
- collecting key-questions
- continuing climate change discussion

• Modelling group (TARGETS or IMAGE) (mm):

- TARGETS:
  - introduction
  - interactive session
- IMAGE:
  - presentation of pre-selected scenarios
  - discussion of scenarios

Break in between

2.3. Plenum on citizen report (15')

- Mutual briefing of findings
- synthesis (with regard to climate change part of report) (gm)

2.4. Flash (15')

- feedback on model
- general flash

Session 3: Region and lifestyles

3.1. Feedback to questions (10') (gm)

3.2. Plenum on Citizen report (gm) (30')

- General assessment of global climate change, collecting questions
- Regional impacts, collecting questions
- synthesis (with regard to assessment part of the report) (gm)

3.3. Introduction to PoleStar in Plenum (mm) (30')

- presentation of system and regional data (30’)

Break (10')

3.4. Plenum on narratives of regional lifestyles (gm) (60')
- Personal lifestyle options
- desired regional development options
- discussion on a regional energy goal for 2030 (links to collages)
- defining PoleStar scenarios to be produced until next session
- synthesis (with regard to options part of the report) (gm)

3.5. Flash (10')

Session 4: Regional options and policy suggestions

4.1. Feedback to questions (10') (gm)

4.2. Plenum on regional options (90') (gm, mm)
- presentation of PoleStar scenarios (mm)
- discussion and selection of scenarios (gm, mm)

Break (10')

- Implications for policy: regional/national, European (gm)

4.3. Plenum on citizen report (35') (gm)
- Crucial findings with regard to the options and policy suggestions part of the report
- Introduction to session 5, checking needs, requirements

4.4. Flash (5')

Session 5: Citizen Report

5.1. Feedback to questions (5') (gm)

5.2. Introduction (5') (gm)
- Setting, expected result
- Deliver material

5.3. Writing of report by participants (100')
- no moderation
- optional: writing service by moderator or note-taker

5.4. Open discussion on report (10') (gm)

5.5 Questionnaire (second run) (10')

5.6. Evaluation of the whole process (20') (gm)

Apero

Background Information to all Sessions

Material for all sessions
- Flip-charts
- Sticky board
- Audio/Video equipment
- Refreshments

Output of all sessions
- Minutes
- Videos
- Questions

Background Information to Session 1

Session Goals:
- Encourage people to participate actively
- Establish group discussions, not moderator-participant interactions
- Clarify expectations
- Introduce into topic
- Discuss peoples attitudes/concerns about climate change

Material:
- Material for collages
- Programme
- General Questionnaire

Expert-Input:
- None

Participants output:
- Collages (or lists)
- General Questionnaire

Background Information to Session 2

Session Goals:
- Provide information on global climate change
- Use an IAM (TARGETS or IMAGE) to inform people,
- Let the group play with the model, and
- Get feedback, critique etc.
- Start citizen report process (create a shared perception of product, material for assessment part)
- Communicate the role of the two moderators

Material:
- Computer with TARGETS
- Computer with IMAGE maps
- Model Questionnaire 1

Expert-Input:
- IA-model
- Expert (mm)
- Answers to questions

Participants output:
- IMAGE scenarios, TARGET runs
- Model Questionnaire 1
- Citizen report: possible structure, key questions

Background Information to Session 3

Session Goals:
- Present PoleStar
- Provide information on region (facts and figures)
- Develop narratives for regional futures
- Suggestions for regional scenarios for PoleStar runs
- Discuss energy consumption goal and associated lifestyle changes
- Continue citizen report process (assessment part, options part)

Material:
- Computer with PoleStar
- Overheads/hard copies of PoleStar graphs
- Fact sheets with data in the context of global energy consumption (optional)

Expert-Input:
- PoleStar
- Expert (mm)
- Answers to questions

Participants output:
- Suggestions for regional scenarios
- Consensus on a regional energy consumption goal (2030): pros, cons
- Citizen report: preliminary assessments of climate change, material for options part

Background Information to Session 4

Session Goals:
- Discuss PoleStar scenarios and policy options
- Continue citizen report process (options part, policy suggestions part)
- Prepare last session

Material:
- Computer with PoleStar
- Overheads/hard copies of PoleStar scenarios
- Model Questionnaire 2

Expert-Input:
- PoleStar scenarios
- Expert (mm)
- Answers to questions

Participants output:
- List of regional options
- Policy Suggestions (regional, Europe)
- Citizen report: material for options and policy suggestions part
- Model Questionnaire 2

Background Information to Session 5

Session Goals:
- Produce citizen report
- Collect feedback to process

Material:
- Material from PoleStar, TARGETS or IMAGE
- All questions and expert answers
- All material from participants
- General Questionnaire

Expert-Input:
- None

Participants output:
- Citizen report
- General Questionnaire

APPENDIX 3: DEFAULT STRUCTURE OF THE CITIZEN REPORTS

The participants of a typical ULYSSES IA-Focus Group will be asked to produce a citizen report at the end of their discussion process (see session five of the template, appendix 2; Two examples of Citizen Reports are given in appendix 6). The suggested structure of the citizen report is given below. Interpretation of and changes in the structure is up to the participants. Experiences will show what has to be changed in both, the production process of the reports and the pre-defined structure. All citizen reports should be translated into English and shared with the other teams.

