interacts

Improving Interaction between NGOs, Universities, and Science Shops: Experiences and Expectations

STATE-OF-THE-ART REPORT

compiled and edited by
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Supporting Science & Technology policies

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1 About this report

Jointly written by the INTERACTS consortium, this report presents the first results of the project *Improving Interaction between NGOs, Universities, and Science Shops: Experiences and Expectations (INTERACTS),* an overview of political and institutional conditions for the co-operation between small to medium non-governmental organisations (NGOs), science shops, and universities in Denmark, the United Kingdom, Germany, Austria, Spain, and Romania. This report serves as a basis for case studies which will examine the expectations from and the practical experience with interaction between NGOs, scientists, and science shops. The analysis of the public and political framework will also provide issues to be discussed in group discussions about future expectations and perspectives for co-operation between NGOs, scientists, and science shops.

Corinna Fischer and Annette Wallentin compiled and edited the report from information provided by the other researchers, wrote the Country Report on Germany, the chapter on EU policy, and, together with Gabriela Schroffenegger, the introduction. Toke Haunstrup Christensen and Michael Soegaard Joergensen wrote the Country Report on Denmark, David and Irene Hall the one on the United Kingdom. The report on Austria was written by Andrea Gnaiger, Gabriela Schroffenegger, and Michael Strähle, the report on Spain by Alain Labatut and Teresa Rojo. Carmen Teodosiu, Anca Florentina Caliman, and Cezar Catrinescu wrote the Country Report on Romania. Michael Strähle wrote the executive summary and, together with Corinna Fischer and Annette Wallentin, the concluding remarks. Richard Holmes was responsible for proofreading. At last, Wolfgang Endler and Michael Strähle “brought the report in shape”.

The major objectives of INTERACTS are to:

- Identify opportunities and needs for policy at the European, national, regional and local levels for adapting the RTD system, in particular universities, to facilitate co-operation between small to medium NGOs and universities through intermediaries such as science shops
- Build up knowledge on how the RTD system can become more accountable

- Give more in-depth understanding of the functions NGOs and individual researchers expect these collaborations to perform
- Give more in-depth understanding of processes and effects of knowledge production
- Examine the expectations for future cooperation between NGOs and universities through intermediaries such as science shops
- Investigate the potentials of interaction through intermediaries as science shops as a practice in bridging the gap between science and society and thereby as a new instrument in Science & Technology policy.

The specific objectives of INTERACTS are:

A. To produce an inventory of the impact of direct co-operation between NGOs and researchers and co-operation mediated through intermediaries such as science shops in various countries through a number of case studies. The main points to be addressed are:

- the impact on the empowerment of NGOs
- the impact on research and curricula
- the policy issues important for the impact of this kind of co-operation.

B. To mobilize NGOs, researchers, science shops and policy makers to develop the debate at national and international levels about the potentials and expectations for future co-operation between NGOs, researchers and science shops in various countries. The main points to be addressed are

- the conditions for empowerment of NGOs
- the conditions for improving researchers' awareness of public needs
- the need for improvement of the services offered by intermediaries such as science shops.

C. To develop policy strategies for improving conditions for future co-operation between NGOs, researchers and intermediaries such as science shops. The main points to be addressed are:

- the possibilities for democratizing Science & Technology policy decision making

- the access of NGOs and citizens to participate in Science & Technology decisions
- the conditions for intermediaries like science shops
- the conditions for university teachers and researchers to work with NGO-initiated and NGO-related topics as part of their research and teaching activities.

D. To disseminate the experience from the project to NGOs, researchers and policy makers at national and European levels. Focus is on

- national dissemination through national dissemination workshops to national NGOs, researchers, universities and policy makers
- international dissemination through an international dissemination workshop to NGOs, researchers and policy makers at national and European levels.

The consortium for INTERACTS brings together expertise from seven countries and consists of

- the Science Shop at the Technical University of Denmark, Lyngby (Denmark),
- Institut für gesellschaftswissenschaftliche Forschung, Bildung und Information, Innsbruck (Austria),
- Wissenschaftsladen Wien / Science Shop Vienna, Vienna (Austria),
- kubus, Technical University Berlin (Germany),
- Pax Mediterranea s.l., Seville (Spain),
- Liverpool Hope College, Department of Sociology, Liverpool (United Kingdom),
- University of Liverpool, Department of Sociology, Social Policy and Social Work Studies, Liverpool (United Kingdom),
- InterMEDIU Chimie Industriala Iasi, (Romania), and,
- as a subcontractor to the Technical University of Denmark, the Amsterdam School of Communications Research, Amsterdam (The Netherlands)

2 Executive Summary

This report presents an overview of political and institutional conditions for the co-operation between small to medium non-governmental organisations (NGOs) - (the predominant target group of science shops), science shops, and universities in Denmark, the United Kingdom, Germany, Austria, Spain, and Romania.

For this purpose, public discourse on science and society was analysed for references to such co-operation to find out if and to what extent interaction between research institutions and small to medium NGO's is already present and supported. Based on their hands-on experience, science shop staff members named options and challenges for co-operating with their clients.

Governmental policy papers, programmes of political parties, university mission statements, national legislation, interviews with politicians, science shop and university staff members, and literature on science shops and NGOs provided the basis for this analysis.

A first analysis brought to light that in most countries investigated a push for business-orientation plays a dominant role in the public discourse on science and society by policymakers, trade unionists and business representatives alike. With the exception of environmental research projects, social problem solving by collaborating with citizen groups is not an issue in most of the countries investigated.

According to the country reports presented here, some science shops fear that this business orientation might have a negative impact on their work. Resources for knowledge transfer are used in other projects instead of science shops. Besides, pressure on science shops is growing to open up for commercial clients.

The impact of the ongoing reforms of higher education on the work of science shops is still not clear.

In some countries, many small to medium NGOs do not consider science and research

as beneficial to them. Inviting potential clients to collaborate in the development of research projects yielded improved awareness of the mutual benefits of collaboration.

Science shops provide services to financially weak client groups who usually cannot afford them. As far as we can judge, most science shops are not financially and institutionally secured, so even for some university-based science shops additional funding from grant giving bodies is required. But because needs of science shops are insufficiently reflected in research programmes and funding guidelines, science shop projects often do not match funding criteria.

In all the countries investigated the concept of science shops is not well-known to a wider public. Science shops are not very much actively supported by policymakers but have sympathizers especially among Green Parties.

Despite their weak position in most of the investigated countries, visible national networks of science shops do not exist. However, in some countries rudimentary networks and initiatives for building up networks exist.

Being the first output of *Improving interaction between NGOs, science shops, and universities: Experiences and expectations (INTERACTS),* a project funded by the European Commission, DG 12 (Contract No. HPV1-CT-2001-60039), the findings of this report will provide input to case studies and group discussions, which will further investigate its issues and topics.

3 Introduction

Corinna Fischer, Gabriela Schroffenegger, Annette Wallentin

3.1 Aims of the Report

In the field of knowledge production, the history of modern Western societies shows a strong tendency to build up an artificial gap between a few elite knowledge-producers - with high prestige - on the one side and the civil society on the other. This contributed to the growing "power of definition" science achieved since the 19th century.

It is only now, at the beginning of 21st century, that significant changes are experienced. Following Helga Nowotny science now is in a double bind. On the one hand the process of democratisation also affects scientific authorities, partly due to the fact that science is increasingly unable to guarantee objectivity and neutrality, in the face of growing complexity and interweaving of scientific knowledge with political and economic structures of decision making. On the other hand a threatening loss of support and trust forces science to lobby for its interests and to search for support. Through this the circle closes (Nowotny 1999, p.23). A number of developments contributed to a loss of legitimacy of science: the new need for interdisciplinary approaches, feminist science critique, and research on the process of knowledge production which exposed the myth of objectivity of science. At the same time, the decrease of public spending led to a growing involvement of the main funders – state and business - in establishing priorities at universities. The popularisation of scientific findings through scientific TV-programmes, magazines and newspapers leads to a confrontation between science and a better informed and more critical public. To an increasing degree, people with better education cannot be misled about the risks and problems in controlling modern research. Participation is demanded. The attempts of scientists to leave their ivory tower are not very ambitious. Yet, science's ivory tower is already in a state of siege. Science is no more capable of providing a binding world interpretation for the society. "Truth" is replaced by a network of unconnected, often contradictory findings (Winckler 2002, p. 5f.). This process undermines the monopoly status of the universities. Now, they have to prove their usefulness to society. In doing this, they are competing with other institutions, like business, and with private research institutions. (Winckler, p. 6f). Society has to assess

and evaluate research findings in order to choose the most useful ones. On the one hand, this means increased pressure on universities, on the other, it opens up possibilities of growth for universities and institutions that effectively adapt to society's needs. Considering this discussion, knowledge transfer institutions like science shops proceed in a positive social climate.

When evaluating an organisation dealing with social needs, like a science shop, its outcome cannot be assessed only by discussing the organisation itself. Rather, its chances for success depend on its social and political conditions. The political framework, as well as the general societal climate, constitute either hindering or fostering factors. In order to support the aim of science shops, namely to bridge the gap between science and society, it is important for them to know about this political and social background. It is only then that science shops are able to act (and react) at the right point. Therefore, the aim of this report is to give an overview of the political and social foundations for co-operation between Non-Governmental-Organisations (NGOs) and research institutions supported by intermediaries like science shops.

This is carried out in two steps: First, by depicting the general scientific and public discourse on the interrelation between science and society by a literature analysis. Secondly, by carrying out policy analyses of different political programmes and legislation referring to the interaction between science and society.

The report presents the state of the art of the INTERACTS project and serves as a basis for the case studies in work package WP 4, which will examine the practical experience with interaction between NGOs, scientists and science shops. The analysis of the public and political framework will also provide issues to be discussed in the group discussions about future expectations and possibilities for co-operation between NGOs, scientists and science shops (WP 5).

3.2 Key Questions

In detail, the report addresses the following central questions:

- To what extent is the idea of interaction between science and society represented in the public and political discourse? In particular, to what extent is the concept of the science shops as intermediary institutions known and named?
- Which potentials and barriers arise from these findings for co-operation between NGOs, science institutions and intermediaries such as science shops?
- In the context of hindering and supporting factors, where are the starting-points for fostering co-operation between NGOs and science? For example, regarding political and public lobbying? Regarding science shop´s practice?

3.3 Structure of the Report

´To answer these questions, six countries are compared (Austria, Denmark, Germany, Romania, Spain and the United Kingdom). In each of these country studies the general public discourse on science and society is summarised in the first step. In the second step, the policy framework is examined, with the sub-categories "Science Shop community", "NGO Community", "Legislative and Institutional Framework" and "Political Trends". In addition to the Country Reports, the report also gives an overview of the well-developed field of relevant policies and positions of the European Union referring to the interrelation between science and society.

The juxtaposition of the six countries leads to a comparison of the countries' political frameworks at the end of the report. In conclusion, we look for differences and similarities between the six countries involved, and name political trends in the scientific and public discourse as well as in the political programmes, positions and policies.

3.4 Methods

For the overview of the public discourse on science and society, current literature is reviewed. For the policy analysis, literature and web sites have been studied and the programmes of political parties were analysed. Political parties were questioned via e-mail,

followed by telephone interviews with representatives in some cases. In addition, interviews were conducted with Science Shop and NGO representatives and with policy-makers. Each of the partners collected data with a common analysis framework and the authors evaluated the information and put it together. Details on the method used are given at the beginning of each Country Report.

4 Country Report: Denmark

Toke Haunstrup Christensen and Michael Soegaard Joergensen

The Country Report of Denmark is based on a short literature study (primarily searching literature on the history of the environmental movement of Denmark, the Danish science shops and technology assessment), short interviews with staff-members of the Science Shop at three of the main Danish universities Technical University of Denmark (DTU), University of Copenhagen (KU) and Roskilde University (RUC) and internet research (on the national research policies and policy papers at university level).

4.1 The Discourse on Science and Society

In November 1996, the science shops of the University of Copenhagen, the Roskilde University, University of Oslo and the Technical University of Denmark held a Nordic seminar on "Democracy and knowledge – the role of universities and science shops in a democratic development." Based on the presentations and the discussions at the seminar, a report was published (Jørgensen et al. 1999). This contains papers describing and discussing a broad range of issues such as action-oriented research, experience from the daily work in a Science Shop, and the concrete experience from a number of Science Shop projects. It reflects on the role of science and the science shops, and on to how access to knowledge influences the development of a democratic system. It highlights a number of topics that is part of the science-society discourse in Denmark:

- the status of different types of knowledge, especially a dichotomy between so-called lay-people´s knowledge and scientific knowledge
- the role of university researchers as "counter experts"
- the co-operation between researchers and civil society – e.g. as seen in action research projects, dialogue projects etc.

It is especially the field of environmental and technological sciences and policy-making, which makes the state of public participation in Denmark visible: First, there is the re-

search project *Public Participation and Environmental Science and Technology Options* (PESTO) conducted in the mid -1990s. The aim of PESTO was to compare the reconstitution of environmental science and technology policy in eight European countries (among these Denmark). One of the specific objectives of this project was to analyse the various ways of involving the public in environmental science and to assess how public participation influences flexibility, competence building and accountability. The results of the first phase of the research project were presented in a collection of papers called *Public Participation and Sustainable Development PESTO 1* (Jamison & Østerby 1997). The study shows that, historically, the "Danish way" of environmental policymaking and promotion of technological innovation aimed at providing solutions to environmental challenges has been based on a participatory democratic tradition (bringing various stakeholders or interest groups together such as industry and environmental groups, other citizens' groups and independent experts) and characterised by consensus-building (in order to reach consensus between different stakeholders and interest groups). The study describes several examples of how the public participation has made a difference in relation to environmental policymaking and technological innovation. An example of the former is the Danish environmental group called NOAH (established in 1969) that in the late 1960s and the early 1970s utilised scientific information and co-operated with scientists who themselves sympathised with the effort to act as "counter-experts" particularly in relation to the media. An example of the latter is the industrial success of the wind turbines, which had been successful in showing the feasibility of advanced systems for renewable energy generation. Some of the NGOs have carried out scientific projects themselves during the 1990s. E.g. NOAH (the Danish member of Friends of the Earth International), which is carrying out projects on environmental space together with a number of Friends of the Earth International members in other European countries. This work comprises also co-operation with scientists. Friends of the Earth International is co-operating with the German Wuppertal Institute and the Danish branch have co-operated and developed relations with some researchers and also some science shops (NOAH, 1999).

The Danish experience with *technology assessment* (including consensus conferences) has been and is currently being analysed with respect to the impact on the scientific community and the content of the scientific programmes. The overall conclusion is that some impact can be seen. The projects have especially focussed on biotechnol-

ogy, information and communication technology, and occupational health and safety.

Again, as two of these studies on technology assessment (Hansen et al. 2000, Hansen et. al. 2001) show, the participatory and constructive emphasis in many of the technology assessment activities is found to be a distinct characteristic of Danish technology assessment activities. The technology assessment activities and the methods developed to a large degree respond to various “participants” such as NGOs, trade unions, local communities, consumer, who were involved in public debate and in technological and social development. The authors conclude that the contribution of technology assessment to the shaping of technology has been through the formation of actor positions, through the debates they raised and through the broader cultural movement of participation, awareness and skill development that they created. Hansen et al. 2000 and Hansen et al. 2001 describe different projects and approaches of Danish technology assessment, as well as the role of participative and constructive elements in these projects. Furthermore, the articles discuss the role of the technology assessment studies in the shaping of new technology at levels of the company and the broader society levels. An important element in the discourse on science and society is the role of technology and scientific research as the prerequisite for the development of society. This viewpoint is strongly carried forward by business and by some professionals and politicians in the trade union movement. This is, with respect to the trade union movement, a viewpoint that was developed in the mid-1980s. Previously technology was seen more as a threat. There are, however, differences among the trade unions.

Finally, the impact of the Science Shop of the Technical University of Denmark on research and curricula has been analysed as part of the SCIPAS WP 6 (Hende & Jørgensen, 2001). The Science Shop of the Technical University of Denmark makes an annual project report, but this contains only a short description of the projects and the reports. Furthermore, a few annual reports with assessment in relation to the performance indicators of this Science Shop are available in Danish.

4.2 Political Framework

4.2.1 Overview of Science Shops in Denmark

In Denmark there are science shops at most of the major universities. These are the Technical University of Denmark, DTU; Aalborg University, AAU; University of Southern Denmark, SDU; Roskilde University, RUC; University of Copenhagen, KU (see the References for the homepages of the science shops). It should be noted that only the science shops at DTU, RUC, and KU can be described as "true" or "proper" science shops in as much as they focus exclusively (DTU and RUC) or chiefly (KU) on *non-profit* organisations. The following description will concentrate on the science shops at DTU, RUC and KU.

The Danish science shops are all attached to the university. The DTU Science Shop is a part of a DTU department (the *Department of Manufacturing Engineering and Management*), while the science shops at KU and RUC are established as more independent units within the university (e-mail correspondence with Lene Andersen Co-ordinator, Science Shop, Roskilde University, 2002 and interview with Annette Schwennsen, Member of the staff at the Science Shop at University of Copenhagen (KU), 2002). The DTU Science Shop has organised an advisory council with internal staff and student members and with external members from among its "clients". Due to restructuring, staff cut-down etc., the council has not met for more than 2 years. The KU Science Shop and the RUC science shops have internal advisory boards. (own experience of Michael Sjogaard Jørgensen, Co-ordinator, Science Shop Technical University of Denmark (DTU), 2002)

The organisational form of the DTU Science Shop has advantages and disadvantages. Originally, the shop was organised as a so-called joint unit of five departments. It had its own staff and was allowed to conduct research and give university courses. This form was chosen to allow for more long-term activities. It enabled the DTU Science Shop to involve itself in the projects. The shop organised 2 - 3 meetings during a project and considered the possibilities of embedding a certain project theme at DTU as a new teaching or research topic. This has improved the possibilities for interaction between the university and the citizen groups. Yet, it took much time from the day-to-day work in the DTU Science Shop and from public relation work inside and outside the university,

experience of Michael Søgaard Jørgensen 2002.

