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

# ROMANIAN CASE STUDIES REPORT

by

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Carmen Teodosiu and Daniela Teleman

*Iasi, January 2003*

# Preface

*Written by Michael Strähle and Søsser Rasmussen*

This case study report has been written for the INTERACTS project, which overall objective is:

*To draw out policy implications for future co-operation in Science, Technology and Innovation, in particular the co-operation of small and medium NGOs with universities through intermediaries such as Science Shops.*

INTERACTS is a pioneer cross-national study by organisations and institutions from seven different countries – Austria, Denmark, Germany, the Netherlands, Romania, Spain, and the United Kingdom - collaborating across disciplines to identify necessary changes in structures and routines in the RTD system for improving future interaction between NGOs, researchers, and intermediaries like Science Shops. By bringing together the results from different countries, a broader picture emerges concerning past experience of the impact of Science Shops, future expectations and policy relevance. In this way, INTERACTS contributes to strengthening the interaction between research institutions and society, and gives more in-depth understanding of the processes and effects of knowledge production.

INTERACTS is an Accompanying Measure to ISSNET- "Improving Science Shop Networking", and financed by the European Commission, DG 12.

INTERACTS comprises five activities, which are interlinked. These National Case Studies Reports constitute the second activity in the INTERACTS project:
1. The State-of-the-Art Report provides an overview of the political and institutional conditions for co-operation between small to medium non-governmental organisations (NGOs), Science Shops, and universities in Austria, Denmark, Germany, Romania, Spain and the United Kingdom.
2. The **National Case Studies Reports** examine the practical experience and impact of interaction between NGOs, scientists, and Science Shops.
3. Participatory workshops in each of the partner countries form the next step, allowing discussion of future expectations and perspectives for co-operation with NGO representatives, researchers and policy makers. By giving voice to a broader range of stakeholders, INTERACTS contributes to the democratisation of science and technology policy.
4. The final report will identify potentials and barriers within the research and development system for improving conditions for future co-operation.
5. In a final step, the INTERACTS findings will be disseminated through national and international workshops and conferences.

Further information: http://members.chello.at/wilawien/interacts/main.html

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# Executive summary

The Romanian Case Studies Report is part of the EC financed projects INTERACTS and examines the practical experiences, impacts and expectations resulted from the interaction between NGOs, Universities and Science Shops[*]. In Romania, science shops exist (under the generic name of "InterMEDIU Centres") within universities since 1998, when 4 such organisations have been established in the region of Moldova, other 4 science shops will be operational in 2003 at the country level.

This report is the result of a study that analyses three projects carried out in the environmental field, through the InterMEDIU Centres at the "Gh. Asachi" Technical University of Iasi (2 projects, one related to drinking water quality evaluation and the other to the impact of industrial wastewaters) and at the "Al.I.Cuza" University of Iasi (1 project regarding biodiversity conservation). All projects are considered to be relevant for the faculty based science shops in Romania, and involved NGOs, students/researchers, and science shops.

Based on the case study research and using a common methodology, the analysis carried out in this report is meant to bring more information about the mechanisms of collaborative research with society groups through intermediaries such as science shops, to discuss the impacts of the projects, as well as the expectations and responses to this type of co-operation. Documents such as: project reports, published articles, M.Sc. thesis, follow–up proposals have been used. The analysis of the case studies specified common and different features of science shop projects, considerations related to the implementation of science shop activities in Romania and aspects concerning the relevant policies to strengthen the interaction between universities and society.

## Romanian Case Studies findings

The Romanian science shops experiences have been perceived by the interwiees as valuable for the facilitation of public access to scientific research, information and education. The interaction between community groups and universities/faculties through

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[*] A "*science shop*" provides independent, participatory research support in response to concerns experienced by civil society. Science shops use the term "science" in its broadest sense, incorporating the social and human sciences, as well as natural, physical, engineering and technological sciences. Science shops seek to: i) provide civil society with knowledge and skills through research and education; ii) provide their services on an affordable basis; iii) promote and support public access to, and public influence on, science and technology; iv) create equitable and supportive partnerships with civil society organizations; v); enhance understanding among policymakers and education and research institutions of the research and education needs of civil society vi) enhance the transferable skills and knowledge of students, community representatives and researchers (SCIPAS EC project HPV1-CT-1999-00001; http://www.bio.uu.nl/living-knowledge).

the science shops has several benefits for all the partners, the impact of such activities been mainly observed at a local level.

Civil society organizations request science shop assistance with requests concerning their need for information, documentation/research, and development of new perspectives/organisational capabilities, or improvement of their visibility for different groups. The accessibility of science shops (explicit openness for the public), their neutral position, the usage of systematic methods, adequate presentation of results (in the form of public project reports) and the fact that no financial obligations were imposed for the NGOs are important issues that contribute to the access of community groups to the knowledge existent in universities and influence further their active involvement in environmental activities or policy making. However, NGOs involvement in science shop projects is very different and ranges from discussion of project objectives, involvement in the organisation of public debates or contributions to the actual research work.

One of the science shop particularities is the fact that projects are carried out entirely/partially by students who, in all cases that have been studied, showed interest for these types of activities, mainly due to the acquirement of valuable skills that contribute to their professional development and increase their chances for employment. Aspects such as: improvement of communication, teamwork and computer skills, experience with national/international project work, or improved knowledge on research methodology and practice are important for their formation and future career.
Supervisors of science shop projects (staff members of universities) and other scientists are interested in science shop projects in connection with their teaching and re search interests, improvement of project management skills and the achievement of a social dimension of the scientific work. For staff members that are also science shop managers, as well as for the students involved, problems appear due to the fact that these activities have no allocated staff time limits or credit points and are considered on a project basis. Other groups benefit indirectly from science shop activities or educational programs by using information for local, national/international programs, or by creating linkages with other experts or governmental organisations.

For the universities/faculties the science shop activities can bring specific contributions related to modernisation of curricula and the opening of new perspectives for collaborative research, at national or international level. Such contributions refer to: inclusion of science shop project results into the regular teaching activity, development of flexible modules of learning or post-graduate courses in co-operation with other university departments, the formulation of new project proposals and facilitation of multi-disciplinary research.

Science shop operation in Romania has so far developed quite well, with short and long-term benefits for the civil and scientific society. However, the existence and devel-

opment of such entities in Romanian Universities remain closely connected to the existence of adequate financial support. Both science shops that contributed with projects to this study received initial funding from the MATRA program, financed by the Dutch Ministry of Foreign Affairs and partially from the Romanian Universities. In the absence of core-funding provided by MATRA, the science shops partially continued their activities due to development of different programs or projects of co-operation. Many of the initial activities with society groups (assistance with project development, information, documentation) have been continued to a limited extent, on a volunteer basis, with supplementary efforts in terms of students and staff time.

## Policy recommendations

- The official acknowledgement at the Universities/ Ministry of Education level for this type of activities and the allocation of credit points for students and staff time for supervision is important for the continuation/initiation of new science shops activities;
- Adequate funding and support from the universities and society groups can facilitate the science shop activities. In the Romanian context, this support may vary from core funding to coverage of operational costs at the University level, administrative rules and financial autonomy of the science shops, acceptable charges paid by the client groups (i.e. from zero to full costs, depending on the client's ability to pay), publicity of science shop projects and advertising materials facilitated through university central structures;
- The regional coverage and visibility of science shops in Romania has to be improved and the support of university management structures and policy makers is essential in order to achieve the needed outreach towards society organisations and the network of Romanian Universities;
- The development of the Romanian network of science shops (Intermediunet Romania), as well as the co-operation with the international network of science shops are important, but not sufficient to achieve solely the sustainability of science shop activities within Romanian Universities;
- The development of other programs (educational, post-graduate, professional reconversion) or projects through the science shops can contribute to the broadening of university preoccupations and facilitate co-operation with different groups, and therefore could be adequately supported by universities (eventually in co-funded programs);
- In order to facilitate true partnerships with the economic and social environment, changes should be accomplished also for the specific policies of financing agencies (that would allow, for instance, participation at Call for proposals of consortia of universities, NGOs and science shops).

# SECTION 1

## Introduction to INTERACTS Case Studies and Methods

*Authors: Irene and David Hall*

- **Experiences and Expectations of NGO / Science Shop Interaction**

The European Commission has shown itself keen to build up the scientific work of research and technology development, but concerned that many studies of public attitudes show there is little interest in science, but a considerable amount of public distrust in science.