1. Assessments
    - Global Climate Change
    - Regional Impacts

2. Options
    - Regional energy consumption goals for 2030 (global?)
    - Regional development options

3. Policy suggestions (brief)
    - Regional policy suggestions
    - European policy suggestions

4. Evaluation of process (optional)
    - Assessment of focus group process
    - Judgement of policy relevance/utility

APPENDIX 4: QUESTIONNAIRES

Questionnaire 1 (before discussions)

Identifier: ...

To start with, we would like to ask you some questions about climate change

1. Have you ever heard about climate change or the greenhouse effect?
   - ❑ No.
   - ❑ Yes, but I do not remember what exactly it is.
   - ❑ Yes, I know about it.

Concerns about an impending climate change refer to the threat of a man-made global warming. By burning fossil fuels like gasoline, coal, and oil, we release gases into the atmosphere that, so to speak, insulate our planet. As a consequence, the temperature of the atmosphere might increase, which will threaten the living conditions of many beings, including humans.

2. Which of the following attitudes towards the risk of climate change corresponds most with your personal opinion? Please choose **one** answer.
   - ❑ Climate change is just the most recent issue on the environmental agenda and will soon be forgotten.
   - ❑ Climate change **may be** a problem, but we cannot take any action as long as we do not know more about it.
   - ❑ Climate change **may be** a problem, and even if our respective knowledge is incomplete, we should start to react to this problem now, since soon it might be too late.
   - ❑ Climate change **is** a problem, and we should start to react to this problem now, since soon it might be too late.
   - ❑ None of the above alternatives corresponds with my opinion.

Independent of your answer to question 2, let us now assume that the problem of global climate change cannot be neglected. That would mean that we have to search for ways to reduce our consumption of fossil fuels.

3. In the following list of possible developments towards reduced fossil fuel consumption, please choose **two** items that you think to be **most efficient**

- ❑ Improved technology to produce energy-saving goods and machines, e.g. cars that consume less gasoline, or more efficient electric appliances.
- ❑ Slowed-down population growth in developing countries, resulting in reduced global energy need.
- ❑ Reduced individual consumption, resulting in reduced energy demand.
- ❑ Increased use of alternative energies, like solar energy.
- ❑ I don't know and do not want to guess either.

4. In the following list of measures to achieve a reduced fossil fuel consumption, please choose **one** item that you think to be **most efficient**.

- ❑ Increase public awareness of the need to save energy.
- ❑ Regulate energy use by technological rules, i.e. energy consumption standards, bans on certain uses of energy, etc.
- ❑ Make energy more expensive.
- ❑ I don't know and do not want to guess either.

5. Who, in your opinion, is most responsible to take action with respect to the risk of climate change (choose **two** items):

- ❑ Each individual
- ❑ Large-scale energy consumers
- ❑ The government
- ❑ Scientists
- ❑ Industry
- ❑ Others_____

Please mark your degree of agreement or disagreement with the following statements 6, 7, and 8:

	fully agree	somewhat agree	somewhat disagree	fully disagree	don't know
6. Decisions about measures concerning climate change should be based on economic considerations.	❑	❑	❑	❑	❑
7. We have to take action against the threat of climate change, whatever the obstacles may be.	❑	❑	❑	❑	❑
8. Measures to fight climate change make sense only if they are internationally coordinated. A unilateral action of ….. (country X) would not be sensible.	❑	❑	❑	❑	❑

The next two questions will be about energy policy

9.	Which level of total **energy use** (in % of current use) would be desirable to be achieved in … (country X) during the next 30 years?	50 %	75%	100%	125%	150%	don't know
		❑	❑	❑	❑	❑	❑
10.	Which increase in **energy prices** would you accept to reach the above chosen energy-political goal?	0%	1-10%	10-20%	20-30%	more	don't know
		❑	❑	❑	❑	❑	❑

Questions 11 and 12 will be about traffic and transportation means

11. Which is your usual transportation means in the following situations?

	work	shopping	leisure	weekend	holidays
car	❑	❑	❑	❑	❑
bus, tram, train, metro	❑	❑	❑	❑	❑
bicycle, none (on foot)	❑	❑	❑	❑	❑
plane	❑	❑	❑	❑	❑

12. Which of the following traffic scenarios for the year 2030 do you think to be most desirable for your region?

❑ Extra taxes on gasoline plus major subsidies on public transportation will have made buses, trains etc. so attractive that most people will use public transportation means.

❑ All forms of mobility will have become much more expensive. As a consequence, people will drive and travel less than today.

❑ People will drive and travel still more than today. Everybody will be able to afford comfortable travelling by any transportation means.

❑ The extent of car traffic will have been stabilized at today's level, due to rigid legislation, and technologies for cleaner cars will have been successful on the market. The environmental quality of your region will have improved.

❑ Other scenarios: _____

Questions 13 to 15 will be about your attitude towards environmental issues

13. Please judge yourself as to your environment-friendly behaviour. You may rank your behaviour on a scale from 0 to 10, with "0" meaning "I behave very environment-friendly", "5" marking an attitude neither very interested nor very disinterested in environment-friendly behaviour, "10" meaning "I do not care about the environment", and the remaining figures representing attitudes in between.