During the 1990s the university went through an organisational restructuring, where all small units were encouraged becoming affiliated to a department. This is the background for the present organisational status of the DTU Science Shop. Its affiliation to a department has to some extent isolated it in the daily work. Some students seem to consider the DTU Science Shop as the Science Shop of the department and not the Science Shop of the whole university. Therefore, students from other departments may abstain from contacting the Science Shop (experience of Michael Søgaard Jørgensen 2002, interview with Hanne Nyeng, Member of the staff at the Science Shop at Technical University of Denmark 2002).

The other science shops' status as administrative units and the lack of scientific personnel might have implied that they don't involve themselves that much in the projects. Furthermore, for them it is not an aim to introduce new areas based on the experience of the projects. The science shops at KU and RUC seem to act almost autonomously without other external involvement (for instance by a board) and develop their policies and strategies by themselves. This can have problematic consequences, as shown by the following example: Earlier, the KU Science Shop focused on helping NGOs and other non-profit organisations. However, following the initiative of one or two of its four student assistants, the KU Science Shop in 2001 also began to invite companies to offer the students at the *Faculty of Social Sciences* projects. By opening the door for the business community, projects from NGOs and other non-profit organisations might be marginalized because they do not offer the students the same possibilities with regard to job opportunities. This way, an "autonomous Science Shop" can move away from the original ideas and principles behind the concept of the Science Shop (interview with Annette Schwennsen 2002).

4.2.1.1 Funding regulations

All three science shops are funded by the universities. The DTU Science Shop has also received funding for research projects from different sources. The university funding of the Science Shop is linked to the budget situation of the universities. The budget reductions during the last 5 years have put some of the science shops under pressure. This

is the case especially for the Science Shop at the Natural Science Faculty at KU, which was closed as part of a major budget reduction some 3 - 4 years ago, and the DTU Science Shop, whose funding of student assistants was cut to around 50% around 5 years ago (experience of Michael Søgaard Jørgensen 2002).

4.2.1.2 Network

There is a network of three science shops on Zealand in Eastern Denmark. They publish a newsletter and have some exchange of requests from citizen groups. The network does not have any political influence. E.g. it was not able to prevent the closing-down of the Science Shop at the Science Faculty at the University of Copenhagen in the end of the 1990s (experience of Michael Søgaard Jørgensen 2002).

4.2.2 The NGO Society as Potential Clients

In general, Denmark has a lively NGO community within which especially the environmental movement has had an important political influence (especially in the 1970s and 1980s). The development of the "new environmentalism" in Denmark is described in Jamison et al. 1990. According to this, the Danish environmental movement developed from first representing a "political ecology" (at the end of the 1960s) to be a "grassroots movement" (in the 1970s) and finally, in the 1980s, gradually being professionalized. It appears that this gradual professionalization of the Danish environmental movement has continued through the 1990s. This professionalization (and its possible disadvantages) has been an issue for debate among Danish environmentalists in recent years.

NGOs and other citizen groups using the science shops are probably their most important allies. For example, the influential Danish Society for Nature Conservation is organizing together with a South African NGO a Danish-funded development aid project aimed at setting up a Science Shop in the Republic of South Africa. Thus, it has shown support for the ideas of science shops. (For further information consult the homepage of Danish Society for Nature Conservation: http://www.dn.dk/sw132.asp)

4.2.3 Institutional and Legal Framework

There are four main laws in Denmark concerning research: the university law, the sector research law, the law on research advice and the law on the Basic Research Fund (Political agreement on principles for research in Denmark, 2000). The university law and the law on research advice make provisions concerning the relationship between science and society. The university law says that there should be two external members of the senate of the university. (Bekendtgørelse om universitietsloven 22 December 1999). It is not said which background the members should have. Most of the members of the senates are, however, business managers or managers from large state-owned corporations. The law about research advice is the legal background for the Danish Council for Research Policy. One of its annual tasks is to assess the social relevance of the research. It is said that at least half of the members should be researchers. It is not said who the remaining members should be. Most of the members are business managers. One of the members is from the Business Council of the Trade Union Movement. It is also possible to organise national research committees within certain topics. Here "social insight" within the specific area is mentioned as a prerequisite (Bekendtgørelse om lov om forskningsrådgivning, 1997).

Regarding science shops, perhaps the most influential policy papers are the strategy plans for research and education that each university develops. Besides, each university also agrees with the Ministry of Science, Technology and Innovation on some long-term goals for the university activities – the so-called development contract. The development contracts of DTU, KU and RUC all recognise the important social position of the university as an institution producing knowledge that contributes to the development of society. However, there are several differences regarding the details of collaboration between university and society. The following table gives a comprehensive view of how the development contracts of DTU, KU and RUC "perceive" the relations between university and society (second column) and what parts of society the university primarily collaborates with (third column). In particular, it should be noted that RUC (as the only one of the universities mentioned) emphasises *regional* collaboration.

University	*Aims in the relation "university-society"*	The partners of the university
DTU	To *serve* Danish society regarding technical research and to *show* new directions for technological development that can contribute to the solution of problems of society, human being and the use of resources.	High priority to the contact with the *business community*. DTU should be a centre for technological innovation, which should be industrially used both directly by existing companies and by new private companies initiated within the framework of DTU.
KU	To *move* the national and international agenda, to *participate* in scientific, cultural and political debate and to *play a decisive role* in the development of the Danish society.	The development contract emphasises the need for a dialogue between (on the one hand) the university and (on the other) the *business community* and the *authorities*.
RUC	To strengthen the *regional collaboration* between university, business community and society within the Danish islands Zealand, Lolland-Falster and the so-called "Øresundsregionen"	Main focus on *regional collaboration* with other institutes of education, the business community, counties, local authorities and professional organisations.

Sources: Development contracts of DTU (http://www.adm.dtu.dk/fakta/adm/l_sek/udvikl_kon_d.htm) KU (http://www.ku.dk/led/udviklingskontrakt/) and RUC (http://www.ruc.dk/omruc/udviklingskontrakt/)

4.2.4 Political Trends

4.2.4.1 Government

There has been quite some debate during the recent years about the role of research and universities in the social development. The dominating discourse is that research should ensure the transformation of the Danish society into "the new knowledge-based economy". Interaction between public and private research should contribute to innovation and competitiveness. (Political agreement on principles for research in Denmark, 2000). In correspondence with this economic orientation, most funding for knowledge transfer between universities and society has been given to science parks (Forsker-

parker, 1998). Research funds have been given to so-called "grassroot research" within organic agriculture. The idea was that organic farmers and researchers could develop new ways of growing, processing or distributing organic food together. However, the funding has been cancelled by the new government as part of its budget reductions.

In the recent discussions about the governance structure of the national research the Danish Council for Research Policy has pointed to the changing patterns of production and use of knowledge, which raises new demands to research and higher education, including increased competition between universities, nationally and internationally. The Council pointed to the need for more freedom for the universities in their long-term research planning. However this freedom will only be given, it is said, if the universities "enjoy the confidence of society at large" (University Governance and Leadership, 1999). Therefore the Council proposes a majority of external members in the senate of the universities and appointed university managers (instead of elected managers). These should ensure "the confidence of society at large".

A new tool is "development contracts". Some of the universities have set objectives for their external relations as part of the agreement. The business schools want to strengthen their relations to business, while one of the universities (Roskilde University, RUC) mentions a strengthened relationship to the region by setting up a committee with mayors, public institutions and business managers. That is, no university mentions strengthened relations to citizens, citizen groups etc. (Political agreement on principles for research in Denmark, 2000, and the development contracts of KU, RUC and DTU, 2000).

The National Research Policy for 1996 has the title "Research for a better society" and also points to the role of research as a foundation for the national economy and the growth of welfare, as contrary to a former mainly cultural-historical role. Therefore, it is said, the government "aims to increase [...] public awareness of and interest in research. It is important that the broad, democratic dialogue on the social role and significance should be developed as much as possible" (Research Policy, 1996). Further: "In tomorrow's knowledge-based society, research will have a central interpretive and communicative role….The explosive spread of home computers will eventually provide the whole population with easy access to everything, including the world of research." The statements could be seen within the discourse of public awareness and public un-

derstanding of science, but could maybe also be seen within a discourse of public influence on science. It is said that the government wants "openness and teamwork to [...] characterise the relationship between the research system and the rest of society. A further discourse is "the responsible researcher". It is said: "Freedom [of research] can only be maintained if researchers live up to their responsibility and themselves set ethical limits to their research. Science has a democratic role to play and, as a part of this democracy, the researcher has a special duty to participate actively in it" (Research Policy, 1996).

A part of this research policy is the Danish Board of Technology, a self-governing body established by the Danish Parliament. The Board is supposed to make comprehensive assessments of the possibilities and consequences of technology for society and the individual. The Board has an informative role, but also a task in supporting and encouraging a public debate on technology (Research Policy, 1996). It has initiated the Danish use of consensus conferences and participated in the development of scenario workshops as a method in public debate on technological and societal development (http://www.tekno.dk).

To summarise, since governmental policy focuses mostly on the interaction between science and *business* instead of society in general, this science policy can make the universities less committed towards the science shops. On the other hand civil society actors might have more need to address the science shops due to this science policy.

4.2.4.2 Parties

In the mid-1980s when the DTU Science Shop was launched, two political parties at the Center-Left in the Danish Parliament considered demanding that universities should have a Science Shop. The initiative was cancelled since the same parties at that time were very critical about the tight management of the universities from the Liberal government. They considered it not to be legitimate to fight against the governmental control of the universities and at the same time propose another type of political demand to the universities (experience of Michael Søgaard Jørgensen 2002).

4.2.4.3 Other political allies

Other important allies for the science shops are students who have made a project through a Science Shop and university teachers who have supervised a Science Shop project. The Danish Board of Technology is also positive about science shops. Other potential allies are those in the European Commission supporting the idea of science shops as a tool in a more dialogue-oriented relationship between science and society in general. The most powerful of these is probably the Danish Board of Technology (experience of Michael Søgaard Jørgensen 2002).

4.2.4.4 Political opponents

The most important political opponents are indirectly those pushing for a business orientation of the universities. This could either imply that less students want to do a Science Shop project or that those science shops focusing on citizens´ groups would be asked also to take in projects from companies. These actors are rather powerful, since they are from the Danish business organisations and from some of the trade unions (experience of Michael Søgaard Jørgensen 2002).

4.2.4.5 Public perception of the issue

The type of intermediaries between science and society that are discussed these years are mostly science parks. Also the Danish Board of Technology is publicly known. Science shops are mostly known at the universities by those working with them and then by the citizen groups that have approached them. The reputation of science shops among these actors is probably fairly good. Some students and teachers tend to see the Science Shop as a project board and not as an actor having a role in the Science Shop project itself (experience of Michael Søgaard Jørgensen 2002, interview with Hanne Nyeng 2002).

However, there are other types of intermediaries. One of the important initiatives of the recent years is the so-called Green Foundation set up by the Ministry of Environment and Energy in the mid-1990s in order to support national, regional and local public green

initiatives. (The present government, however, has decided to close it down). The Foundation has supported a network for so-called “green public awareness” [Grøn Folkeoplysning]. Seminars, working groups and projects organised by the network have strengthened the cooperation between environmentalists and some researchers about strategies for public participation in sustainable development (see homepage: http://www.eco-net.dk). The Foundation has also supported a number of local green resource persons (so-called "green guides"), of whom several have asked for projects through the Danish science shops, as have some Local Agenda 21 groups.

The National Environmental Protection Agency encouraged public participation as part of the preparation of the national sustainable development strategy (part of the preparations for the Rio+10 Summit). Some NGOs, including the above mentioned network, got funding from the Green Foundation to initiate public participation through workshops etc. Also the so-called Ecological Council was supported by the Green Foundation. Its aim was especially to highlight global aspects in the discussions about sustainable development (see homepage: http://www.ecocouncil.dk).

Furthermore, the so-called Public University [Folkeuniversitetet] should be mentioned. Established in 1898, the aim of this organisation is to disseminate the knowledge of scientific methods and results. Without regard to educational status, everyone can follow the courses and course of lectures offered by the Public University. Public Universities are established in relation to all major universities in Denmark (see http://www.ku.dk/folke/index.htm).

5 Country Report: United Kingdom

David and Irene Hall

The British report has been compiled mainly on the basis of extensive Internet research.

5.1 The Discourse on Science and Society

The discourse connected to the interrelation between science and society in the UK has developed particularly in relation to science and the environment, leading to calls for science to become more responsive to citizen concerns (A. Irwin 1995). However, attempts in the early 1990s to establish science shops in the UK have had a mixed response. The Nuffield Foundation supported the establishment of two science shops, one in Liverpool and one in Northern Ireland, to respond to citizen concerns by making available the scientific resources of the universities.

The Liverpool Science Shop, after its initial period of funding, moved to a merger with Merseyside Community Research Exchange to form Interchange (see below), and while its activity remained responding to NGOs with research by students, its field of activity moved from environmental science to social science, health and welfare. The Northern Ireland Science Shop continues to exist with strong university support, but also works in the field of social sciences as well as the physical sciences.

The ideals of science shops and the linking of university knowledge with the needs of the local community have found greatest expression at the current time in the UK through a range of connections established by universities for students with the local NGO sectors (see Buckingham-Hatfield, below). Accordingly, the context for cooperation is often that of building up community through countering social exclusion.

This means that one relevant discourse on social science and society is the discourse on social capital, which was transferred to the United Kingdom from the USA (see Putnam 2000). The term "social capital“ describes "networks with shared norms (...) that facilitate co-operation within or among groups“ (OECD) or "networks, norms and trust,

which enable participants to act together more effectively to pursue shared objectives“ (Robert D. Putnam). The existence of networks and co-operations between different groups is a sign for a well-balanced community. A high level of social capital in a society is assumed to have promoting effects on policy outcomes like economic growth, social inclusion, improved health, or a more effective government (see Putnam 1993).

Those networks and co-operations exist either rather organically between homogenous individuals and groups, or they can be created artificially between different and also heterogeneous groups in different social strata. In this sense, interaction between science and society is one example of linking social capital. Education is considered to be one crucial instrument through which social capital can be initiated and developed (s.a. Putnam 2000 and Halpern 1999). Attention is drawn on the benefits of learning: Values and attitudes acquired through learning and education tend to influence the adults' civic participation.

Here, science shops in the United Kingdom have a role to play. Their main task of organising community-based learning (i.e. linking students with community organisations for research projects) is considered to be a practical application of the theoretical concept of linking and supporting social capital.

For example, "Community Service Volunteers“ (CSV), an important NGO organising and supporting the British volunteer sector, published the study "Student Community Partnerships in Higher Education: Promoting Skills for Life and Work“, in which they describe several programmes of community-based learning at colleges and universities. Also the "Community Based Learning Teamwork“ project (CoBaLT) of the universities in Liverpool and Birmingham examined the extent to which student learning takes place in the community and which key skills can be acquired by community-based learning. Their survey found that community-based learning takes place in a range of courses, including Sociology, Psychology, Applied Welfare Studies, Politics and Social Policy. Students work with a variety of organisations including the commercial sector, national government, the statutory and voluntary sector, charities and community groups. The institutions surveyed employed a range of assessment techniques, including logbooks, written reports, oral presentations, dissertations, portfolios, and reflections on the process. Outcomes for the organisations were identified as free labour in the form of student work and fresh input of ideas and energy. Respondents identified a range of bene-

fits from CBL. These included - for the student – an opportunity for personal development, the learning of transferable skills, a chance for hands-on experience. For the Higher Education Institutions – a way to sell degree programmes in a competitive market and a closer link to the local community. For the community organisations – a way of getting a job done with minimal resources and an enhanced understanding of the opportunities available in higher education. Respondents also identified some problems and barriers to Community Based Learning (CBL). These included organising uniformity across projects and evaluating very different projects on a common basis, student resistance to unfamiliar and time-consuming methods of learning, mismatched expectations between student and community group and general problems of organising large student groups across very diverse activities.

The special thing about the case of the United Kingdom is that here - unlike in many other countries - the interaction of science and society was initiated and supported rather by the „society“ (the strongly developed volunteer sector and its organisations), not by science itself. That is, in the United Kingdom there was rather a bottom-up concept of linking science to society – or rather of linking society to science.

5.2 Political framework

5.2.1 Overview of Science Shops in the UK

In Britain, there is only one organisations with Science Shop in its title – the Northern Ireland Science Shop (Mulder, Auf der Heyde, Goffer & Teodosiu 2001, p.34-35, also www.qub.ac.uk/scisho). This is supported jointly by Queen's University Belfast, and the University of Ulster. There are a number of other organisations and individuals who provide a service very similar to a Science Shop, linking students with community organisations for research projects. These include Community Exchange, Manchester and Interchange, Liverpool (Mulder, Auf der Heyde, Goffer & Teodosiu 2001, p.34-35, also http://cwis.livjm.ac.uk/interchange/newuser.htm, http://www.commex.man.ac.uk/commex/home.htm). Seven more institutions are listed in Buckingham-Hatfield 2001:

- Citizenship and Community Studies at Middlesex University, London

- City and Regional Initiatives on Student Projects (CRISP) at the University of Leeds
- Community and Partnership Scheme for Independent Study at Sheffield Hallam University
- CommunityLink at Edinburgh University Settlement
- Community Enterprise Project at Napier University, Edinburgh
- International Service Learning at Roehampton Institute, London
- Student Community Information Systems Consultancy Project at the University of the West of England, Bristol

A national network does not exist so far.

Most Science Shop activities are carried out by administrative units in universities (Northern Ireland Science Shop, Community Exchange Manchester), or by university staff as part of their remit in teaching and research, where the activity is carried on mainly by students at undergraduate or postgraduate level. Advantages of working within a university framework are closer connection with departments and staff as resources, together with a degree of credibility as a valid university enterprise.