One of the functions envisaged by Europe in promoting a dialogue between science and society is to address this distrust through an 'early warning' system to alert the scientific community to citizens' concerns that are not being met by science as currently practised; the converse of this is to improve the public image of science, damaged by concerns over BSE, GM food etc., by greater communication to and respect for the public. As in the United States, there is also a concern in some circles, to democratise science by not leaving all the policy decisions to 'experts' but also to involve citizens and civil society (European Commission, 2002).

Regarding this dialogue, it has been argued 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."* (Fischer, Wallentin et al, 2002: 85)

The development of "new institutional relationships and forms" implies a new form of scientific governance. In Europe this development has included the emergence of intermediary organisations to link local groups with the sources of knowledge production (usually universities). It has been argued that these science shops have a vital role to play in the interface between science and civil society, because they can mediate between the concerns of citizens regarding their local conditions and environments and scientists who have access to the scientific and technical knowledge to meet those concerns (Irwin, 1995: 156).

Science shops consciously seek to "create equitable and supportive partnerships with civil society organisations", where they make their services available on "an affordable basis, free of financial barriers." As the research support is provided in response to community concerns, it differs from "the traditional hegemony of science." (Mulder et al, 2001)

In the European 'Science and Society Action Plan' (European Commission, 2002) this role of the science shop is recognised. In relation to engaging in a dialogue between science and the citizen, science shops are mentioned as an example of actions where *"science is placed at the service of local communities and non-profit making associations. Hosted by universities or independent, their common feature is that they answer questions from the public, citizens' associations or NGOs on a wide variety of scientific issues."* (European Commission, 2002: 15)

A sub-project of SCIPAS[1] considered the other side of the equation – the impact of science shop activity not just on the community but on university teaching, learning and research. The report argued that

*"besides assisting citizen groups, science shops can also contribute to the development of university curricula and research."* (Hende and Joergensen, 2001: 5)

All these developments illustrate that access to knowledge has to be spread more evenly through society, and that within the universities, curriculum change is also required to produce scientists who are aware of their social responsibility. Science shops have a key role to play in mediating the relationship between the public and science and in forwarding new awareness. As science shops now have considerable experience in this activity, and have become diverse in response to local and national conditions, it is timely to review whether they have been able to deliver these ideals, and whether their further development should be promoted through the support of European policy. The INTERACTS research is designed to address these issues, by tracing and comparing the experiences of science shops and asking whether these experiences have brought about benefit to community groups through improved scientific

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[1] The SCIPAS network attempted to catalogue the variety of science shop activity and to investigate their different methods of operation. Important outcomes were a conference in Leuven, Belgium in January 2001, proposals for establishing a network of science shops with a newsletter and the Living Knowledge website (www.bio.uu.nl/living-knowledge).

knowledge and whether they have helped develop university teaching and learning strategies as well.

- **Case Study Approach**

The method of research chosen for this project is case study research, as this approach will provide detailed data on the varied experiences of the very different science shops in the member countries. Case studies are not merely descriptive, they are based on analytic categorisation and are designed to inform policy. According to key writers in this field:

> *"The research goal in a case history is to get the fullest possible story for its own sake. In contrast, the case study is based on analytic abstractions and constructions for purposes of description, or verification and/ or generation of theory. There is no attempt at obtaining the fullest possible story for its own sake."*

(Strauss and Glaser, 1977: 183)

Criticisms of case study research usually relate to the idiosyncratic nature of a case, with the argument that case studies cannot deliver the kind of generalisable data that more positivistic, quantitative approaches can produce. Lincoln and Guba (1985) prefer to replace the concept generalisability with "transferability" as the latter term more accurately expresses how cases can be transferred from specific contexts to illustrate particular differences and similarities between cases. With INTERACTS, data is also being transferred to a wider policy context, through a method which involves comparison of cases.

For social policy researchers the case study has distinct advantages.

> "All who wish to understand voluntary action will need to balance the parochialism of the case study approach against its attention to process and dynamics. Dense, located detail, critically analysed, is as important as thinner, if numerically significant outputs. This is a message for all who study voluntary organisations, whether as policy makers, practitioners, researchers or students".

(Scott et al: 2000)

The work of INTERACTS is intended to generate policy implications and recommendations by showing the empirical reality of science shop work "on the ground". If current policy does not connect with empirical experience then policy needs to be reviewed in the light of the evidence we produce.

As researchers we have collected information with a structured outcome as an objective, through gathering data via semi-structured interviewing using a standardised in-

terview schedule, and using a common framework for analysis. The research has been designed to make the information accessible and coherent, so that both common and unique features can emerge, along with explanatory discussion on the wider issues of impact and implication for policy (Hall & Hall: 2002).

Donmoyer (in Gomm et al, 2000: 61) notes a key advantage of the case study method when he states that "case studies can take us to places where most of us would not have an opportunity to go". Similarly, Stake (1986) believes the role of the evaluator is to provide narrative accounts that provide vicarious experience. This report can therefore seen be considered as providing access to a variety of community experiences, a "window on the localities" of science shops in action. The account of unique situations and individuals provides models for action, while the "rich data" collected adds nuance and subtlety to overarching theoretical perspectives.

- **Interview Questionnaire**

The case study is the means by which grounded experience can be developed into policy discussion. Each case is a study which has been conducted by a science shop, and is based on interviews with all the key participants on two levels – those who have been directly involved (Level 1) and those who have a view on the policy implications of the activity, such as university deans or organisational managers (Level 2). In this way it is hoped to represent the overlapping spheres of university, science shop and NGO activity, similar to the model of the Triple Helix of university-industry-government relations. (Leydesdorff, 2001)

A common methodology has been devised, with interview schedules (see Appendix) derived from the issues that partners have decided are central to the understanding of science shop work. Initial suggestions from partners of suitable questions were formulated into a pilot questionnaire, and feedback from the pilots was used to develop the final questionnaires to participants at level 1 and level 2.

So, for instance, the NGO respondent, researcher(s), supervisor and science shop were asked about the main research questions and methods, findings and recommendations and about the organisation of the project – how it was initiated, channels of communication, budget and timescales. The outcomes of the research were also investigated, in terms of usage and publication, long term benefit to the organisation, and relation to the wider objectives of the organisation.

These policy issues were also explored with level 2 respondents, although with the diversity of roles involved, it was more difficult to find questions which could be asked

across all 6 countries, and some of the questions asked about science and society questions rather than about the specifics of the cases.
A major purpose of the study is not just to show whether negotiated applied community research can be effective – but to examine the case for the intermediary organisation in facilitating such research. So direct questions have been asked about the role of the science shop and about the advantages and disadvantages of the three way relationship between science shop, community group and researcher.

Open ended questions have been used to enable both the development of relevance to the particular case being studied and flexibility between cases (as national contexts are so different). The interviews had to be conducted according to ethical procedures and the following instruction was given by the designers of the methodology:

> *"Before any interview take place, it is important to gain the **consent** of the participants for this research to be used by INTERACTS and for possible future publication. Please enquire whether they wish themselves and/or their organisation to be anonymous – and a pseudonym to be used."*

- **Sample**

It was agreed that partners would study cases of NGO-Science Shop interaction that were:

- Complete (so that activity was finished and impact could be assessed)
- Recent (so that those interviewed could recall fairly accurately what happened)
- With Impact (so that cases contributed to knowledge or to usage)

It was also agreed that case studies would focus on the three main actors:

- NGOs (with activities regarding the environment or social welfare and health)
- Researchers (students and/or supervisors)
- Science Shops

It was suggested that a minimum of 6 interviews per case would be required:

- 3 with those directly involved in the research, one each from NGO, Researcher, Science Shop (level 1)
- 3 with those involved in the research at a policy level, one each from NGO, Researcher, Science Shop. These might include NGO manager or regional network coordinator, University Dean with responsibility for curriculum and/or research profile, Science Shop manager (level 2)

In the event, it was difficult to interview three level 2 participants for each case, because the science shops were all at different stages of development – with the level 1

science shop co-ordinator often being the only science shop worker. Further, not all the science shops were university based, and policy makers in academia, who would be willing to participate, were not easy to locate.