☐ (Please fill in a figure)

Please assess the following statements:

		fully agree	somewhat agree	somewhat disagree	fully disagree	don't know
14.	Employment and economic welfare are more important than environmental concern.	☐	☐	☐	☐	☐
15.	We should accept environmental risks to ensure economic growth and welfare..	☐	☐	☐	☐	☐

Finally, it would be very helpful for this investigation to have some information about you.

16. Gender

☐ male

☐ female

17. Age

☐

18. Education

☐ (.....categories.....)

☐

☐

☐

☐

☐

19. How many persons, including yourself, are living in your household?
    - ❑ 1 person
    - ❑ 2 persons
    - ❑ 3 persons
    - ❑ 4 persons
    - ❑ 5 persons and more

20. Do you have children?
    - ❑ yes
    - ❑ no

21. Please classify your household income (without social security contributions)
    - ❑ less than
    - ❑
    - ❑
    - ❑
    - ❑
    - ❑
    - ❑
    - ❑ more than
    - ❑ don't know

Thanks a lot for having filled in this questionnaire

Questionnaire 2 (after discussions)

Identifier: ...

To start with, we would like to ask you some questions about climate change

1. Have you ever heard about climate change or the greenhouse effect?
   - ❑ No.
   - ❑ Yes, but I do not remember what exactly it is.
   - ❑ Yes, I know about it.

Concerns about an impending climate change refer to the threat of a man-made global warming. By burning fossil fuels like gasoline, coal, and oil, we release gases into the atmosphere that, so to speak, insulate our planet. As a consequence, the temperature of the atmosphere might increase, which will threaten the living conditions of many beings, not least of humans.

2. Which of the following attitudes towards the risk of climate change corresponds most with your personal opinion? Please choose **one** answer.
   - ❑ Climate change is just the most recent issue on the environmental agenda and will soon be forgotten.
   - ❑ Climate change **may be** a problem, but we cannot take any action as long as we do not know more about it.
   - ❑ Climate change **may be** a problem, and even if our respective knowledge is incomplete, we should start to react to this problem now, since soon it might be too late.
   - ❑ Climate change **is** a problem, and we should start to react to this problem now, since soon it might be too late.
   - ❑ None of the above alternatives corresponds with my opinion.

Independent of your answer to question 2, let us now assume that the problem of global climate change cannot be neglected. That would mean that we have to search for ways to reduce our consumption of fossil fuels.

3. In the following list of possible developments towards reduced fossil fuel consumption, please choose **two** items that you think to be **most efficient**

- ❑ Improved technology to produce energy-saving goods and machines, e.g. cars that consume less gasoline, or more efficient electric appliances.
- ❑ Slowed-down population growth in developing countries, resulting in reduced global energy need.
- ❑ Reduced individual consumption, resulting in reduced energy demand.
- ❑ Increased use of alternative energies, like solar energy.
- ❑ I don't know and do not want to guess either.

4. In the following list of measures to achieve a reduced fossil fuel consumption, please choose **one** item that you think to be **most efficient**.

- ❑ Increase public awareness of the need to save energy.
- ❑ Regulate energy use by technological rules, i.e. energy consumption standards, bans on certain uses of energy, etc.
- ❑ Make energy more expensive.
- ❑ I don't know and do not want to guess either.

5. Who, in your opinion, is most responsible to take action with respect to the risk of climate change (choose **two** items):

- ❑ Each individual
- ❑ Large-scale energy consumers
- ❑ The government
- ❑ Scientists
- ❑ Industry
- ❑ Others_____

Please mark your degree of agreement or disagreement with the following statements 6, 7, and 8:

		fully agree	somewhat agree	somewhat disagree	fully disagree	don't know
6.	Decisions about measures concerning climate change should be based on economic considerations.	❑	❑	❑	❑	❑
7.	We have to take action against the threat of climate change, whatever the obstacles may be.	❑	❑	❑	❑	❑
8.	Measures to fight climate change make sense only if they are internationally coordinated. A unilateral action of … (country X) would not be sensible	❑	❑	❑	❑	❑

The next two questions will be about energy policy

9.	Which level of total **energy use** (in % of current use) would be desirable to be achieved in … (country X) during the next 30 years?	50%	75%	100%	125%	150%	don't know
		❑	❑	❑	❑	❑	❑
10.	Which increase in **energy prices** would you accept to reach the above chosen energy-political goal?	0%	1-10%	10-20%	20-30%	more	don't know
		❑	❑	❑	❑	❑	❑

The next question will be about traffic and transportation means

11. Which of the following traffic scenarios for the year 2030 do you think to be most desirable for your region?

❑ Extra taxes on gasoline plus major subsidies on public transportation will have made buses, trains etc. so attractive that most people will use public transportation means.

❑ All forms of mobility will have become much more expensive. As a consequence, people will drive and travel less than today.

❑ People will drive and travel still more than today. Everybody will be able to afford comfortable travelling by any transportation means.

❑ The extent of car traffic will have been stabilized at today's level, due to rigid legislation, and technologies for cleaner cars will have been successful on the market. The environmental quality of your region will have improved.

❑ Other scenarios: _____

The next two questions will be about your attitude towards environmental issues

Please assess the following statements:

		fully agree	somewhat agree	somewhat disagree	fully disagree	don't know
14.	Employment and economic welfare are more important than environmental concern.	❑	❑	❑	❑	❑
15.	We should accept environmental risks to ensure economic growth and welfare..	❑	❑	❑	❑	❑

Finally, we would like to ask you some questions concerning the focus group you just participated in

14. How do you assess your participation in this focus group? You may choose a figure ranging from 0 to 10, with "0" meaning "a waste of time", "10" meaning "an extremely valuable experience", and the remaining figures representing assessments in between.