Some institutions, like Interchange, form a separate organisation as a charity. Advantages of this are first-hand knowledge of problems faced by small-scale NGOs regarding personnel, finance, etc. Also, it is easier to apply for funding for NGOs from grant-giving philanthropical foundations and other funds for charities, e.g. the National Lottery.

5.2.1.1 Funding regulations

Official support and funding for such units varies. There is no state funding or legislation for science shops as such. Some universities support Science Shop activity through higher education funding made available from government sources. In university funding, the number of student projects is often used by university management as an indicator of activity (rather than the quality). Universities are more willing to support activity which benefits larger numbers of students across a range of departments.

Even where university funding exists, extra funding from external grant giving bodies is

required. Without continuous core funding from university funds, many have to make use of ad hoc funding for educational initiatives with regard to education for enterprise, work-based learning, or volunteering. Certain grant giving bodies require the existence of a formal managerial structure (constitution, accounts) and policies on equal opportunities (see National Lottery, http://www.national-lottery.co.uk)

Infrastructural funding proves to be a problem. Universities are often unwilling to provide infrastructural funding for posts in science shops, as this may represent an open-ended commitment, while external grant giving bodies are also reluctant to fund posts for activities which they consider to be largely educational.

5.2.2 Institutional and legal framework

Where science shops are established as independent entities, then charitable status confers some advantages regarding taxation and funding opportunities. Charitable status is governed by the Charity Commission (www.charity-commission.gov.uk) and granted only if the organisation meets the criteria for a charity: These are one or more of the following:

- advancement of education
- advancement of religion
- relief of financial hardship
- other purposes for the benefit of the community.

Interchange, as a registered charity (Reg. Number 1038129), meets the criteria of education and benefit to the community. Trustees (Board members) are personally and jointly liable for the finances of the charity and should not benefit personally from the charity.

Charities are prohibited from activity which can be classed as ‘political,’ e.g. campaigning for changes in legislation. But Science Shop research which is impartial scientific research, not campaigning, would not be affected.

5.2.3 Political trends

5.2.3.1 Government and Parliament

Communication between science and society is becoming a larger issue in science policy. A recent authoritative report is that of the House of Lords Select Committee on Science and Technology, Third Report, 23 February 2000. (http://www.parliament.the-stationery-office.co.uk/pa/ld199900/ldselect/ldsctech/38/3801.htm).[1]

This argued that: public confidence in scientific advice to Government was low (after BSE etc), that most scientists now seek to improve public understanding of their work, that there is a new mood for engaging the public in dialogue over scientific advances and that science education must be improved in schools and in the media.

The Government responded to this Report in October 2000 with an official government publication, Command Paper Cm 4875. (http://www.parliament.the-stationery-office.co.uk/pa/cm200102/cmselect/cmsctech/361/36104.htm) This contained no mention directly of science shops, and argued that much was being done to create the dialogue between science and society. The paper does refer to the ethos of creating partnerships between universities and the wider community, and in particular to 'Science Enterprise Centres.' However, the emphasis here appears to be more on exploiting innovations than on serving community needs for science.

The Government had previously issued a White Paper (statement of Government intentions prior to legislation) on Science and Innovation, "Excellence and Opportunity - a science and innovation policy for the 21st century", Command Paper Cm 4814. This argued that the five main issues facing government regarding the scientific community were:

[1] The Select Committee visited Denmark in November 1999, and took information from the Science Shop at the Technical University of Denmark. They comment (in Appendix 4 to the Report): "The Science Shop concept seems to be well suited to Denmark, and is an idea that might usefully be expanded in the United Kingdom (where there are two Science Shops, both in Northern Ireland)." This is apparently a reference to the (single) Northern Ireland Science Shop, with two campus locations in Queen's University, Belfast and Ulster University.

- the need to create a new culture of dialogue between scientists and the public
- the need to heed public values and attitudes
- a perceived crisis of public trust in scientific advice to Government
- the need for all advisory and decision making bodies in areas involving science to adopt an open and transparent approach to their work
- the need for scientists and the media to work constructively with each other.

The Paper argues that "the Government agrees that these are important areas that require further action not just by Government but by the science community as a whole."

The House of Commons issued its Sixth Report on Science and Technology on 28 March 2001 (http://www.parliament.the-stationery-office.co.uk/pa/cm200001/-cmselect/cmsctech/200/20002.htm). This covers much the same ground, recognising the need for engaging the public in dialogue on science and society. It is critical of the Government's Foresight programme, designed to "identify emerging technologies and the associated threats and opportunities," and considers that "Foresight appears to have had only limited success in bringing about better communication, interaction and mutual understanding between the science base, industry and Government Departments."
Foresight has its own web site at http://www.foresight.gov.uk/default800ns.htm. Its purpose is to:

- develop visions of the future - looking at possible future needs, opportunities and threats and deciding what should be done now to make sure that we are ready for these challenges;
- build bridges between business, science and government, bringing together the knowledge and expertise of many people across all areas and activities; in order to
- increase national wealth and quality of life.

Within Foresight there is a Link programme, designed to bring together industrial companies and science based researchers for interdisciplinary research (http://www.dti.gov.uk/ost/link/prog.html). LINK participants receive financial support for projects and benefit from involvement in the active network fostered by each programme. Industrialists gain access to high quality researchers whose leading edge sci-

ence and technology can underpin innovation within their company. Science based researchers are able to work in partnership with industrialists to apply their knowledge and expertise to research with commercial potential.

An overview of Government's activity in the field of Science, Engineering and Technology (SET) is provided by the Department of Trade and Industry's review publication 'Forward Look 2001,' which brings together statements from all government departments and research councils on spending and priorities. (http://www.dti.gov.uk/ost/whatsnew/index.htm).

The main thrust of science policy remains that of innovation and enterprise in making use of scientific advances. However, there is recognition that science communication with the public must be improved, and that public concerns – resulting in lack of trust – must be addressed.

5.2.3.2 Universities

University matters can be searched on the web site for UK Universities: (http://www.universitiesuk.ac.uk/default.asp?l1=1&). While this welcomes the news of high achievement in university research through the Research Assessment Exercise 2001, there is no mention on the web site of science shops. A more positive note is given by reference to the "Third Mission" of Universities, in addition to the core missions of teaching and research. The third mission according to Professor Floud, is to "reach into their communities, getting their hands dirty by combating social exclusion and improving cultural understanding in their regions. The world is changing and universities are changing as well. In places as diverse as Middlesborough and Tower Hamlets, university staff lead regeneration companies, act as governors of schools and colleges, and are active in community groups. Their expertise is called on by their Regional Development Agencies and local businesses, they train all of the nation's health professionals, and they enhance the culture and well being in their regions. Universities have been doing these things for many years, but there is now a clear recognition that this work should be explicitly funded and encouraged." (http://www.universitiesuk.ac.uk/speeches/show.asp?sp=44)
Support for the Third Mission is the most likely source of funding for Science Shop ac-

tivity within the UK University sector, as this links universities with the community for the purposes of social development. The Higher Education Active Community Fund (2001) is explicitly designed to stimulate volunteering by students and staff in higher education for the benefit of local communities. (http://www.hefce.ac.uk/pubs/-hefce/2001/01%5F65.htm)
While volunteering as such is not Science Shop activity, research by students for local community organisations can be seen as one aspect of community service.

5.2.3.3 Other potential allies

An excellent gateway for science and society matters is provided by the Wellcome Foundation through its psci-com web site on public engagement with science (http://psci-com.org.uk/browse/ypages/300.html). While this is not a campaigning organisation, it is a useful support for communication between science and society, with a large number of links.

Scientists for Labour (http://www.scientists-for-labour.org.uk) have a link to the Response to the House of Lords Select Committee Report, and a brief mention of science shops. They have argued that "much greater efforts should be made to further public understanding of science (PUS)" and suggest:

- Greater emphasis should be placed on training science correspondents and liaison officers perhaps by recruiting science graduates to post graduate courses in scientific communication.
- Ressourcing of PUS projects and personnel could be furthered by allocating a given percentage of research funding to this area - either via Research Councils or institutions (or both)
- Greater use should be made of public consultation exercises and "science shops" where information can be readily available and speakers resourced for community meetings on areas of concern.

An earlier document on "Shaping the Future: a policy on science, engineering and technology" is on the web at (http://www.shef.ac.uk/~sfl/textonly/policy/set00.html). This makes explicit reference to science shops under the heading of public understanding of

science:

"One successful - but so far small-scale - initiative on which we can build is the move towards science shops, accessible centres sited near universities and colleges at which people can enquire about technical issues that concern them. Such shops have been established for many years in Holland and Denmark. Britain has only two insecurely funded science shops, in Liverpool and Belfast. In the era of worldwide information transfer, science shops can also provide public access to advanced communications and information equipment including the Internet (Cybercafes), reducing the risk that these technologies will only benefit the better off. Labour should support local initiatives towards the creation of science shops, which could serve an interactive function as forums for running local consensus conferences on the potential development and consequences of new technologies, monitor public demands for technological change, and act as bridges to regional technology centres."

However, these efforts to promote the idea are not too successful, to judge from the Government's response.

5.2.3.4 Public perception of the issue

On a national level, the dialogue between science and society is recognised as an important precondition for policymaking. Britain operates with a system of Government Scientific Advisory Committees which offer advice to Government, and act partly as intermediaries between science and society (in whose interests the Government seeks to act). These Scientific Advisory Committees come under the responsibility of the Office of Science and Technology, a section of the Department of Trade and Industry (www.dti.gov.uk/ost/whatsnew/index.htm, http://www.dti.gov.uk/scienceind/strategy-.htm).

At the local level, the concept of intermediaries like science shops is not much known or publicly discussed. Even a web search in Britain produces very little on science shops, the concept is not widely known. In a university culture, the term Science Shop is recognised, but few people know what they are and how they operate.

6 Country Report: Germany

Corinna Fischer, Annette Wallentin

The German report has been compiled on the basis of literature found in the database WISO and in Berlin public libraries, an internet research of the web sites of political parties, ministries, and NGOs, and an e-mail inquiry to the governments and the five most important parties at the national level and the 16 *Länder* levels, as well as five important NGO umbrella organisations. Of these 107 addresses, about 27 answered via e-mail, telephone, or ordinary mail.

6.1 The Discourse on Science and Society

In Germany, the discourse on the interrelation between science and society is closely connected to the concept of the "knowledge-based society“ (in German *"Wissensgesellschaft“*) (Bundesministerium für Bildung und Forschung 1998, Mutius 2000). This theoretical concept is based on descriptions and analyses of the knowledge explosion due to science progress in the past decades, especially in natural science and information technology. By this, specialisation and complexity has risen. The gap between highly-specialised science-elites and the lay public has been widening. In the same time, knowledge is considered to be the most important means of production and factor of power in post-industrial society. In order to keep up a democratic system of well-informed citizens whose power of judgement and decision is based on knowledge rather than on the pure spur of the moment, and in order to prevent democracy to turn into an „expertocracy“, knowledge transfer from science to society is more urgently needed than ever (Bovenschulte & Gaus 1999 and Maier 1999).

Here, the strands of discourse take different directions:

A first strand of discourse on the necessary interaction between science and society defines "society“ as the public in general and examines public understanding of science and science communication, for example through science journalism (e.g. Zierhofer 1998, Diederichsen 1994). Generally remarkable is the one-way-character of this sci-

ence-communication: literature is only interested in the effects that knowledge transfer *from* science *to* society has – not the other way round.

The second and dominant strand of discussion on the knowledge-based society picks up the interaction between science and business as a central point of interest. Here, the process of knowledge production in modern society is described as decentralised: traditional science institutions have to share the status the most important producers of knowledge with business. In literature, two different points of view can be found about how science institutions are effected by this development. In the first opinion, the decentralisation of knowledge production between traditional science institutions on the one hand and new commercial knowledge-producers on the other hand is considered to be a challenge - and an urgent need - for a new culture of co-operation between science and business. Especially by technology transfer, resources should be tied up and synergetic effects be used (for example Blume & Fromm e.a. 2000, Buss & Wittke 2000, Heidrich 2000). In the second and rather critical point of view, this change leads to competition between science and external institutions and therefore impedes the idea of co-operation. At the same time, the new need to compete develops a stronger commercialisation of science and furthers a logic of utilisation and capitalist exploitation of science (Wingens 1998, Müller & Hettich 2000). It is interesting that also this critical point of view only discusses the co-operation between science and business without naming a real alternative, except for insisting on the principle of a free and independent science (with regards to the Humboldt ideal of science) or on pure research. Here, there might have been a suitable place for interaction between science and NGOs instead, but there is no such discussion.

Also the third and most recent discussion on ethical responsibility of science is connected to this discourse about the concept of the knowledge-based society and the spoilt relationship between a highly-specialised science and the lay public. The literature on ethical responsibility of science describes the rather uneasy situation of especially natural science and the dilemma of needing for innovative research projects in order to compete internationally on the one hand, and needing socially defined ethical standards on the other hand. Literature examines the gap between the innovative interest of (natural) science and the fears and worries of the lay public. To close this gap again, there are calls for a new "ethical declaration for science and technology“ (Mittelstaedt 2000)

and a new reflection on ethical standards in science. Quite close to this context is the broad discussion on sustainable development in Germany (e.g. Dürr & Liesenberghs 2000, Jörissen & Kopfmüller e.a. 1999, Ganten 1998): in this discussion, science is addressed as a key figure in establishing sustainability. Literature is appealing to science to perform this central role by orientating its research projects towards the development of sustainable technologies.

Summarizing the general discourse on the interrelation between science and society, there is one crucial point: Even though the concept of „knowledge society“ to have essential impact on the general society and on the democratic system, most of the literature does not really deal with interaction between „science and society“ according to the co-operation between science and civil society/NGOs. Instead, in most cases "society“ is treated as equivalent to „business“; any kind of science or knowledge transfer is subsumed under this label. The idea of co-operation between science and social groups like NGOs is not on the agenda. When a concept of society except for business only is addressed at all, science is considered to be the only active part in a one-way-communication-model of informing the public about scientific issues. Exceptions are the discussion of ethical responsibility of science and science's role in sustainable development. Here, the interrelation between science and society is thought of as a circular model of mutual influence.

The science shops' aim to bridge the gap between elitistic knowledge-producers (i.e. science) and the public (i.e. the society) by supporting co-operation between science and NGOs is a logical and necessary step taken from the problem analysis of the knowledge-based society which tends to become more and more non-egalitarian and thereby inadaequate for the democratic system. Yet, the current discourse on the knowledge-based society misses this line of discussion. The issue of the interrelation between science and civil society like NGOs must be introduced first. The discussion of the ethical responsibility of science connected to progress in e.g. bio-technology might be a good opportunity to do this. Especially, as science shops in Germany have a kind of tradition in this field of technology criticism, as shown by several older empirical studies on science shops' co-operation with NGOs (especially in the environmental field - Dehler 1990, Block-Künzler/Graf 1993, Knothe 1990, Schlosser/Steffen 1985).

In these empirical studies there is -- referring to this context of bridging the gap between

science and NGOs -- especially one additional interesting finding. Examining the NGOs interests in and attitudes and towards a possible co-operation with science, the studies sometimes find intensive feeling of distance towards science on the part of the NGOs. For example, Norbert Steinhaus' essay "Dialog jenseits von Expertengesprächen. Das Konzept der Wissenschaftsläden“ ("Dialogues beyond expert talks: The concept of science shops“, 1999), starting with stating the problem of the gap between science and society. Steinhaus points out that this gap is not only due to scientists who dodge the social responsibility of science, but also due to citizens and NGOs who don´t consider science as something which might be useful for them. NGOs often do not have science in mind when thinking about possible ways of acting. For example, Steinhaus tells about a Dutch example of a workers' union. If they wanted to react to shift-organised working conditions, theoretically they would have at least two possibilities. First, the classical reaction: Demanding better wages in order to compensate for the unpleasant working conditions. Second, they could also demand a scientific research programme about new technologies which would make shift work unnecessary. According to Steinhaus, NGO´s don't think in this second way usually. It is quite unfamiliar to them to think about science as an instrument to solve their problems. (Yet, the experience of the Science Shop in Berlin „kubus“ are different, as will be described in part 4.2.2., p.39)

But NGOs´ suspicion of universities can be worked on successfully: science shops could help to close the gap between the NGOs and the universities. Such an attempt is exactly what Kähler, Lange and Loviscach describe in their essay "Wissenschaftsläden für die soziale Arbeit? Erfahrungen mit einer regionalen Vermittlungsstelle für Sozialarbeitsforschung“ ("Science shops for social work? Experience with a regional intermediate institution for research on social work“, 1988). This essay in a book about applied research in social work reports about the starting phase of the Science Shop at the College for Social Science in Hagen. The special thing about this Science Shop is its proactive approach towards the possible clients. Instead of waiting for them to come to the Science Shop, the Science Shop members vividly looked for contacts to NGOs. The Science Shop wrote to 68 social projects and invited them to develop research requests with their support. More than half of the projects were interested and a personal meeting was arranged in order to develop the research request with the scientists´ support. The scientist paid attention that the issues became compatible for a student's thesis. Finally, 60% of the interested projects made a request. The authors point out

how important it is to encouraging NGOs this way. It is not natural to the NGOs to think in terms of scientific questions or to refer to science as a useful tool.

Another approach is the initiating of co-operations and networks on the local level, for example as a project of the „Local Agenda 21“-movement. Here, science shops could use their existing contacts to different local actors in politics, the NGOs society and business and connect them to science.

Again, in order to bridge the gap between science and society, it is necessary for science shops to think in terms of a two-way communication and participation rather than just a linear model.