Finally, each partner agreed to complete three case studies, one of which would be from a science shop in their country, which was different from their own. It was felt that this would supply further comparative perspective to the study and increase the validity of the research – so that the findings would be less heavily biased to personal experience and justification of action. It is recognised that this will not provide "objective" or "value-neutral" research, as all researchers are, after all, committed to the ideals of science shop activity. Researcher involvement requires awareness of 'positionality' – of the positioning of the researcher within a wider structure which relates to how they have come to understand knowledge as well as how they have come to produce it (Rhoads, 1997: 17).

But the extension of the sample to other science shops would enable the inclusion of questions and issues which the INTERACTS members might not have encountered in their own science shops and might provide further insights into negative or difficult problems which can arise.

- **Link to Science and Society Policy, WP3 (State of the Art Report), WP5 (Scenario Workshops) and WP6 (the Final Report).**

A first task for the INTERACTS research project has been for each national partner to contribute to a 'State of the Art' report, to set out the baseline with regard to science shops and science policy (Fischer, Wallentin et al, 2002). The case studies provide an opportunity to relate practice on the ground to the wider issues of policy at the national level of each partner through the conjunction of level 1 and level 2 interviews. The state of the art exercise sensitised the researchers to the policy environment of the cases and raised issues for questioning and analysis.

It is expected, in turn, the cases will provide the agenda for the scenario workshops which will further refine the issues introduced in the state of the art report, and worked through in the cases. Finally, WP6 will bring together the national findings into a comparative analysis for dissemination to NGOs, researchers, science shops and policy makers at national and European level.

- **Reflection and the Research**

All partners were required to complete a pilot case, which became the basis of reflection on and development of the study through email and workshops. All partners were advised to keep a research diary to record their experiences of the pilot. “Reflection in action” is the process of thinking about what you are doing, as the work progresses and is distinct from “reflection on action” which is a *post hoc* activity – “stop and think” when the action is no longer current (Schõn, 1983). Such reflection in action, Schõn argues, provides a way of opening thought up to possibilities that might otherwise be blocked off. It helps produce flexibility in finding solutions when objectives are unclear or problematic and so produces improvisation which is thoughtful rather than reactive.

For the INTERACTS partners representing different cultures and experiences, reflection in action is crucial, if not always comfortable, to finding solutions which are creative and scientifically sound, and which represent the commonality and the diversity of the cases. The interview schedule, for instance, was modified after extensive consultation and reflection by partners, and the analytic framework was similarly revised. The case study research has thus been improved on the basis of both substantive and methodological considerations.

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# SECTION 2

## Romanian Case Studies

*Authors: Carmen Teodosiu and Daniela Teleman*

# 1 Introduction

Science shops in Romania were created in 1998 by means of a grant provided by the Dutch Ministry of Foreign Affairs, that has a special fund to support the transition in Central and Eastern Europe (MATRA program). The science shop-method fitted in well with program targets to strengthen the new democracy such as “strengthening environmental NGOs”, “environmental improvement” and “improving legal security of citizens.” When the proposal considering the science shop foundation in Romania (region of Moldova) was submitted, in 1997, the Dutch Ministry demanded both a budget reduction and that science shops be set up at more than one university (Mulder, 1997). Thus, by means of bilateral agreements of university co-operation, and based on the financial support of the MATRA program, as well as of the expertise and training provided by the Dutch team (dr. Henk Mulder- Chemistry science shop, drs. Atie Boss- Biology science shop, both from the University of Groningen, and ir. Arie Fokkink from the Green Grid Consultancy) 4 science shops were established in Romania, in the region of Moldova.

These science shops were established as "research and information/consultancy centres" at: State University of Bacau, “Gh. Asachi” Technical University of Iasi, “Al.I. Cuza” University of Iasi and “Dunarea de Jos” University of Galati. All universities involved, donated office space and furniture, as well as all other facilities normally offered to staff and students (Internet access, no charges for heating, electricity). These science shops are based at Faculty level and use the generic name "InterMEDIU", which resembles the word Intermediate, very common for other entities like science shops or Community Based Research (CBR) Centres. The name was chosen to symbolise both the role that is played by these centres (interface between university and society) and also their expertise and field of activity, mainly environmental ("mediu" means "environment" in Romanian). The Romanian Centres are organised either as independent, non-profit departments of the Universities (“Gh. Asachi” Technical University of Iasi and “Dunarea de Jos” University of Galati) or managed by a specific Faculty (State University of Bacau and “Al.I.Cuza” University of Iasi). A Board of supervisors (with members of the Faculties councils, University Senate and members of the

Dutch project team) is responsible of the general activity, as well as for the changes in statute or mode of operation. Other specific information regarding the Romanian science shops and their specific problems related to their functioning in the period of the MATRA project can be found in SCIPAS Report no.2 (Mulder et.al., 2001).

Since the first MATRA project funding stopped in December 2000, InterMEDIU Centres, even during this first project aiming at their development at initial level, had to find other possibilities to continue their activities, in the framework of strengthening their relations with both universities and society. Thus, most of the InterMEDIU Centres have obtained project grants and/or longer-term projects to generate income (through the Centres of Excellence, by developing distant-learning courses, through small paid projects and analyses, partners in projects with NGOs). The main problem remained the core financing (finance for salary payments, consolidation of science shops), small expenditures for the exploitation budget being more easily covered from individual projects. Also, it became clearer that by increasing their role in the University and by improving their outreach to the society organisations, science shop structures could in future attract the Romanian Ministry of Education support, as well as that of the European Community programs.

Thus, several projects can be cited:

- a follow up proposal of the first MATRA project was submitted first in 2000 (not granted) and then succeeded in 2002 (Mulder, 2002). This new project focused on renewal in higher education (i.e. introducing problem-based learning), which is a slight difference with the first proposal that focused on the environmental benefits of science shops, but however taking into consideration that the science shop method can serve both goals at the same time. This was a strategic decision based on a shift in priority within funds (including MATRA), but also based on the need to increase multidisciplinary co-operation. This project, started already in October 2002, will have a duration of 3 years and will make possible the start up of four new science shops (in Bucuresti, Ploiesti, Brasov and Oradea), support partially the four existing ones (50% funding), create a network of the Romanian InterMEDIU Centres and disseminate nationally the science shop method, with the support of the Romanian Ministry of Education, hopefully leading to a full recognition and support of science shops by the Ministry.
- participation of the InterMEDIU Centre of the Technical University in EC funded projects such as SCIPAS (Study and Conference on Improving Public Access to Science by means of Science Shops), INTERACTS (Improving interaction between NGOs, Science Shops and Universities: Experiences and Expectations) or the recent funded ISSNET (Improving Science Shop Networking) enabled to create and improve international contacts with similar organizations world wide, with benefits both to the University or the society organizations that the science shop co-operates with. Thus, a project of co-operation (*Building human capacity for increased community participation to local environmental management)* between InterMEDIU TU Iasi and Loka Institute, Amherst, Massachusetts, USA, has been submitted in December 2000 to the USAID-

RASP World Learning program, but unfortunately not-granted. Also agreements of co-operation at University level, envisaging mobilities of students and staff, within the Socrates/ Erasmus EC program have been signed with the Universities of Liverpool, Liverpool Hope (UK) and Technical University of Denmark, just starting from co-operations in different international programs of science shops members belonging to the respective universities.

## 1.1. Description of Science Shops

The case studies selected for further analysis within the INTERACTS project have been realised by 2 Romanian science shops:

- InterMEDIU Information, Consultancy and ODL Department, Technical University of Iasi (Case studies 1 and 2);
- InterMEDIU Information and Research Centre, Faculty of Biology, "Al.I.Cuza" University of Iasi (Case study 3).

### *1.1.1. InterMEDIU Information, Consultancy and ODL Department, Technical University of Iasi*

InterMEDIU was founded in April 1999, as a non-profit, independent department (science shop) of the Technical University of Iasi, based in the Faculty of Industrial Chemistry, as a result of the bilateral co-operation agreement with the University of Groningen within the MATRA program, financed by the Dutch Ministry of Foreign Affairs. Since its foundation, the InterMEDIU Department was self-financed by means of projects, a committee with members of the Faculty Board and the University Senate having an advisory role for all its activities.