☐ (Please fill in a figure)

15. Did the group moderator try to influence the group with his or her own view?

- ☐ tried heavily to influence (in the following way: .....)
- ☐ tended to influence (in the following way: .....)
- ☐ neutral moderation
- ☐ I don't want to answer this question

16. Did the model moderator try to influence the group with his or her own view?

- ☐ tried heavily to influence (in the following way: .....)
- ☐ tended to influence (in the following way: .....)
- ☐ neutral moderation
- ☐ I don't want to answer this question

Thanks a lot for having filled in this questionnaire

APPENDIX 5: TEMPLATE OF RECRUITMENT GUIDE

Introduction

Recruiter: Hi, I'm (recruiter's name) from the Institute (name of the institute). We are actually doing research about environmental problems where we want to learn about the opinions of citizens.

Selection procedure

Recruiter: We made a random selection from the phone book. We are looking for citizen in your region.

Or: Organisation Y where you are a member gave us your address.

We want to know how you and other people think about environmental problems (this might bias selection!)

The sponsor

Recruiter: The research is sponsored by the Swiss National Science Foundation, i.e. by public money.

Research Aim

Recruiter: We are organising group discussions. We are not asking questions on the phone, but rather want to find dates that fit with your agenda.

The commitment

Recruiter: We look for people that take part in a series of 5 evening discussions where about half a dozen people will meet and discuss. Every discussion lasts about 2 and a half hour. For your participation you will get a refund of sFr. 200.-.

Confidentiality

Recruiter: Discussions will be recorded by tape/video. All the data gathered will be treated absolutely anonymously and confidentially.

Finding a date

Recruiter: Now, let's check whether we can find a date. Discussions are planned for the following dates. Can you participate in any of these dates.

Checking quotas

Recruiter: In order to get an optimal mix of people for these discussions, we would like to ask you a few additional questions:

(Check quotas)

In case time or quota don't fit: Unfortunately, we can not find a date that fits with both of our agendas. However, we would like to write down your name and phone number, in case someone resigns from discussion, or in case we organise additional discussions.

Writing down the address

Recruiter: Could you tell me your full name and address, please?

Good-bye

Recruiter: In the next days, you will receive a letter confirming this agreement. Thank you for your interest in this project.

APPENDIX 6: EXAMPLES OF CITIZEN REPORTS

Citizens' Report #1

5-shot focus group, Zurich

with fixed report structure

1. Climate risks

General assessment

"We know the facts. There is high uncertainty about the factual situation. Serious consequences for human beings and the environment are conceivable. Therefore, this problem has to be taken very seriously. Courageous political action is required."

Assessments about specific consequences

Extreme events:

"The frequency of extreme weather situations will rather increase, due to climate change. This will lead to intolerable damages to nature.

A minority holds that the damages will be devastating."

Sea level:

"Due to climate change, the sea level will rise. The danger of inundations will increase. This might lead to a loss in arable land and to saline ground water. If this happens, emigration from endangered areas will increase."

Ecosystems:

"Ecosystems will probably have problems to adapt to climate change. An extinction of species (animals and plants) cannot be excluded.

A shift of climatic zones and an extension of arid regions is likely. This may lead to very serious consequences concerning the basis of human life. An emigration of people from endangered areas is foreseeable.

Alpine ecosystems may be affected by a shift of the permafrost line (increasing landslides) and melting glaciers."

Agriculture:

"We have to reckon with crop losses due to climate change, both in developing and in industrialised countries. This will lead to an increased global distribution struggle."

Swiss natural landscape:

Natural diversity and beauty are endangered already now. Whether they will suffer additional damages by climate change we are unable to assess."

Social consequences for Switzerland:

"Climate change is likely to cause additional social problems connected with eco-refugees.

The costs of climate change for the economy as a whole will be substantial. Important among them are costs for protection measures against extreme weather situations, income losses - above all in the sector of winter tourism - , and a strong rise of insurance premiums. Some damages will no longer be eligible for an insurance. On the other hand, new economic sectors and hence new sources of income are likely to develop.

We reckon that, due to climate change, personal freedom as to individual traffic will be restricted (rising gasoline prices, eco-taxes)."

Health:

"A majority thinks that climate change will lead to additional health impairments. In particular, we fear an invasion of tropical diseases in Europe."

2. Climate policy

Reduction goals as to energy consumption

"We think that in the course of the next ten years, a reduction of energy use by 10% is realizable. Once this goal is achieved, further reduction steps should be conceived of.

A majority of the group members furthermore thinks that it is basically possible to halve energy consumption during the next 30 years. Such a goal would provide a sensible eco-political signal."

Political measures/instruments

"Two measures will be necessary to achieve this goal of energy policy:

(1) informing the public and (2) introducing market instruments.

Information is necessary, yet not sufficient alone. It helps to foster a conscious use of energy. Information has to start at school already.

Higher energy prices (for both fossil and non-fossil energy sources) are a suitable instrument since, affecting the budgets, they take effect immediately. Yet such levies have to be introduced gradually, so as to leave the firms enough adaptation time. Social injustice connected with their introduction has to be compensated for. How much they will be accepted is largely a question of the politicians' and environmental associations' ability to convince the public.