6.2 Political Framework

6.2.1 Overview of Science Shops in Germany

The "Science Shop society" in Germany is described in the SCIPAS report No.2 (Mulder, Auf der Heyde, Goffer & Teodosiu 2001). Science shops in Germany started in the 1980s. By 1985, a number of 15-25 shops has been mentioned. Today, the number has boiled down to about 10-15 (it is not always quite clear whether they are still active). Most science shops in Germany are independent. However, *kubus (Kooperations- und Beratungsstelle für Umweltfragen, Co-operation and Consulting for Environmental Questions)* is a Science Shop that since 1990 has been completely integrated in and funded by the Technical University Berlin. It is part of the "Centre for Co-operation" which is not attached to a specific faculty, but a service institution on the university level. *Kubus* co-operates with environmental organisations, communal institutions and organisations representing SMEs in the region of Berlin and Brandenburg. (see appendix, chapter 11.2)

The probably best known non-university-based shop is the WiLa Bonn that relies heavily on its strong activities in job support. A network, the AWILA (Arbeitsgemeinschaft der Wissenschaftsläden) still exists, but is not very active. (http://www.wilabonn.de/awila.htm).

Furthermore, there are a number of co-operation-offices that focus on the co-operation

between universities and trade unions or between science and the working world respectively. In 2001, there were 18 of them. Though their target group is narrower, their tasks are quite similar to the science shops'. They try to introduce work-related topics into university studies, organise internships for students, collect research questions related to workers' issues and find scientists to work on them, make use of the universities' resources for workers' education, and organise public conferences and discussions. (Benthin et al. 2001, p. 6-8) Projects are partially or totally funded by trade-union branches or by the “Hans-Böckler-Foundation”.

Even if it was not intended at the beginning, some of them also started co-operating with NGOs, for example in the area of transport.

6.2.2 The NGO Society as Potential Clients

When describing the NGO society in Germany, we rely on the literature on the so-called "Third Sector", defined as a group of organisations that are organisationally independent from the state, non-profit orientated, self-governed and rely on voluntary activism. (Salamon & Anheier 1997). What is the size of the German Third Sector? In a comparison of 8 industrialised countries, it is of medium size in terms of paid labour, and among the last in terms of volunteer activity. But when it comes to membership in organisations, Germany is the second strongest country after Sweden. In the year 1990, there were 286,000 societies ("Vereine") in Germany, 474 per 100,000 inhabitants (Anheier 1999).

The organisations in this sector can be grouped into three broad categories: First, the area of health, social services and housing. It is the biggest one in economic terms, accounting for about two thirds of the jobs and the money spent in the whole Third Sector. It is dominated by six big organisations and tightly interwoven with the state. It performs public tasks (like maintaining hospitals) and, in exchange, lives mainly on public subsidies. Secondly, the area of culture and leisure (mainly sports). It is the biggest area in terms of voluntary activism, absorbing about 50% of all volunteers. Thirdly, the area stemming from the tradition of "New Social Movements" and dealing with political and social issues (environment, citizens' rights, and international solidarity). It still accounts for about 20% of the volunteers. The second and third category receive more money

from private sources than from the state, and rely heavily on volunteer activism rather than paid labour. However, most organisations (especially in the first category) are highly structured and hierarchically organised. 70% of them belong to umbrella organisations. There are strong sectoral divisions between them and little feeling of belonging to a common "NGO society" (Anheier 1997; Zimmer 1997).

The New Social Movements coming up in the 1980s seemed to shake up the system. The peace, women's, and environmental movements founded lots of alternative cultural centres, self-help groups and political initiatives. They stressed the importance of autonomy, self-governance and democracy, and criticised the hierarchical structures and corporatism within the traditional welfare institutions. There was also a sense of common belonging to the "movement". Later, however, many of the organisations adapted to the existing structures (Koopmans 1995, Zimmer 1997).

The New Social Movements also laid the foundations for co-operation with science, founding their own independent research institutes like the "Institute of Applied Ecology" or the „Independent Institute for Environmental Questions“ (“Unabhängiges Institut für Umweltfragen”, UfU), founded in 1990 in the former German Democratic Republic. Also, the idea of science shops stems from here. This development coincided with a greater professionalization of the NGOs in general. Today, the big national and international NGOs – not being dealt with in the INTERACTS project – have their own scientific resources or research institutions. At a local level, according to the experience of *kubus,* at least NGOs dealing with environmental issues expect scientific support for their work, for example for their involvement in the planning process of building projects. However, this does not necessarily mean that the NGOs turn to the universities for support. They often distrust the "official" science system (Dehler 1989 and 1990, Steinhaus 1999) but are open for co-operation if appropriate intermediary service is available. There are numerous other institutions and enterprises doing research and consultation in environmental issues and supporting the NGOs. These non-university institutions are quite similar to science shops. For example, in Berlin, there are five of these institutions only for soil-, air- and water analysis. An (incomplete) overview of these institutions in the broad field of environmental protection for Berlin is given in the booklet edited by the Berlin City administration „Wer macht was im Umweltschutz?“ („Who does what in environmental protection?“). Here, more than one-hundred addresses are collected (Se-

natsverwaltung für Stadtentwicklung und Umweltschutz, 1999). Some of them co-operate with kubus.

This structure has different consequences for the co-operation between NGOs and the science system. First, it has to be considered that different sections of the "NGO society" have rather different needs and outlooks. Secondly, many associations can be addressed rather at a central than a local level. Thirdly, professionalization on the one hand means that NGOs have often created their own research resources. But on the other hand, insofar as they rely on external resources, science shops can act as a counterpart to official science. They can also become a facilitator or mediator, as is often the case with *kubus.*

6.2.3 Institutional and Legal Framework[2]

6.2.3.1 Institutions

In Germany, the research landscape is characterised by its federal system (see for a good overview Bundesministerium für Bildung und Forschung 2000). The most research and education policy falls within the responsibility of the 16 *Länder.* They have their own ministeries for science and education, create the legislation pertaining to universities, fund them, and launch science policy programmes. The *federal government's* role is more restricted. It can pursue its goals via funding programmes, competitions and prizes, or by enhancing communication via conferences or publications. Federal government and *Länder* each host a number of non-university research institutions. The universities themselves have some autonomy. So there is room for an individual university to decide whether, for example, it wants to host a Science Shop.

Several institutions co-ordinate the different policies and make recommendations. *The*

[2] In the following, we will only be dealing with publicly funded research. The biggest part of research in Germany (69%) is carried out by businesses which will not be the focus here.

Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung (Federal/Länder Commission for Educational Planning and Research Promotion; BLK) provides a permanent forum for discussion and co-ordination. It gives recommendations on research and education policy and sponsors model projects. It also administers the "University and Science Programme", a joint federal and *Länder* programme to pursue specific goals in science policy (see http://www.blk-bonn.de).

Other important co-ordinating and counselling institutions are the *Wissenschaftsrat* (Science Council), made up by scientists and political representatives and giving detailed recommendation on special issues of science policy, and the *Kultusministerkonferenz* (Conference of ministers of education) that co-ordinates policies at a more administrative level.

6.2.3.2 The legal framework

Where the independent shops are organised as a registered association, pursuing charitable or public interest goals, it can be exempted from taxation. This is the case e.g. for the Science Shop in Bonn. The only restriction for this kind of organisation is that any profit it makes must be invested into public interest goals (Werner 2000).

The co-operation-offices between universities and trade- unions (see above 6.2.1) are based on co-operation contracts between the university and the respective regional branch of the trade-union association DGB.

The shops hosted by a university are subject to the law on science, research, and education. On the federal level, the relevant law is the *Hochschulrahmengesetz* (Framework Law on Higher Education). It provides a general framework that is supplemented by laws on the *Länder* level. Most of these laws have recently been reformed in order to account for new priorities in science policy (see p.42.).

(Bundesministerium für Bildung und Forschung 2000, p.36).

All of these laws state the *universities' goals* and the *nature and task of research*. They agree that one of the goals is the information of the public and the transfer of knowledge and technology. This usually leaves open the recipient and purpose of this transfer. In some *Länder,* it becomes clear from the context that they think about a transfer between universities and business. In contrast, four *Länder* demonstrate a broader understanding: Saxony-Anhalt, Thuringia, Bremen and Berlin call for the use of research results in different areas of society, for the co-operation between universities and different social groups or for research responding to social and ecological problems of the region (Hochschulgesetz 1993, Section 3 (2), Hochschulgesetz 1999c, Section 4(8), Hochschulgesetz 1999b, Section 70 (2), Hochschulgesetz 1999a Section 37(2)). Thus, they at least rhetorically open up the possibility for non-profit stakeholders to participate in defining research questions.

Furthermore, the laws also define the *organisational framework* for possible science shops. All laws allow for so-called "scientific institutions / centres" or "service institutions" to be founded at universities to perform special tasks. Only the *Land* Rhineland-Palatinate, though, explicitly names knowledge transfer as one of the tasks of such institutions.

6.2.4 Political Trends

6.2.4.1 General

In Germany, an intensive debate on the university system has been going on for some years. The focus of this debate is international competitiveness. This regulative idea is associated with streamlining the careers of young academics, with standardizing and modularizing studies, with introducing stricter standards, and with internationally harmonizing academic degrees. The latter often means the replacement of a relatively free, self-governed type of studies with a shorter, more reglemented type that is more stringently orientated towards the labour market. On an organisational level, universities are given greater autonomy from the state. But at the same time, their internal organisation becomes more hierarchical. Presidents and Deans received greater powers at the expense of democratic bodies that allowed for the participation of students and employees. The discussion also deals with the co-operation between science and the econ-

omy. Though the goal to promote knowledge transfer can be interpreted in different ways, policymakers in Germany almost without exception associate it with supporting *business* exclusively. *S*trengthening Germany as an economic location and the creation of jobs in the private enterprise sector are the focus of all efforts (see, e.g., Bundesministerium für Bildung und Forschung 2000, p. 14ff., Kultusministerkonferenz 2002, Wissenschaftsrat 2000b, BLK 1999a; BLK 1999b).

We will now present an overview over the policies pursued by different parties to identify the consequences these trends have for the co-operation between the science system and NGOs.

6.2.4.2 Commission for Educational Planning (BLK)

Two of the "University and Science Programme's" six priority issues, namely, "innovative research structures in the new *Länder"* and "structural changes in the research system" include references to co-operation. However, only other universities, research institutes and business are explicitly mentioned as possible co-operation partners (BLK 1999a; BLK 1999b). There is no reference to universities' social responsibility or to the dialogue with society in the current model project programme (http://www.blk-bonn.de/modellversuche/mv-programme.htm). Unfortunately so, because theoretically the programme could provide a good framework for testing co-operation projects and institutions.

6.2.4.3 Science Council

The *Wissenschaftsrat* (Science Council) demands that the future science system should try to solve complex problems, deal with "relevant social questions" and allow for the "participation of all relevant actors"(Wissenschaftsrat 2000b). Students should develop a problem and action orientation, do projects in groups, and use new media for communication. Internships and interdisciplinary projects should be offered in order to increase the practical relevance of studies and generate social skills (Wissenschaftsrat 2000a). In principle, these ideas could provide a good basis for arguing in favour of co-

operation with NGOs. However, it seems that the "relevant actors" and "practical problems" for the Science Council are once again situated in private enterprises. When dealing with the issue of co-operation and networking, the Science Council only mentions "business, science, and the state" as relevant partners. Also, the Council's recommendations strongly emphasise "output orientation" and "international competitiveness" in university studies. Seeking for international reputation, however, tends to discourage people from dealing with local problems. And the tighter standards that come with the output orientation leave little free time or motivation to deal with complicated social problems or with the challenges that come with interdisciplinarity, participation, group and project work.

6.2.4.4 Policymakers

What do policymakers do and think about the issue? We will answer this question on the basis of the Länder statements in the Federal Ministery of Science and Education's report 2000 (Bundesministerium für Bildung und Forschung 2000), as well as the answers of 25 party speakers and *Länder* government officials to an e-mail inquiry. It seems indicative that many of these policymakers referred to the universities' autonomy to explain that they had no influence on the co-operation with NGOs. However, this argument did not seem to hold for co-operation with the business sector. Here, in spite of the universities' autonomy, every land possesses one kind of programme or the other, as we will see in the following section.

6.2.4.5 Länder

The most important *Länder* activity is creating and facilitating networks between universities, other research institutions, enterprises and business associations. For this purpose, "technology parks" are created, funding is granted for co-operative projects and prizes are awarded. Some *Länder* foster the creation of so-called *technology transfer agencies* at universities. This is an interesting development because some of these agencies have a broader approach. For example, the agency at the Neubrandenburg university names SMEs as well as "local administration" and "social institutions" as their

clients (http://www.fh-nb.de/forschung/transfer.asp). Among these are also the co-operation offices working with trade unions mentioned above (p. 38).

Another focus is the advancement of the public understanding of science. This goal is pursued by creating databases, public relations, events, and by prizes and competitions again. However, it is essentially a one-way communication. The goal is to explain science to the public rather than to enable the public to voice its needs and demands towards science.

Two *Länder* explicitly formulate the goal that science should respond to social issues and create a public dialogue. North-Rhine Westphalia wants researchers "to provide answers to pressing environmental, economic and cultural issues". It created a programme focus "Social change and cultural orientation" which deals with areas which currently have potential for social and cultural conflict and with the public dialogue on science and technology. (Bundesministerium für Bildung und Forschung 2000, p. 253-254). Saxony-Anhalt states that "research policies and funding must be [...] geared to social and environmental problems." Instead of purely technical solutions which frequently just move a problem elsewhere, strategies must be developed "which combine alternative routes for social action combined with innovative technologies." (Bundesministerium für Bildung und Forschung 2000, p.267).

6.2.4.6 Political Parties and NGO's

Two political parties, the Christian Democrats and the Green Party explicitly mention the issue in their programmes. The Christian Democrats demand a "dialogue between natural and social sciences and humanities, technicians and engineers as well as the churches" (CDU 1994, p. 102) In North-Rhine Westphalia, they are discussing the founding of a "United Nations University". There, scientists from different disciplines should co-operate with policymakers and disaster relief professionals in order to analyse and manage natural disasters (personal communication). The Green Party states in its 1998 federal election programme: "Instead of focusing publicly funded research on [...] the interests of individual companies, it is necessary to turn towards the pressing social problems. Therefore, it is necessary to include the potential addresses at an early stage in research and development." (Bündnis 90/Die Grünen 1998, p.107). A

similar statement in the programme for the North Rhine-Westphalia elections in 2001 (Bündnis 90/Die Grünen 2000,.p.58) has actually made it into the principles of the *Land's* research policy. At a national level, however, when asked about practical policies, a Green speaker stated that they had little influence. Their main activity had been to fund research projects dealing with the issue. And, interestingly enough, the parlamentary party's newest paper on universities doesn't deal with the issue at all, but just reflects the mainstream issues (Bündnis 90/Die Grünen 2001). The Social Democrats have started a series of "dialogue fora" in Schleswig-Holstein. Scientists and policy-makers discussed the issues of environment, science, family, and culture. The environment forum started an "ecological day of science", dealing with the question of knowledge transfer in the environmental field (personal communication). Of the NGOs, the Bund für Umwelt und Naturschutz Deutschland (BUND) stated that it is very interested in improved access to the science system and values the idea of science shops.

6.2.4.7 Federal Government

The *federal government* also focuses on explaining science to the public (with its "Science Dialogue", see Bundesministerium für Bildung und Forschung 2000, p.17) and on co-operation with the business sector (with its 2001 Action Programme "Knowledge creates markets", see Bundesministerium für Bildung und Forschung 2001). However, there are also other ideas. Hansvolker Ziegler, head of the department for environmental research and social sciences, wants to: "form [...] alliances between established science and NGO think tanks as a way of extending stakeholders' tentacles into science". (Ziegler 2002, p.3). The Ministry presents at least two programmes in this direction. The programme "Social-ecological research" (SÖF) funds "projects that analyse the relations between society and the environment in an interdisciplinary context with the participation of stakeholders". (http://www.bmbf.de/617_3425.html). This programme is being introduced at the moment. A promising approach also seems to be the FUTUR programme. It organises a broad dialogue with different stakeholders (about 2400 people all in all) in order to identify priority issues for future research policy (see http://www.futur.de).

„Interregional alliances for the markets of tomorrow“ is another programme launched

by this ministry (see www.interregionale-allianzen.de). Though the role of scientific institutions as intermediary organisations like science shops is not emphasised, there was at least one project in this context. It is called „Network for Social Enterprises and Economy in Urban Quarters“ (NEST) and is located in Berlin. The consortium consisted of different social groups including the trade unions and *kubus*/TU Berlin.

6.2.4.8 Public perception of the issue

In general, the impression prevails that most policymakers have not yet heard about the issue and were taken by surprise when asked about it. This may also open opportunities: Though the Green Party seemed a bit more interested than others, there was no outright rejection in any party. Because the topic is not yet seen as a "right" or "left" issue, policymakers could possibly be interested if they can be convinced that the issue is relevant and can help them to develop their own profile. The information that the EU is supporting the issue may be helpful. Also, to point out that the widely shared goal of "knowledge transfer" must not necessarily apply to business only, may prove a fruitful line of argument.

7 Country Report: Austria

Andrea Gnaiger, Gabriela Schroffenegger, Michael Strähle

The Austrian report is based on an extensive search on the web sites of ministries, parties, and universities, on literature, on personal contacts among science shops, and on interviews with Dr. Kurt Grünewald, Science Policy Spokesman of the Austrian Green Party; Rupert Ascher, member of the parlamentary staff of the socialdemocratic science speaker, with Dr. Erwin Niederwieser(MP) and with Uwe Steger, director of the office for external relations of Innsbruck University.

7.1 The Discourse on Science and Society

Today's claim for public access to science has its historic roots not only in the student movement of 1968, but also in the rise of the "*Volkshochschulen*" (adult education centres) at the end of the 19th century. Especially between 1900 and 1934, laymen were given access to libraries, laboratories and all kinds of materials for education and research. The central goal of the *Volkshochschulen* in Austria was to teach structured and self-organised learning – and not to qualify laymen to become scientists (Filla & Wilhelm 2001). This concept based on the idea that lay knowledge has its own right to exist. This is an idea which is still shared by the science shops today: everybody is an expert of their own situation and should be taken seriously. This idea is an important pre-condition for an egalitarian interchange between scientists and society. It was always the approach of science shops to consider the interaction between science and the public as a two-way-communication model than as an one-way model of pure knowledge transfer from science to society.