InterMEDIU Centre co-operates with Faculty departments and organizations of the civil society, as well as with other similar organizations on a national or international scale, its activities being related to: information, consultancy and research in the field of environmental protection, as well as education and training. Since July 2001, InterMEDIU is officially recognised as the department entitled to organise and co-ordinate the Open and Distance learning programs of the Faculty of Industrial Chemistry. Thus, in close co-operation with the Department of Environmental Engineering, the Master of Science distance learning Program is organised from September 2000 onwards, and also short post-graduate courses, having different modules are organised mainly for industry specialists or governmental organizations (EPA, local authorities) employees.

Within the Romanian context, InterMEDIU science shops are seen as an interface between University and society, its main objectives being related to the transfer of knowledge in the field of environmental protection from the University towards civil society structures, the facilitation of public access to environmental issues and contribution to

capacity building of environmental groups. Environmental protection, remediation and alignment with European Union legislation need concentrated efforts from the state, governmental organisations, universities and civil society, but unfortunately, in Romania, non-governmental groups are neither well developed, nor confident in their possibilities to influence environmental policy making. In this respect, science shop activities can contribute to the creation of a true partnership between universities and communities.

The main activities of InterMEDIU are:

- information, consultancy and research in the field of environmental protection, offered to the civil society, assuring also the publicity for all projects;
- organisation of programmes of environmental education in schools, high-schools or universities, as well as for other community groups, in order to increase environmental awareness;
- to offer the scientific basis for public participation (NGO's, neighbourhood groups, consumer's association) to environmental policy making;
- to offer students, in co-operation with other members of academic staff, the possibility to gain experience with project work and co-operation with citizen groups, and to develop their practical oriented approach of environmental problems
- to organise continuous education programs (short post-graduate courses and M.Sc. distance learning in the field of Environmental Engineering and Management).

InterMEDIU Centre has a good co-operation with the department of Environmental Engineering in the Faculty of Industrial Chemistry, this fact being the main reason for including InterMEDIU among the departments that were selected for the foundation of the Centre of Excellence in Research at the Technical University of Iasi "*Environmental Engineering and Impact Assessment*" (recognised by the Romanian Ministry of Education and Research).

The main fields in which the Science shop projects are conducted refer to: Environmental protection (quality of environmental factors, impact of human activities), Environmental management, Environmental education and awareness programs.

At present, 2 staff members and 2 Ph.D. students are co-operating for different projects realised at InterMEDIU Department and student participation is accomplished within practical periods, for the diploma thesis or by voluntary agreement. Students at the Environmental Engineering or Environmental Management (M.Sc.) specialisation find very useful the co-operation with the science shop due to their interest in acquiring valuable skills, such as 'translating' a real-life problem in scientific research proposal, problem-definition, planning a research, co-operation (in national and international context), methodology use in practice, communication and team work and were encouraged to present their work realised for the science shop in different workshops.

A very good example of such a student project was *„The introduction of Environmental Management Systems (EMS) in the metal processing and ceramic industry in Romania*

*and the Netherlands."* The main aims of this project were to determine to what extent environmental policies are already integrated in ceramic and metal processing factories and also to what extent the implementation of EMS can bring benefits to the factories in connection with their relationships with the clients, the environment and local authorities. The project was a good opportunity to allow student work into a multidisciplinary, international team (the team had students from chemical technology, environmental engineering, physics, metallurgy, educational sciences). The realisation of the project lasted 3 months (including its preparation and report submission) and was financially supported by means of MATRA program and Universities of Twente and Groningen (The Netherlands). The results were presented as a written report published in the Netherlands by the Chemistry Shop Groningen (Ciobanu et.al., 2000), as well as oral presentations at the Faculty of Industrial Chemistry Iasi, Dunarea University of Galati and Ceramica Iasi Company. These presentations were held by science shop supervisors, Romanian and Dutch students, in the presence of the students, university staff, EPA and mass media representatives, as invited persons. The Dutch students presented a Multidisciplinary Design Assignment (MDOO) and a reflection report, and they have received credit points at their faculties (University of Twente).
Even if the Romanian students from TU Iasi (2 students from the specialization Environmental Engineering) didn't obtain credit points for this project, so they had to attend the normal activities of the 4$^{th}$ year of study as well, for them this was an opportunity to participate at their first international project and considered it very important for their future carrier (both students have followed the M.Sc. program and 1 of them is now in the 2$^{nd}$ year of her Ph.D.). Referring to the opinions of one of the students involved:

*„This project encouraged me more in taking initiatives and responsibilities within a group, represented a good opportunity to apply my existent knowledge for identifying the emissions and wastes produced in different technological processes, and helped me improve my communication skills, absolutely necessary to obtain the information needed from the companies or EPA, in Romania and in The Netherlands. Even if I had to work more when I came back from The Netherlands, in order to recuperate my laboratory and design assignments and to prepare the lectures that I have missed, I was never sorry for that, the participation at this international project was really a chance for me" (BS, student).*

InterMEDIU Department finalised research projects, answered to different requests for information, and developed environmental awareness/education programs in schools, high schools, for NGO's, or postgraduate courses for different professional groups. Seminars and workshops related to environmental problems and community-based research have been also organised. Project proposals considering national and international co-operation between university and NGO's or for continuous education were

submitted to different national or international financing agencies. Until December 2002, 78 requests have been finalised and 12 different project proposals were submitted for financing at international organizations (8 projects) or national ones (4 projects).
Until now, organisations that requested information, educational programmes or research from InterMEDIU Science Shop are: NGO's, neighbourhood groups, General and High-Schools, departments of Universities, local EPA, public administration, SMEs, and the Technical Museum of the city of Iasi, the requests consisting in environmental educational programmes, research projects, distance learning programs, consultancy for project proposals or for NGO foundation.

### *1.1.2. InterMEDIU Information and Research Centre, Faculty of Biology, "Al.I.Cuza" University of Iasi*

Activities of the Biology Science shop **InterMediu,** at *"Al.I. Cuza"* University Iasi started in March 1999 as a result of the co-operation between the *"Al.I. Cuza"* University of Iasi, Faculty of Biology and University of Groningen, the Netherlands, within the MATRA program financed by the Dutch Ministry of Foreign Affairs.
Reasoning of this Information and Research Centre for the Civil Society was first to put the biological scientific knowledge at free disposal for the non-profit organisations and groups that miss material means for scientific research; second, was aimed at establishing a tighter connection between academic education and research on one hand, and societal needs on the other hand. Citizens receive an analytical instrument but also contribute to change, being at their turn "actors" in the educational reform process; third, students at the Faculty of Biology (and not only) were offered the possibility to involve in the scientific effort focused on biological/ecological subjects from outside the university, with practical relevance for the civil society, thus society being the beneficiary of the academic research results.
From the very beginning a strong and positive relationship with governmental institutions destined by the law to take care of environmental quality: Environmental Protection Agency, "Romanian Waters" National Society, Public Health Institute, Forestry Authorities, etc. was developed. Those bodies were considered as allies in the common fight for an increased environmental quality. Same strategy was adopted for the local administration: City Hall and County Council. *Mass media* (newspapers, magazines, radio, and television) support was asked for; co-operation became by time permanent.
Since the Science shop is mainly focussed on Biology, centre of present and future tasks is **nature protection**. This means two aspects: protection of threatened populations or species, and their habitat protection accordingly. As research topics were approached: water, air and soil pollution; drinking water supply; waste management; population health aspects; energy efficiency; landscape; biodiversity.

According to the initial agreement, efforts were made in order to integrate Science shop's activity within the academic curriculum. Students willing to co-operate with the Centre InterMEDIU were offered the possibility to undertake an optional course: "Ecological monitoring". Practical works consisted of short term (2 weeks x 40 hours) or medium (8 weeks x 40 hours) research projects finalised as concrete topics of Ecology and Environmental protection within the framework of the regular Science shop's activity, as a response to the civile society requirements (NGOs, Associations of lodgers or owners, client groups etc.). Number of credits proposed: 5.
As part of the science shop activity, students learnt how to contact persons and institutions and to formulate the scientific information in a foreign language.
The projects that have been realised at InterMEDIU Biology Centre refer to water quality, biodiversity conservation, endangered species, environmental education programs in high schools and elementary schools, environmental awareness programs for students, pupils or NGOs, with the support of national or international grants. Reports, posters, leaflets, radio material and photo exhibitions were produced jointly with Environmental Protection Agency Iasi, Department of Biodiversity, for public information with regard to: "World Water Day" (March 22), "World Day of the Wetlands", "National Day of Birds" (April 1), "World Earth Day" (April 22). The Science shop produced the web page "Lecture of Ecology" (http://www.e-scoala.ro/ecologie) for students and pupils within the **ScoalaOnline** project.
The project "**VLADENI - 2000 -** Biodiversity Conservation in the Wetland Vladeni (Iasi County, Romania)" was granted 3rd Award (Bronze Medal) by the jury of British Petroleum Conservation Programme. The project "Education for Nature" was awarded the Second Prize at the Annual Session of Gymnasium and High school teachers.
InterMEDIU Centre contributed to the establishment of the European Centre of Excellence for European Studies focused on Regional Development at "Al.I. Cuza" University (2000).