A majority thinks that the introduction of an energy control levy would even be sensible as a Swiss solo in the international context: Switzerland as a model."

Potentials of saving energy in different sectors of life

"If we look at our individual personal situations, we arrive at the following rough assessments: the most important sectors for saving energy are heating (savings potential of 30% - 50%) and car driving (50%). Of further importance are nutrition and use of electricity at home. These yield energy-savings potentials of 30% - 40%. We think that such savings could be achieved without any substantial loss in the quality of our lives. Energy savings beyond that would mean a significant reduction of life quality. If this is accepted, we consider it basically possible to halve our energy use."

Citizens' Report #2

5-shot focus group, Darmstadt

with flexible report structure according ULYSSES defaults

Introduction

Description of the climate problem

During the last years humankind produced incredible amounts of greenhouse gases. This disturbed the proportion of natural greenhouse gases so that a state of equilibrium cannot set in. An equilibrium takes a long time to come about. Thus it will be impossible to hope for an equilibrium state as long as man continues producing greenhouse gases in increasing amounts and to destroy the forests at the same time. These have the most important role for taking up the emitted CO2 gas.

Assessment of the climate problem

A state of non-equilibrium of the distribution of greenhouse gases in earth's atmosphere can lead to an increase in global temperature and by this to extreme changes in nature.

Main part

Just by existing we will always produce CO2. On the other hand, the effect of emitted CO2 on climate change lasts for more than 100 years. We have to work on CO2 reduction in the long run. For the Rhine-Main-Region (Frankfurt region) the following pictures of future developments could be imagined:

Visions for the Rhine-Main-Region

- Residential situation
    - Less individual mobility by combining work and living in the same building
    - Disused industrial land in central locations should be used [for other purposes]
    - Identify and preserve green spaces
- Buildings
    - Use of solar energy
        - Put up solar cells
        - Orient ground plans and windows of buildings towards the sun
- Transportation
    - less freight traffic by reintroducing stock keeping
    - freight traffic via the railways
    - reduce transports by using regional goods
- Individual mobility
    - Improve the road system by ring roads
    - Increase the density of public transport
    - Make overviews of public transport available
    - Reduce domestic flights within Germany

- Products
    - The responsibility for products and their disposal is with the producers.
    - The introduction of ecological products (energy efficient cars) should be speeded up.

With these objectives we want to reach a CO2 reduction of 20% within 30 years in the Rhine-Main region.

Conclusion

Possible political measures

The climate problem has been known for a long time. Ideas and suggestions how to act here have been put forward since quite some time. We would like to ask the politicians why in spite of this no consequent action is taken.

Regional measures

- Tax incentives for energy saving
    - for the private sector
    - for the industrial sector
- Cancelling government subsidies for environmentally damaging products while taking social aspects into account
- Transportation
    - Speedlimints on motorways
- Products
    - Prohibit or avoid throwaway products
    - Introduce product standards for long living products that can be repaired
    - Reduce energy use in the production and use of appliances
- Consciousness and knowledge about the environment should be furthered by good education
- Invest in research (solar energy etc.)
- Implementation of necessary measures should be done in a citizen friendly way (e.g. public transport that is easy to use)

Global measures

At the global level we advocate measures to control population growth. It is absolutely necessary to protect the rain forest.

APPENDIX 7: SELECTED BIBLIOGRAPHY ON FOCUS GROUPS

Methodology

Axelrod, M.: 10 essential for good qualitative research; Marketing News; 8; 10-11; 1975;

Axelrod, M.: Marketers get an eyeful when focus groups expose products, ideas, images, ad copy, etc. to consumers; Marketing News; 8; 6-7; 1975;

Axelrod, M.: The Dynamics of the Group interview; Advances in Consumer Research; 437-441; 1976;

Basch, C.E.: Focus Group Interview: An underutilized Research Technique for improving Theory and Practice in Health Education; Health Education Quarterly; 4; 411-448; 1987;

Bellenger, D.N., Bernhardt, K.L., Goldstucker, J.L.: Qualitative Research Techniques: Focus Group Interviews; Qualitative Research in Marketing; 7-28; 1976;

Biel, A.: Focus Groups: The Most Abused Form of Research; Viewpoint; spring; 6-7; 1978;

Blanchet, G; Blanchet, A.: Interactional Effects of the Environment on Interviews; European Journal of Psychology of Education; 1; 41-53; 1994;

Brotherson, M.: Interactive focus group interviewing: A qualitative research method in early intervention.; Topics in Early Childhood Special Education; 1; 101-118; 1994;

Byers, P.Y., Wilcox, J.R.: Focus Groups: A Qualitative Opportunity for Researchers; Journal of Business Communication; 1; 63-78; 1991;

Carey, M.A.; Smith, W.: Capturing the group effect in focus groups: A special concern in analysis.; Qualitative Health Research; 1; 123-127; 1994;

Caruso, T: Moderators focus on groups: session yields 7 hypotheses covering technology trend, professionalism, training, techniques, reportes, etc.; Marketing News; 10; 12-16; 1976;

Dawson, S., Manderson, L., Tallo, V.L.: A Manual for the Use of Focus Groups. Methods for Social Research in Disease; Boston, International Nutrition Foundation for Developing Countries (INFDC); 1993;