An example for this is the programme *Kulturlandschaftsforschung* (Austrian landscape research). Since 1995 about 180 scientists from over 30 disciplines are searching for problem solving measures for socially and environmentally adequate land use – together with the population living in the affected region. The philosophy of this research approach (as described in Haas, Meixner & Penker) is the urgent need to integrate pub-

lic discourse in the science project and interacting with the important actors of the region like politicians, scientists, or representatives of business, media, education, or culture. The crucial point is to integrate all the different scientific research findings and to turn them into practical products which are of interest for the relevant client group in the region. Involvement of representatives of the region also grants better opportunities to implement the research findings in practice. Therefore, the optimal research model is one that mixes top-down (theory leads to practice) with bottom-up approaches (practice leads to theory) and integrates different disciplines in trying to do so.

Following the authors Haas, Meixner and Penker, the interaction between science (the researchers) and society (representatives of the affected region) is not only a way to get to successful problem solving models in the region. It is also an opportunity to win back legitimacy of science, because science as such is not able to gain much public interest. Its complex language, its impractical explanations, and the rather slow progress of science do not fit to the interests of potential users in easily comprehensible, simple and practicable instructions. Therefore, the connection of science with attempts for day-to-day problem solving makes science more attractive in the view of decision makers in politics, business and regional planning. In order to serve these interests, science should develop a marketing strategy. Its "products" should be individual problem-solving models whose scientific contents might be transferred into concrete action instructions, measure plans, video tapes, exhibitions, etc. Potential customers for this approach are e.g. representatives of the community (mayor, associations, initiatives,...), political decision makers (local, regional and national). decision makers in business (industrial land users, "region managers", commercial planning offices, different interest groups of labour, business and agriculture and last but not least NGOs.

Another recent, but more critical approach to interaction between science and society in Austria shows that there is still a long way to go: In 2001, the "Science Week Austria“ took place as an attempt to communicate science to the public. It was evaluated and documented by Felt, Müller & Schober in 2001. In their assessment, this event was more a science exhibition in a one-way communication model from science to public than an attempt to do science communication in a sense of mutual exchange between science findings and public needs and interests. The authors reflect on the reasons for the lack of public involvement. They find, first, that scientists are quite willing to commu-

nicate with the public – but do not feel able to do so. Secondly, the self-perception of science is still the „ivory tower“ in which objective pure research takes place. Attempts to do more public-orientated science by writing for popular-science magazines etc, are more likely to impede the scientist´s reputation. Though the importance of science has definitely been increasing during the 20th century , leaving its mark on day-to-day life, and though especially new media like the internet could make communication between science and the public easier, the gap between those rather seems to widen.

7.2 Political Framework

7.2.1 Overview of Science Shops in Austria

In Austria, the initiative for establishing science shops stemmed from within the scientific community: from researchers and students at universities. Rudolf Lenz, a university researcher, visited the Technical University of Denmark to learn more about science shops and established the first Austrian science shop in Linz.

At the time being, there are four operational science shops: the WissenschaftsAgentur Salzburg (WAS) (http://www.sbg.ac.at/was), the Wissenschaftsladen Graz (http://www-gewi.kfunigraz.ac.at/wila/)., the Wissenschaftladen Wien (http://wilawien.cjb.net), and the Institut für gesellschaftswissenschaftliche Forschung, Bildung & Information, Innsbruck (Institut FBI) (http://www.uibk.ac.at/c115/c11508/fbinfo.html)

The *WAS* is not a science shop in the true sense. Though it also performs research services for non-profit organisations, a visit of its Web site reveals that solvent clients such as businesses and public administration rank first on their list of target groups. It is affiliated with the University of Salzburg and functions as one of the university's service units (see http://www.sbg.ac.at/organisation). Up to now no specialisation on a limited range of research areas took place. Research work is done by students alone.

The *Wissenschaftsladen Graz* is a classical science shop. On behalf of the Karl Franzens University of Graz, the institute addresses clients who cannot finance their own research and present relevant social topics without commercial background. It acts as

an intermediary between clients and students who can perform a research task for them, but also performs own research projects funded by administrative bodies. Mediation services are not limited to a restricted range of topics.

The Institute *FBI* (former Science Shop Innsbruck) is an independent non-profit organisation (NGO). It is accessible to NGOs, grass-rooters, citizen groups etc. It started off with a focus on mediation between civil society and the university. Over time, the focus changed towards conducting own research projects which also serve as a commercial arm.

The *Wissenschaftsladen Wien* is also a science shop without strong ties to universities. Nevertheless, the institute conducts research on the behalf of non-profit organisations and specialises in information and communication technologies gender issues and science studies.

All Austrian science shops are organised in form of a registered association (non-profit organisation with the advantage of exemption from value-added tax). If an institution is recognised as a pure research institution, it can get further tax exemption. However, science shops are not accepted as such. Theoretically, a science shop could also be founded in the form of a private enterprise. This would enable it to make certain offers which only business is allowed to make (for example, management consulting). However, such an organisation would not be tax exempted. Also, being a non-profit NGO enhances the science shop's trustworthiness within NGOs.

Within the "NGO model", there are two different variants. Graz and Salzburg have agreements with the local universities which provide them with contacts to researchers and basic funding. In contrast, Vienna and Innsbruck are conducting their own research projects. The latter model has some advantages. It allows for more long term projects and reduces the need for co-ordination. Because more own research is conducted, the shop's reputation among the scientific community is enhanced. This allows for greater visibility among policymakers, which in turn gives the shop a better chance to acquire projects and enhances its influence.

7.2.1.1 Funding regulations

Between 1992 and 1995, Austrian science shops, as pilot projects, were funded by the Austrian Ministry of Science. Since then, no further basic funding has been granted. Though independent research institutions normally receive some basic funding, science shops did not qualify in the eyes of the Ministry. Performing mediation, organisational and conceptual tasks did not count as genuinely "scientific".

Science shops that follow the first organisational model (attached to a university) receive public funding (ministries, regional governments and local governments) and additional funding from universities. The second type of shops (independent) live on publicly and privately funded projects (ministries, regional governments and local governments). To the Science Shop Vienna, the funding regulations for such projects pose certain restrictions because action-oriented research needs elaborate justification. Sometimes research goals and methods must be modified.

7.2.1.2 Network

Besides informal contacts, there is no network of the four science shops in Austria. Attempts during the mid-1990s have to be looked upon as failed (for further information see: SCIPAS report 1, Gnaiger & Martin 2001, p.53) However, the shops in Innsbruck and Vienna are in regular contact and trying to establish an umbrella organisation for all Austrian science shops.

7.2.2 The NGO Society as Potential Clients

Science shop clients in the true sense are non-governmental organisations preferably active at the grassroot level in the spheres of culture, social welfare, environmental or intercultural issues or health and without sufficient funds to pay for research. This group can further be divided in NGOs mainly offering services, in NGOs mainly dedicated to advocacy, self help groups, and umbrella organisations which serve as intermediary bodies and lobbying groups for their member organisations. If such loosely organised organisations are conceived as the core of a civil society, there is no civil society in

Austria. Although the Austrian non-profit sector is strong and plays an dominant role in the political system, non-governmental organisations play an increasing but still not dominant role in the Austrian society. Because of this situation, the target group of Austrian science shops are not only non-governmental organisations in the true sense.

This seemingly paradox becomes clear in the light of history. Up to the present, the political system of post-World World II Austria has not been only dominated but essentially consisted of the Christian Democratic Party, its counterpart, the Social Democratic Party, affiliated large associations representing stakeholders with various interests such as the Chamber of Commerce and the Chamber of Labour and of a variety of partnerships of these organisations. "Separation of powers was not conceived as a well-balanced, mutual check of institutions but of political parties" (Pelinka/Welan 2001, p. 12). So extensive is this political system that even typical non-governmental organisations such as relief organisations and lobbying groups can be ascribed to a political party. Thus, contrary to other countries, the non-profit sector does not constitute an important political counterpart to economy and government.

As in other countries, the Austrian non-profit sector is characterised by an enormous heterogeneity in respect to size, form of organisation, political and social embeddedness and financial strength. Additionally, there are significant differences between regions. Organisations affiliated to the Catholic and to the Protestant Church play a very important role for education, social welfare and immigrant and asylum seeker-oriented services. In some spheres such as healthcare, non-profit organisations actively compete with businesses.

The non-profit sector (including the community of NGOs) is financed by public subsidies, donations, charges for expenses, membership fees, sponsoring, endowments and loans (necessary because of delayed transfers of public subsidies). Although expected to take on tasks no longer or still performed by the government or regional authorities, for years the public subsidies for many non-governmental and other non-profit organisations are no longer being increased. In the region of Innsbruck, the situation for the NGOs has worsened during the last few years. Because of reduced budgets, some organisations had to end their activities. Influential umbrella organisations such as the *Dachverband der Bürgerinitiativen (BIT;* umbrella organisation of citizens' action groups), or the "Social Parliament" (an association of more than hundred social policy

NGOs in the state of Tirol which also counselled the regional government) were closed down for financial or political reasons. At the moment, only the self help groups' umbrella organisation is left.[3] Consequently, it has become of crucial importance to non governmental organisations, to exploit other financial resources or to make increasing use of volunteers. Increased competition for funds will push non-profit organisations to re-orientation and professionalization. One of the consequences could be the establishment of so-called auxiliary operations (Hilfsbetriebe) which actually compete with businesses. For increasing the attractiveness of volunteering, the City of Vienna is considering to issue a so-called "Freiwilligenpass" (volunteer card) in which voluntary work can be documented to show to current and potential employers (Presse- und Informationsdienst der Stadt Wien 2002).

The rise of the Freedom Party and of the Green Party since the 1980s, put a spoke in the wheel of the traditional Austrian political system, thereby gradually diminishing the well-established options to resolve conflicts. The ongoing changes of the Austrian political system, which reached an interim climax with the coalition government of Christian Democrats and the Freedom Party, could be to the benefit of civil society because of the decreasing governmental control over society (Pelinka/Welan, 40-47, 53). The increasing importance of media, civil initiatives and environmental NGOs such as Global 2000 and Greenpeace, some of them promoting issues in coalition with each other, and the recent popularity of referenda indicate the soundness of this assessment.

But it is still to be determined if non-profit organisations are supported for their own sake. Campaigning and advocating non-governmental organisations are affected by substantially higher postal rates for bulk mailings, and cultural initiatives claim that subsidies are allocated because of loyalty to political parties (Cf. IG Kultur - Kulturpolitische Kommission 2002). Thus, the rising of a civil society of non-governmental initiatives could come to a halt. With respect to research, due to personal contacts and to work

[3] This information is based on personal and professional contacts with NGOs in Innsbruck and its surroundings over the last 10 years. Furthermore, Andrea Gnaiger was the co-ordinator of BIT (4 years) and the Social Parliament (more than 2 years).

experiences FBI and the Science Shop Vienna see a tendency among clients to employ graduated staff. At least in Innsbruck, many NGOs have academics on the payroll. This might enable NGOs to establish or keep good relations to universities, offer opportunities for getting often excellent information and change their expectations from science shops. Whether and to what extent this affects science shops, or these staff members do research for their organisations and have already established research contacts to university departments, remains to be investigated.

7.2.3 Institutional and Legal Framework

7.2.3.1 Legislation

There is no legislation explicitly regulating the work of science shops. The university-affiliated science shops are affected mainly by the legal and political framework regulating universities' tasks and university studies. These are, among others: the *Universi-tätsorganisationsgesetz* (University Organisation Law, UOG) which defines the general goals and principles of universities; the *Universitätsstudiengesetz* (University Studies Law, UniStG) which defines goals and duration of university studies; the curricula issued by the university institutes which describe university studies in detail, and university statutes. The other science shops are affected by documents regulating their possible organisational forms as well as research funding and grants. These are: the law on *Vereine* (associations); the *Forschungsorganisationsgesetz* (Research Organisation Law, FOG) which defines the tasks of the publicly owned scientific institutions and the goals of public funding for research; the *Forschungs- und Technologieförderungsgesetz* (Research and Technology Support Law, FTFG); the *Innovations- und Technologiefondsgesetz* (Innovation and Technology Fund Law, ITFG) and several guidelines on funding research. (see for a full list of relevant legislation the appendix). As a composite of this two ideal types of science shop models, the Science Shop Graz is affected by all these laws.

The *University Organisation Law* includes an obligation for the universities to support the practical use of their research results. Yet, it leaves open the goals and beneficiaries of this process (Universitätsorganisationsgesetz 1993 §1 (3)). The *Research Organisation Law,* among other topics, obliges science to make practical use of its results

and contribute to the solution of social, economic, and cultural problems (Forschungsorganisationsgesetz, § 1(1)) The *Research and Technology Support Law* demands that Research Funds issue a yearly report dealing, among others, with the cultural, social, economic and environmental relevance of the research funded (Forschungs- und Technologieförderungsgesetz § 4. (1) C.)

7.2.3.2 Institutions

In 1998, there were 2,743 research institutions in Austria, most of them in the university sector. Austria's 12 regular and 7 special universities are regarded as the backbone of the system. Among the non-university institutions, the *Institut für Wissenschaft und Kunst* (Institute for Science and the Arts, IWK) must be mentioned with its mission to enhance public access to science and develop innovative and interdisciplinary research questions (see http://www.bmbwk.gv.at and http://timaios.philo.at/~iwk/).

Responsibilities for the R & D system in Austria are shared between the Federal Ministry of Education, Science, and Culture (http://www.bmbwk.gv.at), the Federal Ministry of Transport, Innovation and Technology (http://www.bmv.gv.at), and the Federal Ministry of Work and the Economy (http://www.bmwa.gv.at). At the *Länder* level, responsibilities lie within the *Länder* governments (BMBWK, F & E-Organisation).

Former counselling bodies have been replaced by the *Rat für Forschung und Technologieentwicklung* (Austrian Council, http://www.rat-fte.at). Consisting of eight members from business and the science system and, in an advisory capacity, the Federal Minister of Education, Science and Culture and the Federal Minister of Transportation, Infrastructure and Telecommunications, the Council makes recommendations for the federal and *Länder* governments and is expected to develop a new research strategy for Austria (Erklärung der Bundesregierung, 2000). Its main goal is the quick utilisation of scientific results for economic purposes (http://www.rat-fte.at/view.php?docid=44).

7.2.4 Political Trends

7.2.4.1 University reform

At the moment, the Austrian university system is under reform. A revised version of the *Universitätsorganisationsgesetz* will be put into force by October 1st, 2002. The corresponding law for Universities of the Arts, the Kunstuniversitätenorganisations-gesetz (KUOG), will be put in force two years later. Important provisions are: increased competition among the universities, full legal capacity for universities, development of university and faculty profiles, implementation of new civil service regulations for university scientists and researchers. Universities will be required to make agreements with the ministry of education, science and culture concerning their strategic targets. Their performance will be controlled every three years. Among these targets will be social responsibilities and service for the public, which is where science shops might come in.

Beginning in Autumn 2002, a new scheme for studies will be introduced which is in line with regulations in the other member states of the European Union. The main objective of the curricula reform is to bring curricula closer to the demands of employers and to shorten the average duration of studies. According to the old scheme, graduation was limited to master and doctoral degrees. With the new scheme, the bachelor`s degree will be introduced. It is expected that this introduction will shorten the average duration of studies. Formerly, in most cases the minimum duration of studies was four years; students graduated with a master´s thesis. From Autumn 2002 on, students will graduate with a bachelor´s degree first; in most cases, the minimum duration of studies will be three years. After having received a bachelor degree, students have the option to continue with their studies to obtain a Master degree after two years and a PhD. after two further years. It is expected that work on a thesis should take no more than six months (before, it was often a year and more). This and the introduction of bachelor degrees could bring important changes for science shops working with graduate students. It might be that fewer students will finish their studies with a Master thesis and they may have no time for mid- or longterm projects, so projects will have to be split up, which will require much more co-ordination. But the new law may also offer chances to science shops. It obliges universities to develop until 2002 curricula that take into consideration social and economic needs. In November 1998, at a conference on new curricula for

Austrian universities, the Science Shop Vienna presented the Dutch Science Shop model. The idea of introducing projects into the new curricula was widely approved by students. It is still to be determined if this suggestion was taken up by university departments.

Recently, a number of *Fachhochschulen* have been founded, a type of practically oriented university whose task is to provide scientifically founded vocational training. So far, there has been no co-operation between science shops and *Fachhochschulen*.

7.2.4.2 General R & D policy

The general political programme of the ÖVP-FPÖ government makes little reference to knowledge transfer, participation or the social mission of research. The keywords are competitiveness, career chances for young academics, and efficiency. Co-operation and action orientation is only discussed with respect to business or within the scientific community itself. This is in contrast to the policy of the former Social Democrat Minister of Science, Caspar Einem. In the Green Paper on Science Policy, developed on behalf of the Social Democrat Mr. Einem, the Minister of Science and Transport under the former SPÖ-ÖVP coalition in the course of a broad participative process, he stresses the aim to create a knowledge-based society of critical, creative, and autonomous individuals (Einem 1999a, p. 8f). The use of participatory research methods was explicitly greeted (ibd., p. 75). Publicly funded research should deal with social problems and let citizens and NGOs participate in the definition and evaluation of research programmes (ibd., p. 76). In his White Paper on the Advancement of Women in Science, Mr. Einem explicitly recommended science shops, in order to help young scientists develop professional contacts (Einem 1999b, p. 32). Although some members of the Social Democrat Party favour the ideas of science shops and their participatory approach, the reflections and approaches of the former Social Democrat Minister of Science, Caspar Einem, the ideas of the Green Paper are not strongly reflected in the SPÖ programmes.