## 1.2. Choice of case studies, typicality and differences

The Romanian case studies selected to be studied for the INTERACTS project have been chosen so as to fulfil the general requirements established by the consortium, requirements that have been discussed in detail previously (Irene Hall, 2002). However, there are few issues that have to be mentioned for case studies selection in the Romanian context (considering the fact that the science shop approach has been introduced quite recently):

- all cases are considered to be relevant for science shop work (university based), and have been accomplished with students participation;
- the selected case studies are based on projects that were finalised before December 2001, and had as objectives environmental issues;

- outcomes and follow-up of the projects documentation is available and can be used also to discuss the impacts on universities, community and science shops;
- all case studies involved the three actors: NGOs, researchers/students and science shops, and are chosen so as to demonstrate science shop usual requests (small projects that provide specific information or research projects with a longer duration)
- a minimum of 6 interviews per case have been realised, but there were cases in which the same person (science shop manager/supervisor, or NGO key respondent/manager) had to reply both at the first level questions (direct involvement in research) and at the second level questions (policy level);
- direct and indirect impacts of projects realisation can be discussed in relation to all the organizations involved (NGO's, universities, science shops).

The three case studies that are to be presented, have been selected from 2 different science shops, as follows: two case studies based on projects that have been realised at the *InterMEDIU Information, Consultancy and ODL Department, Technical University of Iasi* (partner in the INTERACTS EC project) and one case study that was realised in another Romanian science shop *InterMEDIU Information and Research Centre, Faculty of Biology, "Al.I.Cuza" University of Iasi.* Thus, aspects related to a comparative, objective prospective, validation of science shop research and diversity of approaches even for the same field (environmental) are tackled.

# 2 Methodology

## 2.1. Application of the questionnaire

The questionnaire used for case studies analysis (presented in the Annex of this report) was designed by Irene and David Hall as part of the INTERACTS Work Package 2 (Methodology), have been used for the pilot case study by all the partners and then received comments that conducted to its improvement and final release in March 2002.

The questionnaire is addressed to all parts involved in the case studies (NGO, students/researcher and science shop) and the questions are divided in 2 parts: level I, addressed to the participants involved directly in the projects and level II, addressed to the responsibles of the organisations at a policy level (NGO consortium manager, university dean of research/teaching, science shop manager).

The questionnaire has been entirely translated into Romanian in order to facilitate the interviewing process, and then the interviews were taken and translated for each of the case studies. These activities were realised by InterMEDIU TU Iasi partner.

## 2.2. Selection of interviewees

The interviewees were selected for each case study considering their effective participation at the project as representatives of their organisations, at the time of project realisation. An overview of the interviewees is given in Table 1, and for this study the initials of the persons will be used in order to identify their citations. Since in the case of NGOs and science shops, the persons that were active in the research were responsible for their organisations at a policy level, these persons were interviewed also using the 2nd level questionnaire.

**Table 1.** Overview of case study interviewees

| | | | |
|---|---|---|---|
| **CASE STUDY 1** | Level I | NGO O.A.I.M.D.D. | M.M. |
| | | Student / researcher | B. S.; M.H. |
| | | Science shop (InterMEDIU TU Iasi) | C.T.; M.S.P. |
| | Level II | NGO Manager O.A.I.M.D.D. | M.M. |
| | | University dean | I.B. |
| | | Science shop manager (InterMEDIU TU Iasi) | C.T. |
| **CASE STUDY 2** | Level I | NGO CET Moldavia | D.I. |
| | | Student / researcher | B.S. |
| | | Science shop (InterMEDIU TU Iasi) | C.T. |
| | Level II | NGO Manager CET Moldavia | D.I. |
| | | University vice dean (research) | M.G. |
| | | Science shop manager (InterMEDIU TU Iasi) | C.T. |
| **CASE STUDY 3** | Level I | NGO Romanian Ornithological Society | C.G. |
| | | Student / researcher | S.M. ; D.Z. |
| | | Science shop (InterMEDIU UAIC Iasi) | M.N. |
| | Level II | NGO Manager | C.G. |
| | | University vice- deans | T.C.; I.M. |
| | | Science shop manager (InterMEDIU UAIC Iasi) | M.N. |

## 2.3. Reflective report on research practice

Reflexivity is understood as the capacity to stand back from the detail of the research methods and to consider the social situations in which they are used (Hall and Hall, 1996). "**Reflection in action**" is the process of thinking about what you are doing, as

the work progresses and is distinct from "**reflection on action**" which is a *post hoc* activity – "stop and think" when the action is no longer current (I.Hall, 2002). Both processes have been used for the realisation of this study.

The application of the research methodology designed for case studies realisation brought into discussion aspects related not only to the pilot, but also to the main cases. The pilot case study, presented in the form of an analytical and reflexive report and based on the initial version of the questionnaire, brought information useful for the realisation of the main cases, but also about the experiences encountered by applying the research methods. Several issues related to the pilot case realisation, were common for all cases, but new elements appeared, so this reflective part is not only based on the pilot, details being presented below:

- a general presentation of the INTERACTS project (objectives, work packages) was found to be necessary before each interview, considering also clarifications about the further use of interviews and reports. Citations of the complete references of the project were considered to be important by university staff working in science shops;
- appointments for interviewing the participants were made for each case; for two interviewees (2nd level) these appointments had to be rescheduled due to other urgent meetings;
- an approximation about the needed time for interviews was requested by many participants (especially for the 2nd level questions), this approximation being communicated based on the pilot data. As a general remark, students were all very eager to share their experiences, irrespective of the time duration for interview, even if most of them are now working;
- attention was paid during the transcription of interviews, so as to avoid misinterpretation. Citations given in the text (English), based on the transcriptions (in Romanian) were analysed carefully in order to avoid confusions, since there are language nuances that can be translated more difficult;
- the general knowledge about science shops at the level of policy makers was not always sufficient to respond in detail at questions related the particularities of science shop work, the contributions to national or European Research and Technology policy. Sometimes the interviewees specifically asked for additional information about community based research or science shops activities in other countries. This fact could be maybe explained by the fact that science shop activities are relatively new in Romania;
- a common format for case study reports and the inclusion of documentary evidences for the outcomes of each projects were found to be very important for future comparison of case studies. This format was proposed based on the structure of drafts for case studies reports, discussed and agreed by the partners and is reflected by this national report;
- the coverage of the achieved impacts or problems encountered during project realisation was quite good for the majority of participants, especially due to the fact that all cases were recent;

- the themes for case study analysis and for discussion in the workshops were discussed at consortium level and the major part of the themes emerged out of the individual case presentations.

## 2.4. Documentary evidences

For the first 2 chapters of Section 2 (Romanian Case Studies), references are given below. For the third chapter, since most of the information concerning the case studies is given in detail for each of the projects, references are given after each of the cases, so as to illustrate better their specific context.

## 2.5. References

1. Ciobanu D., Hristea M., Jansen D., Odijk S., Rabbering F., Sluser B., Tank P., Tudorache G.A. (2000), **EMS in factories- The introduction of Environmental Management Systems in the metal processing and ceramic industry in Romania and The Netherlands,** Eds: H.A.J. Mulder, C.Teodosiu, L.Georgescu, L.P.Georgescu, Chemiewinkel Report C 94, ISBN 90-367-1-1343-9, p.1-76.