Debus, M., Novelli, P.: Methodological Review: A Handbook for Excellence in Focus Group Research; 1989; Washington, DC

Desvouges, W.H., Smith, K.V.: Focus Groups and Risk Communication. The "Science" of Listening to Data; Risk Analysis; 4; 479-484; 1988;

Fern, E.F.: The use of focus groups for idea generation: The effects of group size, acquanintanceship and moderator on response quantity and quality; Journal of Marketing Research; 19; 1-13; 1982;

Festervand, T.A.: An introduction and application of focus group research to the health care industry. Special Issue: Marketing ambulatory care services; Health Marketing Quarterly; 2-3; 199-209; 1984-1985;

Folch-Lyon E.: Conducting Focus Group Sessions. Studies in Family Planning 12; 443-449; 1981;

Goldman, A.E.: The Group Depth Interview; Jorunal of Marketing; 61-68; 1962;

Greenbaum, T.L.: The Handbook for Focus Group Research; Lexington Books; 1993;

Hannah, M: A Perspective in Focus Groups; Viewpoints; 4-8; 1978;

Hofstätter, P.R.: Zum "Gruppenexperiment" von F. Pollock.; Kölner Zeitschrift für Soziologie und Sozialpsychologie; 54-80; 1957;

Hughes, D., DuMont, K.: Using focus groups to facilitate culturally anchored research. Special Issue: Culturally anchored methodology; American Journal of Community Psychology; 6; 775-806; 1993;

Kaden, R.J.: Incomplete use keeps focus group from producing optimum results; Marketing News; 9; 4; 1977;

Kennedy, F: The Focused Group Interview and Moderator Bias; Marketing Review; 29-21; 1976;

Kitzinger, J.: The Methodology of Focus Groups: The Importance of Interaction between Research Participants; Sociology of Health and Illness ; 1; 103-121; 1994;

Krueger, R.A.: Focus Groups: A practical guide for applied research; Sage; Beverly Hills; 1988.

Langer, J.: Clients: Check qualitative researcher's personal traits to get more; Qualitative researchers: Enter entire marketing process to give more; Marketing News; 12; 10-11; 1978;

Lydecker, T.H.: Focus Group Dynamics; Association Management; 73-78; 1986;

Magill, R.S.: Focus Groups, Program Evaluation, and the Poor ; Journal of Sociology and Social Welfare; 1; 103-114; 1993;

McDonald, W.J.: Focus group research dynamics and reporting: An examination of research objectives and moderator influences; Journal of the Academy of Marketing Science; 2; 161-168; 1993;

Merton, R. K.: The Focussed Interview and Focus Groups: Continuities and Discontinuities; Public-Opinion-Quarterly; 4; 550-566; 1987;

Merton, R.K., Kendall, P.L.: The focused interview; American Journal of Sociology; 541-557; 1946;

Merton, R.K., Fiske, M., Kendall, P.: The focused interview; Free Press; Illinois; 1956;

Morgan, D. L.: Focus Groups and Surveys; American Sociological Association; 1993;

Morgan, D.L., Spanish, M.T.: Focus Groups: A New Tool for Qualitative Research; Qualitative Sociology; 3; 253-270; 1984;

Morgan, D.L.; Focus Groups as Qualitative Research; 1988; Newbury Park, CA;

Morrison, D., MacGregor, B.; From focus groups to editing groups; Media, Culture and Society 17; 1, 4; 1995;

Nelson, J.E.; Frontczak,-N.T.: How Acquaintanceship and Analyst Can Influence Focus Group Results; Journal-of-Advertising; 1; 41-48; 1988;

O'Donell, J.M.: Focus Groups: A habit-forming evaluation technique; Training and Development Journal; 42; 71-73; 1988;

Poole, M.S., McPhee, R.D.: Methodology in interpersonal research; in: Knapp, M.L., Miller, G.R. (eds.); Handbook of interpersonal communication; Sage; Beverly Hills; 100-170; 1985;

Payne, S.: Preparing for group interviews; Advances in Consumer Research; 4; 434-436; 1976;

Peterson, K.I.: The Influence of the Researcher and his Procedures on the Validity of Group Sessions; Mazze, E. M. (ed.) Combined Proceedings; Chicago: American Marketing Associaltion; 146-148; 1975;

Ponzo, Z.: Critical Factors in Group Work: Clients' Perceptions; Journal for Specialists in Group Work; 1; 16-23; 1991;

Reynolds, F.D., Johnson D.K.: Validity of Focus-Group Findings; Journal of Advertising Research; june; 21-24; 1978 ;

Richter, J.M.; Bottenberg, D.J.; Roberto, K.A.: Focus group: Implications for program evaluation of mental health services; Journal of Mental Health Administration; 2; 148-153; 1991;

Rosenstein, A.J.: Quantitative- yes, quantitative- applications for the focus group, or what do you mean you never heard of 'multivariate focus groups'; Marketing NEws; 9; 8; 1976;

Stewart, D.W., Shamdasani, P,N.: Focus Groups. Theory and Practice; Sage; 1990;

Ryan, M., Martinson, D.L.: Social Science Research, Professionalism and Public Relations Practitioners; Journalism Quarterly; 2; 377-390; 1990;

Swenson, J.D.; Griswold,W.F.; Kleibber, P.B.: Focus Groups: Method of Inquiry/Intervention; Small-Group-Research; 4; 459-474; 1992;