This change in orientation occurring with the ÖVP-FPÖ government is reflected in the government's *research reports.* While the Research Report 1999 recommended participatory research (Forschungsbericht 1999, p. 34), in the 2000 Report this idea is

gone. The focus is now on economic competitiveness. Communication is considered especially important between "research and the economy, especially university and business". (Bundesministerium für Bildung, Wissenschaft und Kultur and Bundesministerium für Verkehr, Innovation und Technologie 2000, p.7, see also p.130) As examples for communication with the public, the report cites counselling activities by scientists, their participation in adult education, or popular publications (ibd., p. 35). However, this is a rather top-down approach where citizens are just passive recipients.

Some *Forschungsschwerpunkte* (priority research areas) are expressively linked to the idea of participative research. Some of them had already been launched under the former government. The priority research areas *Development of democracy in the European integration process* and Austria Landscape *(Kulturlandschaftsforschung,* www.klf.at) address topics like usefulness of research results, interdisciplinarity, and transdisciplinarity (co-operation with actors from outside the science system). (BMBWK, Forschungsprogramme und –schwerpunkte). Therefore, the approach is quite similar to the science shops' approach. The area *'Ecological future studies*" seems to be the successor of the older "*Environmental studies*", which aimed at "less research for the public and more research with the public". For example, environmental programmes were designed in a participatory way (Bundesministerium für Wissenschaft und Verkehr, 1998, p. 5f.). Finally, there is the new priority area *"Public understanding of science."* aiming at activating especially young people's interest in science. (BMBWK, Forschungsprogramme und –schwerpunkte).

7.2.4.3 Universities

In their Guidelines on University Policy (Universitätspolitische Leitlinien), made public in 1998, the Austrian University Presidents Conference, state explicitly that research at universities is dedicated to mainly serve pre- and non-commercial purposes (quoted by Georg Winckler ...) The individual universities' views are reflected in their *Leitbilder* (mission statements). According to its mission statement, the University of Vienna commits itself to be responsive to input from “the outside”. After this statement, the text continues with expressing the intention to use marketing initiatives to acquire additional funds. It seems to be unlikely that non-solvent groups will be target group of the univer-

sity, although the next sentence expresses the intention that university know-how should be available for solving social and environmental problems. The mission statements of the University for Veterinary Medicine Vienna, of the Danube University Krems, and of the University of Agriculture do not contain any more specific statements on external relations. At the time of investigation (28.2.2002), the Vienna University of Economics and Business Administration has not published a mission statement, and the Technical University of Vienna has published a draft version of a mission statement where the responsiveness to social needs is stressed but understood as co-operation with the business community and public authorities." All mission statements stress the applicability of research undertaken. Seemingly, Viennese universities legitimise themselves by being responsive to applied research on behalf of lucrative clients.

The mission statement of the University of Innsbruck refers to the responsibility of scientists which includes responding to social problems, contributions to public discourse, and making use of research findings for the common good (see http://www.uibk.ac.at/ c115/leitbild).

The head of the Innsbruck University's office for external relations, Mr. Uwe Steger, mentions in an interview several attempts to mediate between the university and the public. Among them are "spin-off centres" (designed to support the founding of enterprises), Austrian landscape research (*Kulturlandschaftsforschung*, see p.48), "Mini Med Studies", the "Language Mile", the "Young University", the co-operation with Volkshochschulen, (adult education colleges), the project "PUST" (public understanding of science and technology) and the university journal issued to provide access to scientific information for a broader public. The university's vice president for budgeting explained in a newspaper article in March 2002 that universities should be a "knowledge pool" for the country. For example, six "centres of competence" had been formed in co-operation with business. In each of these centres, 30-50 researchers would work in applied science during the next few years. One of these centres, for example, would deal with natural risks in Alpine regions (Starck, 2002)

Because the University of Innsbruck is a well-staffed and rather large institution in the area, people can get access to scientific results and expert opinions important to them. Uwe Steger mentions direct contact between the university and public action groups. However, disadvantaged groups are often excluded. It is only the stronger groups that

have university contacts.

Also, there is co-operation between scientific and political elites in the region. Scientists do research for public institutions and different experts co-operate when analysing a given subject. However, this kind of research follows the principles of power politics and the economy. It does not aim at empowerment or public awareness but at transforming knowledge into money. Research funding policies follow the same criteria. Citizen participation is realised only superficially in order to legitimise political decisions. The economisation of society also affects universities.

As can be seen in the examples mentioned by Uwe Steger, universities are interested in society and want to communicate their findings with the help of different public relations activities. However, this is usually a one-way dialogue in which lay people are passive recipients. Also, these ideas are often forgotten in the course of everyday life at universities.

7.2.4.4 Cities

The City of Vienna hosts an Office for the Support of Research and Science. (http://www.magwien.gv.at). It aims at improving the dialogue between the universities and the City of Vienna. At the date of investigation (28.2.2002), knowledge transfers are seen as dedicated to serve the municipality and the business community of Vienna. The City of Vienna organises the "Forum City-University" and "Forum Science-Business" which should support a continuous dialogue.

7.2.4.5 Political Parties

Party programmes have been analysed at a national level and at a local level (in Vienna). Investigations on science policy statements of parties represented in the Vienna City Council was restricted to the analysis of documents; no interviews have been made.

In Vienna, as far as available, party programmes address only the co-operation between

science and business.

The Freedom Party of Vienna demands an improved utilisation of expertise on behalf of enterprises; no statement on implementing measures for improving public understanding of science could be found (FPÖ Wien 2001). The Christian Democratic Party of Vienna demands an intensified knowledge transfer between universities and enterprises; no statement on implementing measures for improving public understanding of science could be found (ÖVP Wien 2001). The governing Social Democratic Party of Vienna wants to improve co-operation between universities and the business sector and to ease the start-up of spin-offs from universities; no statement on implementing measures for improving public understanding of science could be found (SPÖ Wien 2001). Unfortunately, a statement of the Green Party of Vienna was neither available on the Party's web site nor have we obtained a printed one. The submitted chapter on educational policy does not cover the topics of the investigation. So we restricted investigations to the Collaboration Agreement of the Social Democrats with the Green Party, compared it with the programme of the Social Democratic Party of Vienna and compared both with the programme of the Green Party of Austria to learn what the Green Party of Vienna's distinct view on science and research could be like.

In their agreement of collaboration enhancing the access of small and medium enterprises to science and research is formulated as a goal. The mediation of science to a broader public is expressively intended, but not further explained. The chapter on science and research is more or less congruent with the corresponding one in the Social Democratic Party of Vienna's programme but the statement to mediate science to a broader public hints to the basic programme of the Green Party of Austria where the increase of public understanding of science is stated as a goal. This increase shall be achieved by establishing the needed organisational and communication structures for it.

On a national level, the Green Party could prove an important ally. Its Basic Programme intends that universities "put their problem solving capacities at society's disposal in a dialogue with the citizens" (Grüne Österreichs, 2001, p.41). Science shops are not explicitly mentioned, but are known to some Green policymakers. For example, the current National Spokesman of the Green party, Prof. Alexander Van der Bellen, in 1994 collaborated on an evaluation study on science shops in Austria (cf. Pflichter 1994). In an interview, the Green Spokesman for Science Policy stated that the dialogue between

science and society must be intensified. Besides the lack of funds and personnel, a major problem in this dialogue was the scientific language. Therefore, "translation institutions" are needed. A model for knowledge transfer from universities to NGOs should be developed in analogy to the programme "Scientists for business" (interview with Prof. Kurt Grünewald, February 7th, 2002, Innsbruck). The Green Party's student organisation (GRAS, http://www.gras.at), links its web site to ones of several Austrian science shops.

The Social Democratic Party demands life-long learning as a prerequisite for democratic participation (Sozialdemokratische Partei Österreichs 1999, p.33). In its online "Science Forum", its Spokesman for Education and Science Dr. Erwin Niederwieser criticises the idea to fund universities only according to output criteria. This practice could lead to their subjugation to world market pressures and hamper their ability to react to the needs of civil society and small enterprises. (www.forum-wissenschaft.at/thema/thema16.html)

The Austrian Freedom Party (FPÖ), however, stresses the importance of the researcher's freedom and independence. Only its aim to "support private organisations in the research sector" may open the possibility of supporting institutions like science shops (FPÖ 2002) The Österreichische Volkspartei, as its only reference to co-operation, mentions "co-operation between innovative businesses, universities and research institutions" (Österreichische Volkspartei, p. 58)

7.2.4.6 Public perception of the issue

In general, science shops in Austria receive some recognition within universities, with individual policymakers and certain ministerial departments. In 1995, science shops were presented in the magazine "Wissenschaftliches Österreich" (Scientific Austria) which appeared on the occasion of the Frankfurt Book Fair and was financed by federal ministries. In it, science shops were presented with much bigger institutions. Still, they are not much actively supported by policymakers and they are not yet known enough to the general public. Some Science Shop staff members from FBI and the Science Shop Graz (Gnaiger & Martin 2001, 81-84) have the impression that the idea of science shops is quite abstract. Therefore, the public could only be interested via practical pro-

jects. Among NGOs, local NGOs know science shops better than national ones.

The Science Shop Vienna is well-known among NGOs (partly due to its free newsletter), in the press, and among scientists and students of the Vienna university. It has a good reputation and some of the best-known Vienna scientists are members of its Advisory Board. The institute pioneers research issues such as student moms and empowerment which are picked up by major Austrian research institutions, political parties and federal ministries. One of the institute's projects, Empowerment Schöpfwerk, a cooperation with a community organisation and realised with the help of students, is named in the EU Commission's database on social exclusion - LOCIN - as an example of good practice.

Due to its special expertise in certain topics (gender sensitive education of boys, women in science and gender mainstreaming) the Innsbruck Science Shop as well has a good reputation and is well known especially among actors dealing with the same issues.

8 Country Report: Spain

Alain Labatut, Teresa Rojo

In Spain, science shops are widely unknown. No comprehensive literature is available. Therefore, this section is based on interviews with four organisations dealing with the transfer between science and society. These are: *Ayudar a Crecer*, a Sevilla-based NGO with a profile in education, social work and human rights (http://www.ayudar-a-crecer@hispavista.com), the *OTRI* (Research Results Transfer Office) at the Sevilla university (http://www.otri.us.es), *Arquitectura y Compromiso Social*, a University-based Science Shop, and *Pax Mediterranea*, a private Science Shop. The report focuses on the specific conditions for the individual organisations interviewed rather than discussing the issue on a more general level. Furthermore, an Internet research has been made on the legislative framework.

8.1 The Discourse on Science and Society in Spain

In Spain, the concept of science shops is totally unknown. No research is being done on them, and also evaluation studies have not been carried out on intermediaries between science and society yet. The INTERACTS project is the first research project carried out on them.

8.2 Political Framework

8.2.1 Overview of Science Shops in Spain

The term "science shops" is completely unknown in Spain. Given the lack of legal recognition for science-shop like activities, it is absolutely impossible to estimate how many such activities might exist. However, there are some organisations which come close to the original Dutch concept:

Arquitectura y Compromiso Social (Architecture and Social Commitment) is a univer-

sity association of scientists and students belonging to the Technical Architecture [SF1] School of Seville. The idea for its creation was born as an initiative on the part of an association that sought to provide help to other associations. *Arquitectura y Compromiso Social* has worked with different Seville-based NGOs, both offering its services and working in response to requests made by the associations themselves. There have also been consulting proposals from the part of some professors. *Arquitectura y Compromiso Social* has collaborated in practical neighbourhood training projects around Seville as well as helped organise a Master's Degree in Research and Participatory Action in a neighbourhood support effort. It is understood that all projects could be carried out during the academic year as a part of the university curriculum. *Arquitectura y Compromiso Social* is working towards official recognition within the legal framework of the University. Its members consider that the work they carry out as an association should be handled by the University — not as an extracurricular task but rather as an integrated part of the university curriculum. There have been two cases to date where this recognition has been granted (one of the students received 2nd Year Practicum credit for his work, and another was allowed to present it as his Senior Project). *Architectura y Compromiso Social* enjoys complete autonomy when it comes to choosing research and project areas. Nevertheless, when we speak of the Official Architecture Curriculum, they have a much more limited autonomy and at times cannot find support of any kind.

Pax Mediterranea is what we can call a "part time" Science Shop, because its Science Shop function is combined with consulting work. In fact, the only real difference between the two is in the solvency of the "client". *Pax Mediterranea* is an example of a business twist on the Science Shop concept, a characteristic that gives NGOs a greater sense of confidence when it comes to soliciting advice, even when they are not in a position to finance such a study.

Paxmed is also aware of two other organisations (*ISTAS-CCOO* in Madrid, and *Gabinet de Estudias Social (GES)* in Barcelona) currently carrying out of Science Shop activities. The *OTRI* director Don Miguel Toro Bonilla states that there is evidence of a possible Science Shop in the Computer Science College that worked for the ONCE (National Organisation for the Blind, a very well financed organisation in Spain) on a Senior Project carried out by students of Computer Science. However, because the University is excessively fragmented, it is difficult to know whether or not cases of sci-

ence shops have existed in a given department.

Apart from these science-shop like activities, there is a number of other organisations, groups and individuals that deal in some way or the other with the communication between science and society. The most important one seems the system of Research Results Transfer Offices (Oficinas de Transferencia de Resultados de Investigación, *OTRIs*). There is an OTRI in every university and public research centre, as well as in university-company foundations and in many technology centres in Spain. The OTRI Network at this time is made up of more than 150 offices. Their aim is to foster and expedite co-operation between researchers and companies on R&D activities, both nationally and on a European scale, contributing in this way to the application and commercialisation of the results of R&D generated in universities and public research centres.

At the universities, their may be some smaller initiatives of scientists co-operating with social groups. For example, at the University of Seville, science departments and colleges have labour contacts with companies, and humanities departments and colleges have such contacts with the local or regional administrations. Furthermore, there is a group of researchers from the Pablo de Olavide University in Seville using participatory methodology, specifically in the municipalities of Las Cabezas de San Juan and Córdoba.

It is interesting that not only do NGOs consult universities for research assistance, but also the other way round. For example, *Ayudar a Crecer* has been contacted by the university to request some type of research in their neighbourhood in benefit of the university itself. This means that the university would like to network as a part of the associative fabric, but more out of a desire for scientific convenience than anything else.

8.2.1.1 Funding regulations

Funding for these activities comes from different sources. The *OTRI* finances its own projects by billing the external partners (business companies). This way, it can bring in up to Euros 18 million a year. Funding for the *Ayudar a Crecer Association* comes through the Public Administration in the way of grants and subsidies. Donors are differ-

ent departments of the Seville City Council as well as the Department of Social Issues. In 2001, the organisation earned about Euros 30,050. The funding is obtained by writing applications in reaction to a public bid call publicised in a newspaper.

For *Arquitectura y Compromiso Social* the situation is different, depending on whether it organises interventions at a socio-political level or at a technical support level. The socio-political level doesn't require any funding; it is simply financed through partner contributions and membership fees and through accounts for the organisation of seminars, networking around the city, etc. On the technical level funding is needed, and they get it through public bid projects. However, this method of funding poses certain restrictions. It can contradict and alter the philosophy of *Arquitectura y Compromiso Social*.

8.2.1.2 Network

An established network of such activities does not exist so far.

8.2.2 The NGO Society as Potential Clients

When considering NGOs as possible Science Shop clients, one fundamental problem is the lack of interest, knowledge and trust on the part of NGOs towards establishing stable relationships with the research community. A clear gap exists between these worlds, and in the Spanish context the rare co-operation between NGOs and research centres by way of science shops is more due to informal networking than to a regulated process.

There is also a general problem with the funding for NGOs and their projects. The lack of economic resources available to NGOs forces them to look to external funding that, in some cases, can influence the objectives and duties they adopt. Funding is obtained through public organisations or local, regional or national public bid projects. In many cases, the process is slow and not always successful. The lack of knowledge on financial help is a first barrier and many projects don't get past this stage.

8.2.3 Institutional and Legal Framework

There is no legislation explicitly regulating the work of science shops. In the absence of specific laws, different types of legislation are relevant, depending on the type of actor. These are the *Organic Law for Universities* (Organic Law, 2001), the *Organic Law for University Reform* (Organic Law, 1983) the *Volunteer Law* (Volunteer Law, 1996) or the *Law on Associations* (Association Law, 1964, see also Annex IV).

The work of *Ayudar a Crecer* and *Arquitectura y Compromiso Social* who qualify as NGOs, is regulated by the *Regulatory Law on Associations* of 1964, a General Law of national scope with fiscal benefits. An example of this is that *Ayudar a Crecer* presently has a psychologist on the payroll yet the association is not obligated to pay the Economic Activities Tax (*IAE*). *Arquitectura y Compromiso Social* is listed in the Registry of Associations at the local level, in the General Registry at the national level and in the University Registry. At present it is working to be recognised in Latin America and writing up the declaration of public entity in order to be admitted in the Public Administration.

Ayudar a Crecer are also are regulated by the *Volunteer Law*. By this law, the state pretends to guarantee the freedom of citizens to express their commitment and solidarity. It implicitly obliges the state to recognise and promote volunteer action and foresees a set of means to help volunteers to increase the level of social implementation. The same law governs NGOs that receive grants. Until recently, there was no financial control over these grants but currently such regulation is obligatory.

For universities, the existing legislation is very clear concerning relations between the university, the business community and the public administration. Yet in the case of the university's commitment to society, things are not so clear. Regulations are so wide open and general they admit all these possibilities, allowing these topics to be addressed. The passing of the new *Organic Law for Universities* has left everything up in the air in Spain.