2. Hall I. **Introduction to INTERACTS case studies and methods**, 2002, Section 1, INTERACTS reports

3. Hall I. and Hall D. **Questions for case studies,** 2002, INTERACTS WP2

4. Hall D. and Hall I., **Practical Social Research- Project Work in the Community**, Mac Millan Press Ltd., UK, 1996

5. Mulder H.A.J. (1997): **Science Shops (Research and Information Centres) in Romanian Moldavia***,* MATRA application, Chemiewinkel Groningen

6. Mulder H.A.J. (2002): **Problem based learning through Science Shops in Romania***,* MATRA application, Chemiewinkel Groningen

7. Mulder H.A.J., Heyde T.A.D., Goffer R., Teodosiu C. (2001), **Success and failure in starting science shops,** SCIPAS EU project HPV1-CT-1999-00001 (project report no.2), ISBN 90-5209-115-3, p.1-83 (also available in the Living Knowledge website as SCIPAS report no.2, www.bio.uu.nl/living-knowledge).

# 3 Presentation of Romanian Case Studies

## 3.1. Case study 1

### *3.1.1. Fact sheet*

#### *3.1.1.1. Title of the project*

*Romanian title:* **Evaluarea situatiei calității apei potabile în oraşul Iasi**
*English title*: **Evaluation of the quality of drinking water supplied in the city of Iasi**

#### *3.1.1.2. Summary of the project*

In Romania, most of the environmental problems, including deterioration of water natural sources quality have their origin in an intensive industrialisation and development of agriculture, for more than 30 years (before 1990), that have not been associated with proper environmental protection policies/ legislation/ treatment facilities and accompanying measures. There were only very few questions related to the drinking water quality, to what extent the treatment achieved in the Water Treatment plants removes undesirable pollutants (especially those that might affect human health), or if the population is satisfied by the quality and quantity of water supplied in the distribution network until the date of realisation of this study. Iasi is a town in which industry developed especially after 1960 and the number of inhabitants increased accordingly (180000 inhabitants in 1980 and 348705 inhabitants in 2001), so that the drinking and industrial demands had to be fulfilled by searching additional sources of raw water or sometimes by using a combination of water supplied by 2 or even 3 of the treated sources. Before 1990, it was quite frequent in some of our city neighbourhoods to have the drinking water interrupted for at least 8 hours/day, and usual associations between quality and the fact that water was not supplied permanently were frequent.
It is worth mentioning until the beginning of this project, no unitary correlations were made between the quality of sources, the treatment achieved at the Water Works Company, and the opinions and expectations of the population.
This study realised in 1999 represented the pilot project of the new founded science shop InterMEDIU (Technical University of Iasi) and has been considered to be relevant to illustrate the science shop approach for the study of a problem that is of interest for the whole community. An assessment of problems related to drinking water was realised by means of 2584 questionnaires addressed to the population living in different

neighbourhoods, supplied by different sources of treated water. The results of these questionnaires, together with the analysis of quality indicators (physical and chemical) of treated water, served as a base for discussion of treatment technologies currently applied by the Water Works Company for different sources of raw water. Quality indicators for toxic micropollutants were determined for the surface water sources. A correlation between the technical conditions and the degree of treatment was realised and also recommendations for improving the existent situation were given. A public debate on drinking water quality was organised and representatives of community (NGOs, neighbourhoods associations), university staff and students, research institutes, governmental organizations (Environmental Protection Agency, City Hall representatives), Water Works Company, media were invited. The project received a good media coverage and for the students of the Environmental Engineering Department represented a very good opportunity to apply their knowledge related to Water Treatment technologies, but also to learn more about the techniques of social inquiry, project management and computer applications.

#### *3.1.1.3. Participants at the project*

- Academic Organisation for Environmental Engineering and Sustainable Development (O.A.I.M.D.D.) NGO;
- InterMEDIU Information and Consultancy Department (science shop) Technical University of Iasi. The supervisor of the project (co-ordinating also InterMEDIU science shop) was a senior staff member of the Department of Environmental Engineering entitled to supervise student research work, another member of the science shop contributing to the project as a researcher;
- Chemistry science shop co-ordinator at the University of Groningen, The Netherlands, at that time director of the MATRA program (HM) and representative of Green Grid Consultancy (AF) participating in this program;
- 10 Students of the Faculty of Industrial Chemistry, specialization *Environmental Engineering***,** in the 3rd and the 4th year of study, as part of their practical period (July 1999) and afterwards on a voluntary basis.

#### *3.1.1.4. Duration of the project*

6 months (June-November 1999).

#### *3.1.1.5. Costs of the project*

All the costs were supported from the MATRA program (*Science Shops in Romanian Moldova*, granted by the Dutch Ministry of Foreign Affairs, 1998).

#### *3.1.1.6. Objectives of the project*

The aims of this study were:

- to consult the community about the quality and quantity of drinking water supplied by different sources, by means of appropriate designed questionnaires addressed to a statistically significant number of people;
- to compare the major qualitative problems raised by the population with the existent situation in the treatment plants (quality indicators and their variation in comparison with national and international standards, treatment technologies applied and degree of treatment achieved);
- to formulate proposals for improving the existent situation;
- to organise a public debate concerning the drinking water quality, with representatives of interested governmental and non-governmental organizations.

#### *3.1.1.7. Outcomes*

Report of the project, published in 100 copies distributed to NGOs, Water Works Company Iasi, EPA Iasi, City Hall Iasi, university staff and students, research institutes, other science shops, MATRA project supervisors, media

- Public debate (local NGOs, EPA, university staff from several faculties, representatives of other Romanian science shops, Water Works company, other governmental organizations: Institute of Hygiene, other Research Institutes);
- Press release and articles in the local news papers, invitation for a TV debate;
- 4 papers published in peer-reviewed journals;
- 3 diploma thesis;
- consideration of the problem (quality of drinking water and modernisation of water treatment facilities) as needing to be included in all the local development strategies;
- publicity folders given to local NGOs and associations;
- follow up requests for participation of InterMEDIU in projects regarding water quality (2 proposals)
- at the Galati (Dunarea de Jos University) science shop the structure of this project was adopted so as to answer the request of the local Water Company.

### *3.1.2. Brief Description of NGO*

**NGO- Organizația Academică de Ingineria Mediului şi Dezvoltare Durabilă (OAIMDD), Iaşi**

Organizația Academică de Ingineria Mediului şi Dezvoltare Durabilă (Academic Organization of Environmental Engineering and Sustainable Development) (OAIMDD) is

a Romanian legal entity, independent, non-governmental, non-confessional and non-political, situated in Iaşi, 71A Bd. Acad. D. Mangeron, in a building belonging to the Technical University “Gh. Asachi” Iaşi, Faculty of Industrial Chemistry. The NGO was funded in 1997 and is functioning for a non-determined period, with active members and voluntary members such as: staff of the universities and research institutes, students, specialists in environmental protection working in different governmental bodies. Projects that have been accomplished through this organisation refer to educational programs, awareness campaigns, participation in an international program granted by USAID for recycling the PET wastes in the County of Iasi and publication of environmental reports and a specialised journal (*Environmental Engineering and Management Journal*).

The aim of O.A.I.M.D.D. is to promote ecological behaviour and technical solutions, education and awareness of people in order to understand the need of sustainable practices and the conservation of the environment.

Its activities are related to:

- initiatives and actions concerning the improvement of educational activities, research, design, implementation, operation, marketing and management in the field of sustainable development;
- development of awareness campaigns for the population, in order to realise the improvement of responsible participation of the people in the economical or ecological decision making processes;
- organizations of exhibitions, seminars, symposiums, lectures, with the aim of presenting the existent models of development and to propose alternatives for a sustainable development;
- realisation of activities that contribute to the endorsement of legal or administrative measures, in order to normalise the quality of environmental factors;
- informative and documentary publications, as well as books and manuals concerning sustainable development and the ways to achieve it;
- foundation of a publishing house and printing works belonging to O.A.I.M.D.D. so as to provide the necessary information needed for the practice of specific methods and procedures required by sustainable development;
- promotion and monitoring programs of sustainable development on a local and national scale, to advertise “eco” products, technologies and activities;
- co-operation with similar institutions and organizations, governmental or non-governmental, from Romania or abroad, with the aim of promoting sustainable development;
- contribution with studies and programs to activities concerning environmental protection.