Templeton, J.: Research as giraffe: An identity Crisis; Advances in Consumer Research; 4; 442-464; 1976;

Yoell, W.A.: How Useful is Focus Group Interviewing? Not Very... Post-Interviews Reveal; Marketing Review; 29; 15-19; 1974;

Data Analysis

Bertrand, J.; Brown, J.; Ward, V.: Techniques for Analyzing Focus Group Data; Evaluation-Review; 2; 198-209; 1992;

Byers, P.Y., Wilcox, J.R.: Focus Groups: A Qualitative Opportunity for Researchers; Journal of Business Communication; 1; 63-78; 1991;

Carey,M.A., Smith, W.: Capturing the group effect in focus groups: A special concern in analysis.; Qualitative Health Research; 1; 123-127; 1994;

Calder, B.J.: Focus Groups and the Nature of Qualitative Marketing Research. Journal of Marketing Research; 14; 353-364; 1977;

Cox, K.K., Higgenbotham, J.B., Burton, J.: Applicatrions jof focus group interviews in marketing; Journal of Marketing; 40; 77-80; 1976;

Gillespie, R.: A test of the external validity of focus group findings using survey research and statistical inference; Dissertation Abstracts International; 12A; 4170-4171; 1993;

Javidi, M., Long, L.W., Vasu, M.L., Ivy, D.K.: Enhancing Focus Group Validity with Computer-assisted Technology in Social Science Research; Social Science Computer Review; 2; 231-245; 1991;

Ward, V.M., Bertrand, J.T., Brown, J.E.: The Comparability of Focus Group and Survey Results: Three Case Studies; Evaluation Review; 2; 266-283; 1991;

Fields of Application

Marketing

Cox, K.K.; Higginbotham,J.B.; Burton J.: Application of Focus Group Interview in Marketing; Journal of Marketing; 40; 77-80; 1976;

Goldman, A.E.: Group depth interviews also have consulting and creative uses; Marketing News; 11, 15; 1976;

Langer, J.: Clients: Check qualitative researcher's personal traits to get more; Qualitative researchers: Enter entire marketing process to give more; Marketing News; 12; 10-11; 1978;

Wells, W.D.: Handbook of Marketing Research; 1974;

Ryan, M., Martinson, D.L.: Social Science Research, Professionalism and Public Relations Practitioners; Journalism Quarterly; 2; 377-390; 1990;

Environment

Amy, D.J.: Environmental Mediation: An Alternative Approach to Policy Stalemates; Policy-Sciences; 4; 345-365; 1983;

Community Transportation Association of America, Washington, DC.: National Eldercare Institute on Transportation Focus Group Report; 1992, Sept; Washington, DC.

Dahinden, U., Dürrenberger, G.: Public Participation in Energy Policy. Results from Focus Groups. In: Renn, O.: Proceedings of the Society for Risk Analysis Conference May 1995, Dordrecht; 1996;

Environmental Protection Agency: How Best to Promote Industrial Pollution Prevention Through the Effluent Guidelines Process. Recommendations of the Industrial Pollution Prevention Project (IP3) Focus Group; 1994; Washington, DC;

Everett, P.B., Shoemaker, R.W., Doscher, W.E.: Public Transportation Marketing Evaluation Manual: Techniques for Data Collection (Final rept.); 1987, October; Washington, DC.;

Fischbuch, M.: Community Focus Groups (Summary report no. 2); 1991; Hamilton-Wentworth, Ont.

Liebow, E., Branch, K., Orians, C.: Perceptions of Hazardous Waste Incineration Risks: Focus Group Findings; Sociological Spectrum; 1; 153-173; 1993;

Löfstedt, R.E.: Hard Habits to Break: Energy Conservation Patterns in Sweden; Environment; 2; 10-15, 33-36; 1993;

NAHB National Research Center: Focus Group Results on Gas Convenience Outlets; 1992; Chicago, IL

Roberson, B.F.: Focus Group Discussions among Owners and Non-Owners of Ground Source Heat Pumps; 1988; Washington, DC.

Taylor, S.M., Elliott, S., Eyles, J., Frank, J., Haight, M., Streiner, D, Walter, S, White, N., Willms, D.: Psychosocial Impacts in Populations Exposed to Solid Waste Facilities; Social-Science-and-Medicine; 4; 441-447; 1991;

Thompson Lightstone & Company Limited: Public Awareness and Attitudes on Environmental Issues. Focus Groups and in-depth Interviews (Research report); 1990; Ottawa, Ont.

Health and Family

Barduhn, M., Furman, L.J., Kinney, M.B., Malvitz, D.M.: Using Focus Groups in Gerontological Research; Gerontology & Geriatrics Education; 2; 69-78; 1991;

Basch, C.E.: Focus Group Interview: An underutilized Research Technique for improving Theory and Practice in Health Education; Health Education Quarterly; 4; 411-448; 1987;

Basch, C.E., DeCicco, I.M., Malfetti, J.L.: A Focus Group Study on Decision Processes of Young Drivers: Reasons that may Support a Decision to Drink and Drive; Health Education Quarterly; 3; 389-396; 1989;

Carey, M.A., Smith, M.W.: Enhancement of Validity through Qualitative Approaches: Incorporating the Patient's Perspective; Evaluation & the Health Professions; 1; 107-114; 1992;

Colman, S.: Sociology of AIDS: Perspectives of Risk by Organizational Position in Ten HIV Prevention Sites ; ASA-Conference (American Sociological Association); 1994; San Francisco.