The most important legal framework for the work of the organisations interviewed are the agreements between themselves, their project partners, the universities, and occasionally the public administration. At *OTRI*, each company signs a specific work agreement with the *OTRI*. The respective parties agree to the following: Universities scout the students, send them to a suitable company and provide certain reports. For

their part, the companies generate the project before the established deadline. The agreement signed with the university allows students to receive academic credits towards their degrees. If any of the agreement's clauses are violated, the case can be taken to court (see for such an agreement El País, 2002). The existing legislation is based on the Labour Procedure Law (1994), and all these specific agreements should be approved by the University Governing Board itself.

The *Ayudar a Crecer* Association has signed an agreement with the Seville City Council focused on drug dependency and aiming to create the Centre for Drug Dependency Prevention (*CPD*). Objectives and duties are specified in the Association's statutes, responsible for the regulation of partner rights and obligations, the organisation and operation of the association, establishing the entity type as well as ways and forms of funding, etc. These regulations translate into more advantages than restrictions since they control the rights and duties of all their components perfectly.

8.2.4 Political Trends

Ayudar a Crecer has observed that public administrations currently decentralising responsibility and delegating it to the NGOs. Certain social projects (like the drug dependenca project mentioned above) are more often performed by NGOs because they are more competent and the cost is lower.

8.2.4.1 Universities

Universities can prove good allies for Science Shop-like activities. *Arquitectura y Compromiso Social* receives university recognition made possible by the university's familiarity with them since 1993 through the university extension. The university is willing to support volunteer work (for example by means of seminars), and *Arquitectura y Compromiso Social* serves as a reference point. Still, *Arquitectura y Compromiso Social* has also met with barriers when working with the university. In spite of being an organisation that has been rewarded by the university, its activity is controlled by the Architecture Department. An example of this is that its leader D. Esteban de Manuel has had to abandon the area of subject co-ordination and dedicate himself to a subject with economy.

Ayudar a Crecer has been in touch with the university through the COIE from the University of Seville. The Association has had grant recipients in its Volunteer Workshop. These students come from the Pablo de Olavide University in Seville (psychologists, social workers, etc.). However, this subvention has a number of deficiencies, such as a lack of experience and interest.

8.2.4.2 Other political allies

There are few political allies supporting the cause of the interview partners. The only electoral programme to mention these activities is the programme put together by the Green Party of Andalucía. Financial support comes from local initiatives and is therefore difficult to quantify. *Ayuda a Crecer* and *Arquitectura y Compromiso Social* define themselves as politically neutral. Thus, they work with different partners and have not developed strong ties to special parties or politicians. However, *Arquitectura y Compromiso Social* tries to do lobbying work in order to alert politicians to its cause. It criticises politicians for not bringing the debate to common citizens, and for working against a culture of co-operation. It also tries to pressurise political parties to adopt attitudes to certain issues.

8.2.4.3 Political opponents

Arquitectura y Compromiso Social reports different cases of their activities being blocked by others. For example, it had been intended to re-allocate the population of the degraded residential area 'Barriada de Perdigones' of Seville into new houses. *Arquitectura y Compromiso Social* found a technical solution for the construction of these houses. Nevertheless, the building company PRASA, charged by the municipality of that area, put up many obstacles to the project and finally paid each family to move to another area to be able to continue with their own project for that area. In this clear example of interaction between the administration, the market and society, communication was blocked by the company with its profit interests, while the administration didn't have any interest in the site.

In the case of the School of Architecture, many professors are of the opinion that these types of activities do not give students the opportunity to come into contact with all the key architecture for their education. These professors argue that the neighbourhoods in question do not offer a wide range of work possibilities, and therefore prefer to study other types of richer architecture.

8.2.4.4 Public perception of the issue

The concept of science shops does not exist in Spain. The existing activities are not very well-known. *Arquitectura y Compromiso Social*, though, working with Provincial Delegations is helping to spread the word and is bringing more and more recognition at the administrative level.

9 Country Report: Romania

Carmen Teodosiu, Anca Florentina Caliman, Cezar Catrinescu

The Romanian report is based on documents developed for the SCIPAS study, evaluation of the MATRA project, internet research of government documents and legislation, as well as on interviews. Interviews have been conducted with representatives of two NGOs, with the Counsellor for External Relations and EU Integration at the County Council of Iasi, and with the co-ordinator of InterMEDIU –Cuza University Science Shop.

9.1 The Discourse on Science and Society

Important to the development of science shops are the current environmental and social problems that require attention, the development and contribution of a democratic civil society and the reform of higher education.

Development of civil society. The discourse on society and science in Romania is based on the idea of the open society and its values. These are defined as the main targets of universities. Therefore, the universities have to be open towards the needs and expectations of individuals, organisations, or institutions like public services, industry and commerce, local, regional, national and international communities in order to pursue activities of producing, disseminating and applying knowledge (Phare-Universitas, 2000 and Neculau, 1997). Yet, in Romania there is still a culture of partnership, no matter whether one is speaking about public administration structures, business, or NGOs. Civil society is not strongly developed. Therefore, the development and contribution of a democratic civil society is important to the development of science shops.

Current problems. It was the environmental sector that became the special focus of science shops. “Environmental issues” were not valued as they should have been in Romania before 1990, even though the country was highly industrialised and agriculture was practised in an intensive way. Development of environmental laws, regulations, monitoring, environmental education and research after 1990 contributed to the

restructuring of many industrial enterprises and also to the founding of environmental institutional structures. Today, there is a need for education in order to raise the awareness for environmental problems and also for more involvement by local communities in environmental problem-solving. So far – and concordant to its interests - the public has only access to environmental information to a limited extent.

Even if the overwhelming problems of day-to-day life in Romania are rather of a social and economic nature, environmental protection and increased awareness are important topics because they can contribute also to sustainable development and European integration. It is there that science shops can play a role. The project to start science shops in Romania was triggered by the wish to solve environmental problems by unlocking domestic problem-solving capacity.

Based on the need to raise environmental awareness and also to provide more documentation that could be adapted for general and high school education, in Romania, science shops co-operate with NGOs. Some of the activities are being conducted at the NGO's request, some with and some without their direct participation. For the educational programs developed within the science shops, this was a pro-active approach. For this co-operation between science and NGOs the intermediary institution "Science Shop" seems to be helpful, as one of the NGO representatives interviewed for this report complained that there are cases when faculties show reticence in *direct* co-operation with NGOs.

Reform of higher education. University education is still in a process of reform in Romania. Thus, even if the students receive very good quality information related to a variety of disciplines that can provide the background of their future work (as a specialisation in a specific field), their involvement in projects during faculty years, as well as their capabilities to work in multidisciplinary teams or with requests from the society are not well developed. However, especially for environmental issues, where multidisciplinary work is absolutely necessary and in many cases technical solutions have to be analysed also with respect to community requirements, project based learning can offer students the possibility to use their knowledge in order to solve a specific problem. In addition, it can also be an asset for their further employment. Science shops gives students this opportunity to do project-based learning. Science shops can also add value to various disciplines by offering case studies of research realised for the community on

a specific problem like air and water quality, waste management or environmental education (Teodosiu et al., 2000).

The science shops' approach to science as project-based learning in co-operation with community partnerships is supported by the modernisation of curricula. The introduction of the credit point systems in all Romanian universities can respond to at least some of the major challenges that universities have to face in order to assure a modern education of the students (Neculau 1997; Phare 1998; Nica, 1997; Marga, 1999):

- the inclusion of new attributes such as: flexible modules for learning, improved co-operation with industry and communities, independent work, problem-based learning
- international exchange and international co-operation projects, expansion of open and distance learning education for under-graduate and post-graduate studies

Professorial councils and academic staff of all Universities involved in the MATRA project, which made possible the foundation of Romanian science shops, appreciated the contribution of science shop work as very positive for students. This is recognised as well in the letters of support for a new MATRA proposal in *Project based learning*, and also by allowing students to realise practical periods, diploma projects or research contributions for their M.Sc. and Ph.D. programmes within the Science Shop. Moreover, in the case of TU Iasi, the M.Sc. distance learning program in Environmental Management is organised by InterMEDIU Science Shop in co-operation with the Department of Environmental Engineering. Seminars for the presentation of results of science shop projects were encouraged by all universities, and also the presentations of Science Shop activity in the educational section of a specific conference (Bacau). Students involved in science shop projects (national and international) won prizes in student contests for research activities. Depending on the specific research and university profile, fieldwork or experiments may be valued higher than literature research, but there is a general tendency to modernise this concept as well, with opening to the application of social sciences and inter-disciplinary co-operation.

9.2 Political Framework

9.2.1 Overview of Science Shops in Romania

There are 4 science shops in Romania operating in the cities of Iasi (2), Bacau (1) and Galati (1). They all have been founded in 1998 and 1999 by means of bilateral agreements between "Gh. Asachi" Technical University Iasi, "Al. I. Cuza" University Iasi, State University of Bacau, "Dunarea de Jos" University, Galati, and University of Groningen, The Netherlands. They were financed by Dutch Ministry of Foreign Affairs through the project "Science Shops in Romanian Moldavia" (project MATRA RO/97/04, see Mulder, 2001), and to a small extent by the Romanian Universities (see Mulder, 2000, and Mulder et al., 2001). These organisations, named InterMEDIU - Information, Consultancy and Research Centres are non-profit entities that act like an interface between university and society, their main objectives being:

- to offer to the civil society information, consultancy, and research in the field of environmental protection, assuring also the publicity of all projects
- to organise programs or symposiums for different groups, in order to increase their environmental awareness
- to offer the scientific basis for the public participation (NGOs, neighbourhood groups, consumer's association) to environmental policy making
- to offer the students the possibility to gain experience with project work and co-operation with citizen groups, and to develop their practically oriented approach of environmental problems.

The four InterMediu's were modelled on the Dutch examples of Faculty based science shops. Local circumstances were taken into account to find the best organisational structure in each case (see Mulder, 2000, and Mulder et al., 2001):

Two science shops are established as independent departments within the university, giving them more autonomy. InterMEDIU TU Iasi became part of the University's Centre of Excellence, the other was included in a regional Centre of Excellence (Galati University).

Two science shops are part of the department for biology, to maintain the best contacts and support from Faculty (Cuza University Iasi and State University of Bacau). In Ba-

cau, efforts were made to turn the Science Shop into an NGO in order to increase access to funding options (subsidies for NGOs come from different sources than university's funds). The initiative failed because of all the bureaucracy involved, especially in trying to maintain the positive aspects of being closely linked to university (i.e. close and formal contacts to scientists, students, University Board, use of office space and facilities).

Science shops have independent positions, their activities are supervised by a Board of Advisors, with members from the Faculty Council and University Senate. According to their statute, science shops can not be involved in any political activities. They are autonomous in formulation of their goals with the condition to fulfil their tasks towards civil society and to maintain good co-operation with their Faculties and Universities. Their activities can rely either on the direct expertise of the Faculty / University where they operate, or on co-operation with other organisations (Universities, NGOs, Research Institutes) for the achievement of specific multidisciplinary projects.

All Romanian science shops used during the MATRA project had 2 staff members and used students for their project work or as volunteers (undergraduate and post-graduate students). After the end of MATRA financing, most of the activities were realised on a project basis.

9.2.1.1 Funding regulations

After the end of MATRA project (December 2000), InterMEDIU science shops in Romania remained to be self-financed by means of projects, with reduced contributions from the universities (cost of utilities and Internet connection are supported from the university budget and also no rent is paid for the offices). There is no regular funding from the Romanian Ministry of Education (such as personnel, durables, and consumables). Requests of funding were made by submitting project proposals to different organisations (national and international). InterMEDIU Centres have obtained some project grants and established longer-terms projects to generate income by developing distance-learning courses and through small paid projects and analyses (consultancies) (Mulder et al., 2001).

However, since the MATRA programme funding stopped, the granted projects were not sufficient to cover financially the regular activities of all Romanian science shops, two of the four science shops have difficulties to ensure even operational costs.

Since the Science Shop structure is not recognised officially as an NGO, it is not possible to apply for NGO funds at a national level. The situation is the same for partnerships with NGOs, where there are no special funds for such partnerships (in this case science shops would apply as university departments).

9.2.1.2 Network

There is a network of the four InterMEDIU Centres. There are also other public intermediary organisations for support of civil society organisations (ISO) that can provide different resources for information, credibility, professional standards, partnership networks and know-how. (see for further information the appendix and the report "Let's make the civil society function" at http://www.centras.home.ro/-noutati.html).

9.2.2 The NGO Society as Potential Clients

There are opinions which maintain that political and social difficulties hinder the development of civil society in Romania and limit its role or impact. This finding results in the need to first develop a community deeply involved and well informed, which is able to contribute to the formulation, implementation and assessment of the public policies.

NGOs are really interested in the progress of the civil society, but they are often poorly informed about the specific sector reforms that the government is planning or implementing and also have limited human and financial resources to participate in programs or decision making. In this context, NGO's representatives consider that co-operation with universities or research institutes would be favourable, both for their organisations and local public authorities. science shops, as intermediary between academic institution and civil society, are very important for establishing the basis for this co-operation and by providing assistance to NGOs in communities' problems solving. Allies could be considered also the NGO forums, local and government institutions and sometimes

university staff interested in using science shops resources. NGO forums maintain web sites for call for proposals and information on new activities and co-operation with NGOs in general. Examples of such forums are

- GIR (Group for Implementation of NGO's forum resolution), which assures an executive network for representing the NGO community in their relationship with third parties (as, for example, public institutions);
- FDSC (Foundation for Civil Society Development) that provides expertise, training and information and also administrate grants for NGOs;
- CENTRAS (Center for providing assistance to NGOs) that brought together all the influential actors from public sector;
- FIMAN (International Foundation for Management), which assures expertise and training in human resources and consultancy in management related issues, but, at the same time acts like a local partner for international consultancy organisations.

9.2.3 Institutional and Legal Framework

The most relevant legislation is the legislation on research and education. Below an update is given of the Romanian legislation in this field.

Government Ordinance no. 8/1997 regarding the stimulation of research, development and innovation stipulates the possibility of granting programs for partnership of NGOs in the research and development fields from public funds. These partnerships refer only to relationships between NGOs and public administration or NGOs and the private sector, and can be co-ordinated even by NGOs (see http://www.fdsc.ro/ro/publicatii/-index.html).

The first partnerships between public administration, economic agents and non-governmental organisations were constituted in Romania through the *PAEM programme* (Programme for Active Measures for Unemployment Combat), 1994-1997. The second initiative was the *FIDEL project* (Fund for supporting the local economic development initiative) through a PHARE programme, developed between 1996-1998, which had as main goals "cooperation and partnership between main actors in order to identify and implement the most important local initiatives" in conditions of "competition

and transparency". The main actors were considered associations of enterprises, trade unions, local public administration, local representatives of central administration, private companies, universities, and research institutes[4].

Even if there is no specific legislation that refers to Science Shop work, this concept being relatively new for our country, the Romanian Government recently acknowledged the importance of creating a link between universities and the economic and social environment. Thus, a very recent *Government Order, HG 1338/27.12.2001*, stipulates the founding of *APART - National Agency for Partnership between Universities and Economic-social Environment* subordinated to Ministry of Education and Research. The objectives of this agency are (see Monitorul Oficial 2002):

- to promote and sustain co-operation between academic institution as universities and economic agents, institutions and organisations in developing specific partnerships, professional formation and training, technological transfer;
- to establish relationships between universities and ministries and other institutions for academic specialists' participation in strategies and policies elaboration for enhancing economic-social development;
- to promote involvement of specialists and academic staff in partnerships for European Community projects in Romania, as well as in other national or international initiatives/programs/projects with economic agents, institutions or organisations in order to contribute to extra-budgetary funding;
- to sustain continuous education programs including training, professional conversion and re-conversion on short and medium terms for high education personnel from different economic agents, institutions and organisations;
- to provide consultancy and expertise for developing collaboration between universities, economic agents, institutions and organisations;
- to formulate proposals for developing the legislative framework regarding the cooperation mentioned above.

[4] http://www.centras.home.ro/FORUM/carti%20albe/caparteneri-at98.html

No specific funding or call for proposals was launched yet through this APART organisation.

Besides the legislation on research and education, there are a few other relevant laws. Access to information regarding the environment and public participation in decision making are settled by Aarhus convention, adapted for Romanian legislation (Monitorul Oficial 2000b). *Government Ordinance HG 26/30.01.2000* that replaces the Law no.21/1994 is used as a legal basis for the foundation of NGOs, associations (including charities) and federations.

At the university level, science shops that function as independent departments of the universities have an approved *Statute* and also *Regulations for Organisation* validated by the Professorial Councils of the faculties and the Senates of the universities.

9.2.4 Political Trends

9.2.4.1 Government

The *National Ministry of Education and Research Order no. 3760/18.05.1998* stipulated the establishment of Technological Transfer Centres inside universities. In this way, the National Ministry of Education sustained the foundation, by universities, of technological transfer centres, in partnership with economic agents or independently, in order to enhance the interaction between universities and economic, administrative or social environment (http://www.edu.ro/om3760.html).

The national strategy for sustainable development (1999) acknowledged the importance of public education regarding the access to information and its correct understanding as well as public participation in the decision making process (Romania-Strategia Nationala de dezvoltare durabila 1999).

The *Ordinance no.115/31.08.2000* regarding, among others, social partnership in education and professional development, also stipulates partnerships between educational institutions and categories such as: professional groups or associations, trade unions, NGOs and local communities (http://www.1educat.ro/mediul/legi/-o_partener00.html and Monitorul Oficial 2000a).

Concordant to the "White Paper regarding education and formation" elaborated by EU, the Romanian Government's programme for 2001-2004 considers as priority the development of "educational society" (named "Knowledge Society" in the EU). (see http://www.guv.ro/obiective/programguv/capitolul_6.html). Its main aim is to capitalise in a efficiently manner the human resources through continuous education, enhancing the role of expertise in decision making, generalised access to any form of knowledge, extension of communication means, enhancing of individual motivation for learning and personal emancipation, and finally, civic participation and social responsibility (http://www.edu.ro/cartealba.html).