### *3.1.3. Process of project origination*

The initiation of the project was a consequence of the discussions between representatives of science shop, representatives of NGO, the Dutch partners of the MATRA program and the staff of the Environmental Engineering Department, especially in the context of choosing an appropriate pilot project for the new founded science shop (1999). The approval of the Environmental Engineering Department to allow participation of students for the whole practical period (3 weeks), as well as the approach of the Water Works Company by a preliminary letter of intend addressed by InterMEDIU science shop (requesting access of students at the treatment facilities and laboratories) were essential issues to be established as part of the project preparation phase. Personal involvement and existent co-operation between the project participants were important for project initiation.

*"More information should be known about the actual quality of drinking water in relation to the level that would ensure a good status of health of the population living in Iasi municipality (MM, NGO representative/ manager)"*

*"Considering the existent information available, there were no evidences of studies that would approach both the consultation of the society with respect to drinking water quality supplied (from separate sources) in different neighbourhoods and the correlation with available treatment. As a pilot project for the science shop, I have considered it as a good opportunity for students to depict problems (as suggested in the interviews with the population), have a closer look at drinking water technologies and correlate specific laboratory results with performances of treatment equipments. The possibility to involve society not only at the level of information (for the public debate or by means of publicity folders), but as a partner that would be consulted directly was considered to be not only relevant for the science shop approach, but also to create contacts and links with society organisations (CT, InterMEDIU TU science shop, scientific supervisor of the project)".*

### *3.1.4. Process of project negotiation*

The project was planned, with intermediate results referring to the collection and analysis of questionnaires and survey of laboratory results of the qualitative indicators for treated water. Considering the students' participation, it was important to have specific objectives and tasks to fulfil during their practical period, objectives that would serve as a basis for their evaluation. The discussions with the Water Works Company, apart from clarification of student and science shop staff access in the treatment plants installations and laboratories, involved their request to be informed about the results of this project and about concentrations of specific priority pollutants (such as chlorinated

organic compounds, heavy metals, disinfection by-products), if these concentrations are to be determined.

*"The Water Company was very open towards our request at the beginning of this study and the laboratory staff expressed their interest to obtain information about concentrations of specific indicators in specialised laboratories in The Netherlands. H.M. our Dutch partner in the MATRA program facilitated these analyses (we have used a part of our budget to pay them) on samples taken in the presence of the company representatives. At that time, the indicators that have been analysed in The Netherlands either could not be determined (lack of equipment), or were determined by other methods (spectrophotometry instead of atomic absorption) (CT, InterMEDIU TU science shop)".*

*"We considered that a more detailed information about the results of the project in 3 months after its beginning was a realistic objective. The finalisation with a public debate was considered by us and all participants involved as absolutely necessary (MM, NGO manager)"*

*"I remember that we had as tasks for the practical period to finish a certain number of questionnaires and to correlate the technological process of drinking water production and effluent quality indicators, our mark reflected the accomplishment of these tasks. In any case, I continued to work for this project even after the practical period and afterwards even for my diploma of engineer research part (M.H. student)".*

### *3.1.5. Data collection and analysis*

A questionnaire was conceived especially for this study, and discussed with specialists in Techniques of Social Inquiries from "Al.I Cuza" and "Gh.Asachi" Universities of Iasi. The representative population sample for a city like Iasi is considered to be at least 750 inhabitants, but for reasons of data relevance/source this number was selected as representative for each water source. A total number of 2584 questionnaires were realised and processed for the first part of the report regarding consultation of the civil society.

*"The question of statistical relevance concerning the number of interviewees was a particular issue of interest that we have discussed with our colleagues specialised in social inquiries. In this way, a correct interpretation of the results and adequate solutions for improvement of the actual situation can be made (CT, InterMEDIU TU science shop)".*

As method of questioning, the "*interview face to face with the informant*" was used. For data collection and analysis the following aspects were considered:

- 3 sources of drinking water provided by different treatment plants were selected (2 surface water sources and one underground source); the level of treatment per source is correlated with the influent water quality (less treatment for the underground source);
- a number of neighbourhoods that are supplied with drinking water from the same treatment plant (source) were selected for this study, so as to facilitate comparisons under similar conditions (there are neighbourhoods in Iasi that are supplied with drinking water produced by 2 treatment plants- mixtures);
- the objectivity of the interviewers (students) was assured by a short training concerning the inquiry techniques; the interviewers, students with specialization Environmental Engineering, had already the basic knowledge concerning water quality indicators;
- any other suggestions or problems that have appeared with drinking water quality and quantity, as specified by the subjects, were registered separately in the same questionnaire as observations.

The questionnaires were designed to give information on:

- *subject status* (age, occupation, income, and family composition)
- *drinking water quality* (temperature, colour, taste, smell, solid impurities, turbidity, hardness). The questions related to quality were expressed as general particularities and not with the scientific terms (for instance the persons were asked if they consider the water clear enough, although the associated indicator was turbidity)
- *drinking water quantity* (flow, pressure, continuous supply)
- *usage of alternatives,* in case of discontent (drinking water from other sources, mineral water, soft drinks, filter units at the tap)
- *other problems observed*.

*„We were informed by the science shop staff that we should let the interviewees answer the questions with their own words. We had a list of quality indicators that would create specific problems if their value is above the average standards. I was involved in interviews, data processing, and collection of water samples. (BS, student)"*

*"We had our share of questionnaires for each day, we had to process them for each neighbourhood and next morning we discussed with the science co-ordinators our results and problems. It was an interesting experience for us (the first as interviewers), we had special badges, and we had to make a short introduction about who we are and about the project. Although we thought that it would be more difficult, we found many people eager to talk with us and say more about other environmental problems as well, or gave their telephone numbers to be contacted for participation at the public debate. (MH, student)".*

All these data were computer processed in Excel, and presented graphically for each source. In all cases, the problems suggested by the population in terms of both *quality* and *quantity* permitted a comparison of the sources.
This project focussed also on the evaluation of physical and chemical indicators, since they can offer a good correlation with quality problems suggested by the population and are relevant for the calculation of efficiencies achieved in different stages of water treatment. As far as chemical indicators are concerned, a distinction has to be made between general characteristics and those that give information on priority pollutants, and that are of more concern for human health (toxic, carcinogenic or mutagenic properties).
Several quality indicators were selected as representatives and 2 seasons of the year were compared in terms of daily or monthly-analysed indicators. The determination of the following groups of priority pollutants was made:

- volatile organic compounds that can be generated in drinking water as secondary products of disinfection with chlorine,
- non-volatile organic compounds,
- inorganic substances.

Water samples were taken from different points of the treatment process: raw water (inlet of the treatment plant), water from the reservoirs (after chlorination), or from the consumers (tap water) and these micropollutants were determined in a specialised laboratory in The Netherlands.
All the data referring to questionnaires and quality indicators were computer processed in Excel, and presented graphically for each source. In all cases, the problems suggested by the population in terms of both quality and quantity permitted a comparison of the sources. Students under the supervision of science shop co-ordinators contributed both to the collection of raw data, analysis, and interpretation.

### *3.1.6. Channels of on-going communication*

#### *Internal communication*

Internal communication was realised with project participants by regular meetings, phone, e-mail, and fax. There were meetings designed for an appropriate evolution of the project (with students, science shop staff, NGO representative, Dutch participants in the MATRA project), Water Works Company staff.

*"We had a very good communication during the project realisation with the science shop staff, so it was easy to see the recent developments (MM, NGO representative/ manager).*

*"There were daily meetings with the science shop staff at InterMEDIU during our practical period and then weekly meetings until the project was finalised and debated. Each*

*meeting had a schedule and we had to discuss results, but also problems that appeared. At the Water Treatment Company we usually went together with the science shop staff and we had meetings with the staff of the laboratories and together we visited the treatment facilities (BS, student).*

*"The meetings with the Water Treatment Company staff were established at the beginning of the project, mainly to discuss the access of students at the treatment installations and laboratories. However, we kept a good communication with them, mainly by phone and meetings and they were present when we took the water samples (MSP, InterMEDIU TU science shop)".*

***External communication***

Communication with the media was not always so open and good as expected. The media had access to the report and representatives of all newspapers, local TV stations were invited at the public debate. The first presentation of the project in a local newspaper was not very objective and stipulated on key words that were considered important for selling the newspaper. Thus, objective evaluations and conclusions related to the study were presented only with emphasis on the toxicity of water, fact that created some problems for participants involved in the project. The public debate, all the other articles and media coverage, benefited of objective presentations.