Cooper, P., Diamond, I., High, S.: Choosing and using contraceptives: Integrating qualitative and quantitative methods in family planning; Journal of the Market Research Society; 4; 325-339; 1993;

Dickin, K.L., Binchan, R.K., Purdue, S.E., Obinya, E.A.: Perceptions of neonatal tetanus and immunization during pregnancy: A report of focus group discussions in Kaduna, Nigeria.; International Quarterly of Community Health Education; 4; 371-383; 1990/91;

Egwu, I.N.: Application of Focus Group and Survey Methods in the Study of Rural Primary Health Care Development in Nigeria; International Quarterly of Community Health Education; 4; 283-292; 1991-1992;

Elbeck, M., Fecteau, G.: Improving the validity of measures of patient satisfaction with psychiatric care and treatment.; Hospital & Community Psychiatry; 9; 998-1001; 1990;

Ferreira, M.: An Alternative Methodological Approach for Studies in Family Planning; Suid-Afrikaanse Tydskrif vir Sosiologie / The South African Journal of Sociology; 1990;

Festervand, T.A.: An introduction and application of focus group research to the health care industry. Special Issue: Marketing ambulatory care services; Health Marketing Quarterly; 2-3; 199-209; 1984-1985;

Glik, D.C., Parker, K., Muligande, G., Hategikamana, B.: Integrating Qualitative and Quantitative Survey Techniques; International Quarterly of Community Health Education; 3; 181-200; 1986/87;

Kline, A., Kline, E., Oken, E.: Minority women and sexual choice in the age of AIDS; Social Science & Medicine; 4; 447-457; 1992;

Kumar, K.: Rapid Appraisal Methods; World Bank regional and sectoral studies; 1993; Washington, DC.

McKinlay, J. B.: The Promotion of Health through Planned Sociopolitical Change: Challenges for Research and Policy; Social Science and Medicine; 2; 109-117; 1993;

Morgan, D.L., Spanish, M.T.: Social Interaction and the Cognitive Organisation of Health-Relevant Knowledge; Sociology of Health and Illness; 3; 401-422; 1985;

Offir, J.T., Fisher, J.D.,Williams, S.S., Fisher, W.A.: Reasons for Inconsistent AIDS-Preventive Behaviors among Gay Men; Journal of Sex Research; 1; 62-69; 1993;

Pollak, M., Paicheler, G., Pierret, J.: AIDS: A Problem for Sociological Research; Current Sociology/La Sociologie Contemporaine; 3; vii-134; 1992;

Richter, J.M., Bottenberg, D.J., Roberto, K.A.: Focus group: Implications for program evaluation of mental health services; Journal of Mental Health Administration; 2; 148-153; 1991;

Saint-Germain, M.A., Bassford, T.L., Montano, G.: Surveys and focus groups in health research with older Hispanic women; Qualitative Health Research; 3; 341-367; 1993;

Stanton, B.F., Aronson, R., Borgatti, S., Galbraith, J., Feigelman, S., Black, M., Kaljee, L.; Keane, V., Ricardo, I., Whitehead, T.L.: Urban Adolescent High-Risk Sexual Behavior: Corroboration of Focus Group Discussions through Pile-Sorting; AIDS Education and Prevention; 2; 162-174; 1993;

Stanton, B.F., Black, M., Kaljee, L., Ricardo, I.: Perceptions of Sexual Behavior among Urban Early Adolescents: Translating Theory through Focus Groups; Journal of Early Adolescence; 1; 44-66; 1993;

Ward, V.M., Bertrand, J.T., Puac, F.: Exploring Sociocultural Barriers to Family Planning among Mayans in Guatemala; International Family Planning Perspectives; 2; 59-65; 1992;

Weiss, S.H., Weston, C.B., Quirinale, J.: Safe Sex? Misconceptions, Gender Differences and Barriers among Injection Drug Users: A Focus Group Approach; AIDS Education and Prevention; 4; 279-293; 1993;

Other

Healy, T: Smith College Studies in Social Work; A Struggle for Language: Patterns of Self-Disclosure in Lesbian Couples; 3; 247-264; 1993;

Robinson, B.D., Schaible, R.: Women and Men Teaching "Men, Women, and Work"; Teaching Sociology; 4; 363-370; 1993;

Bloch, D.P.: The Application of Group Interviews to the Planning and Evaluation of Career Development Programs; Career Development Quarterly; 4; 340-350; 1992;

Caplan, S.: Using focus group methodology for ergonomic design. Special Issue: Marketing ergonomics: VI and VII.; Ergonomics; 5; 527-533; 1990;

Kumar, K.: Conducting Group Interviews in Developing Countries; 1987, April; Washington, DC

Mitra, A.: Use of focus groups in the design of recreation needs assessment questionnaires; Evaluation & Program Planning; 2; 133-140; 1994;

Spiegel, B.L.: Evaluating a Proposed Telecommunications Service: Some Research Methods Used; Sociological Practice; 2; 125-148; 1987;

Zanger, B.R.K., Groves, D.L.: A framework for the analysis of theories of sport and leisure management; Social Behavior & Personality; 1; 57-67; 1994;