In the field of scientific research, the government programme also names some directions referring to knowledge transfer towards civil society. First, research must produce results that are relevant for the beneficiaries from economy/society. Secondly, partnerships between research staff and beneficiaries of research results shall be promoted.

With these purposes the Government will grant the following types of activities:

- research and development activities;
- technological transfer activities consisting in knowledge transfer, consultancy and technical assistance;
- implementation of results to beneficiaries ;
- development of training programs;
- dissemination of knowledge and experience.

Within this context, science shops could play an important role in establishing partnerships between universities and the community. So, they appear to be a useful instrument for science and research policy, improving the access to relevant data and the research methods, and also developing material for educational purposes (Teodosiu & Caliman, 2000).

The current Minister of Education and Research supports the idea of science shops. Recently for the new MATRA project proposal, she attached a letter of intent regarding the opportunity of this new Science Shop project in Romania and its importance for the modernisation of Romanian universities curricula. In this letter, the Ministry declares that it "will co-operate with the project-team to further develop science shops in Romania

and will be partner in the organisation of a national seminar on science shops in the frame of MATRA program, points that will allow science shops to operate on a sustainable basis in Romania in the future". The local environmental authorities, and Local and Regional Councils acknowledge the science shop activities (in the cities where InterMEDIU Centres exist), but provide only moral support for these.

According to our interviews, civil society would benefit if policy strategies and legislative initiatives (supported by appropriate funding) would be designed to promote effective co-operation and partnerships of universities and NGOs, and to enhance public access to scientific research and knowledge transfer.

9.2.4.2 Universities

Until now, the most important political allies for science shops remain the universities in which they have been created. Also, other universities support the idea. For the MATRA resubmission, several letters of intent have been presented from other Romanian universities that want to implement science shop activities (Technical University Bucuresti, University of Bucuresti, University of Medicine and Pharmacy Iasi, University of Oradea, University of Ploiesti).

9.2.4.3 Political Parties

Although the major political parties define in their programmes their environmental and social interests, as well as their interest in "opening the science" for the public, apart from a few journals that are financially sustained, there is no financial support for Science Shop or NGO activities. Thus, the Environmental Party is eager to publicise good practices or co-operation that is achieved through science shops in its local journal.

9.2.4.4 Public perception of the issue

At a regional level, in the cities where science shops operate, they are known by NGOs and local authorities, but not so much by the general public or policymakers. As far as they are known, they have a good reputation. Recently for the new MATRA project proposal ("Problem-based learning through science shops in Romania"), the Deans and Faculty staff members gave very positive appreciation concerning the activities of all the existent science shops. As far as the NGOs are concerned, the co-operative activities were very serious (research, consultancy, assistance in project proposals, etc.), and free of charge (most of them), so they appreciated the work.

Still, the concept of intermediaries between science and society (like science shops) is not well known or publicly discussed at a national level. Because lack of knowledge, at a national or regional level, about the statute of science shop and its specific activities, NGOs or public authorities sometimes think that the science shops are "financing organisations" , that are eager to do all the work for free (this is true to a certain extent, but not always the case, i.e. for research projects.)

10 EU Policy

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The European Union provides probably a more favourable framework for the interaction between science and society than the individual countries considered before (see http://www.cordis.lu/rtd2002/science-society/home.html). One reason for the European Union's dealing with science and society is concern about growing distance towards science by the public. For example, a Eurobarometer survey shows that most European citizens feel badly informed about science and technology – and, what is more, 45% are not interested in the topic. Young people turn away from choosing scientific careers (Eurobarometer 2001a, 2001b). In 2000, a conference was held in Brussels to deal with this issue. Another important source for the EU's activities on the topic are the thoughts laid down in the European Commission's White Paper on Governance. An important goal of the White Paper is to bridge the gap between the European Union and the citizens. Therefore, the commission commits itself to enhancing openness, participation, accountability, effectiveness, and coherence not only on an EU level but also on the level of the member states (European Commission 2001,p.10). One of its fields of action is named "Involving civil society" (European Commission 2001, p.14). Churches, unions, and NGOs are mentioned.

The work group dealing with the White Paper's Work area 1, "Broadening and enriching the public debate on European matters" has conducted a workshop and written a report "Democratizing expertise". Its main goal is to enhance the quality of scientific expertise in policymaking. To the authors, this means to "improve the interactions between expertise, policy making and public debate" (Gerold & Liberatore 2001, p. i). One of the areas of action is therefore to promote participatory procedures in order to include civil society. This is considered as a two-way process: civil society should get access to expertise, and should be able to voice its opinions in participatory procedures. A second area of action is to broaden the notion of expertise in order to include stakeholders' practical knowledge. "Expertise should be multidisciplinary, multi-sectoral and should include input from academic experts, stakeholders, and civil society. Procedures must be established to review expertise beyond the traditional peer community, including, for example,

scrutiny by those possessing local or practical knowledge" (Gerold & Liberatore 2001, p. ii). The report mentions the necessity of intermediaries: "Some institutions or fora can facilitate interactions between experts, policy makers and the public by 'translating' scientific findings into policy issues and options or 'news', or by 'translating' policy and social issues into 'researchable' questions." (Gerold & Liberatore 2001, p.22). As an example, the Danish Board of Technology is mentioned.

Also as an attempt to take further the White Paper's ideas, a conference "Science and Governance in a Knowledge Society" was held in Brussels in October 2000 (European Commission 2000b, European Commission 2000c). One important subject was to find "ways of involving of all stakeholders – decision-makers, scientists, citizens, industry and media" (European Commission 2000b, p.1). Therefore, in the session "Anticipating Risks: Foresight and 'Precautionary Research' " it was stressed that it was necessary to have different social actors participate early in processes of risk assessment, in order to hear about the ethical aspects involved. Another session was dedicated to "Science, Citizens and the Decision-Making Process" and dealt with citizens' distrust of science. It was analysed that such distrust stemmed from the experience that scientific experts were not only making "objective" recommendations but also pursuing their own private interests. To remedy the distrust, it was suggested that the "relationship between science and society must become *more two-way*, involving scientific institutions listening to and learning to understand public concerns and values, and not merely educating them. [...] There needs to be a long-term process of mutual learning between the public and science, which will necessarily involve *new institutional relationships and forms*. This will require deliberate experiments in the design of new hybrid institutions and roles." (European Commission 2000b, p.2). As an example of these new institutions, consensus conferences and focus groups were mentioned.

The EU activities cumulated in the "Science and Society Action Plan" (European Commission 2002). The plan is conceptualised as a contribution to implementing the White Paper. Its first section deals with "Promoting scientific education and culture in Europe". In this section, not only one-way communication like science education and public relations are considered, but also a "dialogue with the citizen", for example by conference, fora – and also, via "developing the European network of science shops" (European Commission 2002, p.15, action 21). The second part of the Action Plan deals with "A

science policy closer to the citizens" and suggests different methods of citizen participation in science policy, and the third part, "Responsible science at the heart of policy making" presents ideas on how to include the ethical dimension in science and new technology.

These efforts on "science and society" must be seen within the general framework of creating a "European Research Area" (European Commission 2000a). The European Commission aims at better co-ordinating and harmonising national science policies (e.g. funding programmes or policies on research infrastructure), improving networks and information exchange, enhancing mobility of researchers, and developing a common outlook on ethical issues. Whether this attempt proves beneficial for science shops and other intermediaries, depends very much on the kind of policy being implemented. But in any case, with the common research area the importance of the European level grows.

11 Concluding Remarks

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Regarding the general public discourse on science and society, in most countries investigated, public discourse on science and society is strongly connected to the concept of the knowledge-based society. Along with a call for co-operation between science and society, the importance of generating and distributing knowledge for the economic and social challenges ahead is stressed by politicians, trade unionists, and business representatives alike.

When analysing this discourse, the knowledge that is referred to is mainly business-oriented knowledge. Knowledge is sought for the sake of economic competitiveness (collective, i.e. national competitiveness as well as individual competitiveness). Accordingly, in all countries investigated there is a strong push to use scientific knowledge for economic goals. Transfer of scientific and technical knowledge into society is greeted but mainly envisioned as a transfer of knowledge produced by technicians and natural scientists to businesses, and as commercial utilisation of knowledge by scientists and technicians themselves. This is partly due to the fact that since World War II enterprises have increasingly become competitors to universities in knowledge production.

Generally, national government policy papers and university mission statements alike state that universities shall contribute to problem solving in society but often remain unclear when it comes to name appropriate initiatives for doing so. At least in Denmark, Germany, and Austria, “external” university relations predominantly serve marketing purposes, the raising of additional funds. Apparently, problem solving by collaborating with citizen groups is off topic. The United Kingdom is a remarkable exception here. Probably due to a highly respected volunteer sector, British universities stimulate students’ volunteering for the benefit of local communities. Also, in Denmark the long tradition of participative and consensual democracy might moderate this trend a bit and support the perspective of knowledge-producers for society and uses of knowledge. Yet, also in the United Kingdom and in Denmark the trend towards business is marked.

This trend is also visible in the reform of higher education and universities. Here, by re-

forming degree courses, e.g. by shortening their duration, adjusting to business´ interests takes place. In the course of recent university reforms in Europe, curricula become increasingly oriented to the acquisition of job skills. The impact of these reforms on the work of science shops is unclear.

The dominant depiction of knowledge transfer is the one-way transfer of readily applicable knowledge from universities to society. Joint knowledge production is not foreseen. Instead of a discourse on collaboration between research institutions and citizen groups, a discourse on the “responsible researcher/scientist” still dominates the field. But in the long term, this discourse could bring science shops into discourse. Maybe science shops will also benefit from the growing acceptance of and even wish for citizens’ participation, as exemplified by recent discourses on sustainable development, Agenda 21, social capital, and sense of community (see Barber 1984, Bellah et al. 1991, Etzioni 1995 e. a.).

According to the country reports presented here, some science shops fear that this business orientation might have a negative impact on their work. Resources for knowledge transfer are used in other projects instead of science shops. Besides, pressure on science shops is growing to open up for commercial clients.

The impact on science shops of this general trend towards intensifying the co-operation between science and business is, on the one hand, negative. However, on the other hand, this trend at least marks a common interest in the issue of knowledge transfer in general. The idea of bridging the gap between different societal spheres might be useful for science shops as well. In detail, in reforming higher education the attempt is made to foster practical experience and application of results. Students are called for to work in projects and co-operate with external partners. Though these ideas came up in order to serve the needs and interests of business in the first place, they could also indirectly support science shops' work.

With the remarkable exception of the European Commission, citizen groups, the typical science shop clients, are not considered as relevant stakeholders in the design of science policy.

For Germany and Spain, science shop representatives report of feelings of distance towards science by NGO representatives - especially from small NGOs. Additionally,

small NGOs often do not consider science as something which might be useful for them; they do not consider employing science and research as an option for problem solving (Steinhaus 2000). Inviting potential clients to collaborate in the development of research projects, a pro-active stance as taken by the Science Shop Hagen, yielded improved awareness of the mutual benefits of collaborations.

However, in some of the investigated countries environmental NGOs, which can afford to pay for research, have better access to research. Among these NGOs a positive attitude to science and research is more likely. Often researchers and scientists are members of these organisations. Especially national branches of globally active NGOs – Greenpeace, Friends of the Earth International, e.g. - conduct scientific projects by themselves or collaborate with research institutes. But still, these NGOs as well can be suspicious of university researchers and research results. Apparently, these NGOs look for counter-expertise or control over how research on their behalf gets done, when they collaborate with research institutions. Accordingly, distrust of science might not be directed at science and research as such but at the way it is done or as it is imagined of being done.

Utilising counter-expertise has not just benefited professionalized environmental NGOs, it has increased the acceptance of participatory research methods, of methods preferably used by science shops. Of the investigated countries, major environmental NGOs are strongly represented in Austria, Denmark and Germany. In these countries, policymakers recommend joint knowledge production of researchers and users for environmental research projects.

We have found no legislation especially relating to science shops. All regulations pertaining to them affect organisations near to them, too: universities and NGOs. Being weak organisations, science shops are bound to local conditions, which lead to a variety of organisational forms among them. Some of them are part of universities, sometimes without being incorporated as organisations clearly distinct from departments; other science shops are incorporated as associations independent from universities but maintain strong ties to universities by contracts, and a third category of science shops are independent research institutes, which are incorporated as associations and perform joint research projects with their clients (Mulder et al. 2000 (Scipas 1)).

It is a structural problem of science shops that they provide services to financially weak client groups who normally cannot afford them. Therefore, public funding is needed to a great extent. University-based science shops do have basic funding for infrastructure and personnel costs. Where no basic funding is available, science shops have to invest an important part of their work capacity in acquiring project funding. As far as we can judge, most science shops are not financially and institutionally secured, so even for university-based science shops additional funding can be required from grant giving bodies. A problem with obtaining funding for science shop activities is that few funding programmes are tailored to suit the needs of science shops. Most funding programmes either support knowledge transfer in the service of businesses or pure basic research. With the exception of environmental research, co-operation with NGOs is rarely supported. Therefore, science shops often do not meet existing funding criteria. In short, if science shops are the only interfaces between the NGO sector and the RTD system, institutionally and financially secured interfaces between the NGO sector and the RTD system do not exist.

The situation in Spain deserves special attention. Although science shops are not known there, organisations at least similar to science shops perform science shop-like activities. These organisations face similar conditions to science shops. We assume that some of these organisations could be called science shops, although they might not even know it. This might be true for other countries as well.

In all countries investigated the concept of science shops is not well known to a wider public. If they are known, then mostly by researchers and potential clients. Science shops are not very actively supported by policymakers but have sympathisers especially among Green Parties. This might be due to the fact that environmental issues and topics are very prominent among science shops. In the United Kingdom, science shops are known to Labour Party representatives. In Romania, science shop activities are acknowledged by Universities and NGOs, at a regional level, while the ideas for their further development are also sustained by the actual Minister of Education and Research. Civil society organisations (NGO's) are still in a process of development and science shops can contribute to this process.

Due to their weak position, in most of the investigated countries science shops have not yet established visible national networks of science shops, but in some countries rudi-

mentary networks or initiatives for building up networks exist.

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Arquitectura y Compromiso Social contact, Spain: e-Mail emj@arquired.es

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Pax Mediterranea contact, Spain: e-Mail paxmed@arrakis.es

Rat für Forschungs- und Technologieentwicklung, Austria: http://www.rat-fte.at/; genral goals at: http://www.rat-fte.at/view.php?docid=44

Research Policy: Research for a better society, Denmark: http://www.fsk.dk/fsk/publ/opendia

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Science Shop at the University of Southern Denmark, SDU: http://www.vb.sdu.dk

Scientific Advisory Committees,

http://www.dti.gov.uk/ost/whatsnew/index.htm, www.dti.gov.uk/scienceind/strategy.htm

Scientists for Labour, UK: www.scientists-for-labour.org.uk

SCIPAS reports: http://www.bio.uu.nl/living-knowledge/reports.html.

Social Democratic Party, Germany: http://www.spd.de

Technische Universität, Austria: http://www.tuwien.ac.at

Transfer agency at the Neubrandenburg university, http://www.fh-nb.de/forschung/transfer.asp

Universität für Bodenkultur, ‚Austria: http://www.boku.ac.at

Universität Wien, Austria: http://www.univie.ac.at

Universities, UK, http://www.universitiesuk.ac.uk/default.asp?l1=1&

Universiteternes udviklingskontrakter (University Development Contracts, Denmark), 2000: http://www.fsk.dk

Veterinärmedizinische Universität Wien, Austria: http://www.vu-wien.ac.at

Wellcome Foundation, UK: http://psci-com.org.uk/browse/ypages/300.html

Wirtschaftsuniversität Wien, http://www.wu-wien.ac.at

Wissenschaftladen Wien, http://wilawien.cjb.net

WissenschaftsAgentur Salzburg, Austria (WAS), http://www.sbg.ac.at/was

Wissenschaftsladen Graz, Austria, http://www-gewi.kfunigraz.ac.at/wila/

Wissenschaftsrat (Science Council, Germany), http://www.wissenschaftsrat.de

12.3 Interviews conducted

Denmark

Interview with Hanne Nyeng, member of the staff at the Science Shop at Technical University of Denmark (DTU), 2002 in Copenhagen

Interview with Anette Schwennsen, member of the staff at the Science Shop at University of Copenhagen (KU), 2002 in Copenhagen

E-Mail correspondence with Lene Andersen, Co-ordinator of theScience Shop at Roskilde University, Denmark, 2002

Germany

Interview with Gisela Hoffmann, member of the staff at kubus in Berlin, January 2002

Austria

Interview with Prof. Dr. Kurt Grünewald, Science Policy Spokesman of the Austrian Green Party, February, 7th, 2002

Interview with Mag. Uwe Steger, head of the Innsbruck University's *Außeninstitut* (institute for external contacts), February, 22nd, 2002

Interview with Mag. Rupert Ascher, member of the parlamentary staff of the Socialdemocrat science speaker, February, 5th, 2002

Interview with the MP Dr.Dr. Erwin Niederweiser and with Mag. Uwe Steger, director of the office for external relations of Innsbruck University.

Spain

Interview with Don Miguel Toro Bonilla, Director of the Reserach Results Transfer Office (OTRI) in Seville, February, 8th, 2002.

Interview with Don José Jaime Murillo Castillo, president of the *Ayudar a Crecer* NGO, on February, 11th, 2002.

Interview with Esteban de Manuel Jerez., President of *Arquitectura y Compromiso Social*, Techni-

cal Architecture School of Seville, on February, 12th, 2002

Romania

Interview with Nicolae Peiu, president of "Salvati Terra" NGO, Iasi.

Interview with Dr. Carmen Gache, co-ordinator of "Societatea Ornitologica Romana, Filiala Iasi" NGO, Iasi,

Interview with Sanda Beatrice Bitere, Counsellor for External Relations and EU Integration, County Council of Iasi.

Interview with Dr. Mircea Nicoara, co-ordinator of InterMEDIU –Cuza University Science Shop