*"I was amazed by the way in which my interview was presented in that newspaper and the way results of the report have been misinterpreted, I have complained about this to the editor in chief of the newspaper and requested the right to reply. It is true that they have offered space for reply, but in the last page, and not in the first one, as for the previous article, which makes quite a difference for the reader. Everybody learned some lessons from these events and we've discussed it with our colleagues and students. The first article that appeared just 2 days before our presentation, brought at the public debate many representatives (more than we have expected) of governmental and non-governmental organisations, however we considered that the respective article created an unnecessary tension with the Water Works Company representatives (CT, InterMEDIU TU science shop manager)".*

### *3.1.7. Outcomes*

The main results of the project referred to drinking water quality from different sources, as seen by the population and as demonstrated by available records or supplementary analysis. As expected to a certain extent, the interviewed subjects considered as good or very good the quality of drinking water supplied from the groundwater source that is mainly seen as an alternative source for those living in other neighbourhoods.

Evaluation of quality indicators available in the records of the Water Company or further determined by analysis proved that treatment achieved for surface water sources should be improved either increasing the removal efficiencies of each treatment step, or by up-grading the whole treatment plant. Several supplementary treatment steps or even alternatives to conventional processes have been proposed.
Recommendations included also the necessity of a feasibility study, a cost analysis for treatment alternatives, and surveys of proposed modernisation alternatives that will include consultation of the population.
The report concretised all the findings and recommendation of the project and it was published in 100 copies and distributed to governmental and non-governmental organisations and to students and staff of universities. There were no restrictions concerning the access at this report.

*"All the original project objectives have been fulfilled and recommendations regarding corrective measures and a better control at the treatment plants were given. The modernisation of the drinking water technology (applied already for about 40 years) was the major recommendation and the representatives of the Water Works Company mentioned in the public debate their efforts in this direction. I know that after approx. 1 year they managed to get financial support to modernise one of the treatment plants (MM, NGO manager)".*

*"Most of the interviewees were not content with the quality of drinking water supplied from surface water sources, especially in summer. Few of them had problems with the distribution patterns (B.S., student)".*

*"The presentation of the project took place in a public debate at the Faculty of Industrial Chemistry, and many of our colleagues students participated, I think it was a good debate. After less than 1 year, I had to work more on the technical part related to modernisation of drinking water treatment technologies for my diploma of engineer project (MH, student)".*

### *3.1.8. Usage of results*

The project had an immediate and a long-term usage, internal and external use as well, and allowed free access to information included in it. Thus the following aspects can be mentioned:

- NGO used the information both for NGO members and local community information.

*"We were also interested to observe the particularities of the science shop approach, it was at that time a completely new activity in Romania (MM, NGO manager)"*.

- Science shop used the report for promoting science shop activities, as an example of science shop project work realised with students' participation and also for raising public awareness concerning the quality of drinking water supplied in the city of Iasi. If any modernisation will be achieved for drinking water treatment the project can be used as a scientific reference obtained for year 1999. Follow up proposals in which InterME-DIU TU science shop was asked to participate had as common theme the quality of water.
- The department of Environmental Engineering and the management of the Faculty of Industrial Chemistry appreciated the modality in which students were involved in this science shop project and approved that continuation of their co-operation with science shop may include also the realisation of diploma or M.Sc. thesis;
- For science shop staff the project served as a base for scientific publications and raised further technical questions that were approached by means of the research part of the diploma of engineer thesis. The supervisor of the project (science shop manager) used the project information and included it in the regular course of Water Treatment Technologies, taught to the 4$^{th}$ year students at the profile of Environmental Engineering, as an example to illustrate drinking water quality from different natural sources and correlation with technology selection;
- The Water Works Company used the report as a witness for the necessity of improving the quality of drinking water and modernisation of water treatment facilities and also for the necessity to include these in all the local development strategies;
- Students participating in the project considered that there were many positive aspects, such as:

- they have used techniques of social inquiry and thus have been able to get in contact with community;
- they had the opportunity to apply their knowledge (environmental engineering, drinking water technology) to a practical "real" case;
- the knowledge gained in general about research methodology and presentation of results were applied further to finalise other scientific work;
- they have learned more about projects and task management;
- they have improved the computer skills and group communication skills;
- their co-operation with the science shop was continued by participation in other projects, including an international student project;
- they considered the project as a good starting point for future career, mentioning it in their CVs.

### *3.1.9. Participants' Evaluation*

The evaluation of the project is summarised below considering several aspects such as expectations, specific interests, positive aspects or problems encountered during realisation, considerations of a possible improvements the project judging it from a retrospection perspective:

***Specific interests and expectations***
The project presented very detailed information and rigorous methodology, with data that could be followed by specialists, but also by the general public. For students its main advantages referred to knowledge enhancement and improvement of communication and participative skills.

*"For me the project was beneficial, I had the chance to learn new things and to see in practice aspects that I knew only in theory. I never worked before in large groups of students, normally we are 2-3 students collaborating for laboratories, so this was another aspect that I have appreciated (MH, student)".*

*"Improving my communication, team work and computer skills, as well as the knowledge about water treatment were the major benefits. This was the point when I also decided to improve my English, we had meetings with the Dutch science shop staff and I saw that communication from my side in English is very difficult. Afterwards, I followed English courses, had the chance to participate in an international student project and even now, when I'm doing my Ph.D. I realise how important was the co-operation with the science shop (BS, student)".*

For NGO representative the major interests refer to awareness and implication of the local community as well as that of the members of governmental organizations.

*"I was also very interested in participating at discussions with representatives of Dutch science shops and hear more about this kind of projects (MM, NGO manager)"*.
For the science shop staff, the project presented interest from the scientific and teaching point of view, but also in terms of innovative approach and linkages to society issues.

*"I was interested in aspects concerning environmental protection, but I did not had the chance to work in this field. I got new information about water quality problems, and about project management that helped me in my professional activity afterwards. I decided then to follow the Environmental Management M.Sc. program in the Technical University and the subject of my Ph.D. at "Al.I.Cuza" University, is also related to envi-*

*ronment, air quality. Knowing the project developments, I was sure that it will turn out to be a very good example of science shop work, we were just disappointed by the first article in the newspaper (MSP, InterMEDIU TU science shop)".*

*"There were so many things that interested me from the beginning: the problem based learning approach for students and co-operation with them in a less formal way, nevertheless going deeper into some technical subjects. For me, the topic was and is very interesting since I teach Water and Wastewater Treatment Technologies and many of the research work is also situated in this field. However, there were new dimensions, the relations with NGOs and community groups, with the media, publicity and the first public debate that we have organised. (CT, InterMEDIU TU science shop supervisor of the project) "*

***Positive aspects***

The positive aspects of the project were considered by the majority of participants the organisation and the discussions at the public debate, the implication of students in a project that did not involved only their technical background, but also knowledge related to Social Inquiry techniques that are part of the curricula, but not often applied.

*"Apart from the environmental knowledge, I was glad that I had the chance to learn more about the interviewing techniques and data processing. At that time, my computer skills were not that developed (BS, student)".*

Involvement of students in projects and media coverage of science shop activities were important issues for the positive appreciation of the project.

*"One of our problem when the students finish their engineering and even management studies is their lack of experience in projects, and now in Romania there are many opportunities either for students only, or for young teams of students and researchers to access research grants. Information on how to prepare a project proposal or project management are not subjects in the curricula and therefore these opportunities are valued by students and by us as well (CT, InterMEDIU TU science shop)".*

*"I didn't have the opportunity to work with students since the graduation of my university studies. I had a very good relation with the students, some of them were really motivated. For me it was important, because as part of my Ph.D, I also had to continue work with students for seminars or laboratories (MSP, InterMEDIU TU science shop)".*

The fact that the public debate was organised at the Faculty of Industrial Chemistry and other students and staff members participated as well, facilitated separate contacts be-

tween specialists, NGO groups and represented a good publicity for the interest for environmental activities already existing in the Faculty and for the science shop work.

- ***Problems encountered and solutions***

One of the problems was due to an incorrect presentation of the results of the project in one of the local newspapers. This interpretation of results may be interpreted as a lack of professionalism, but it was clear for everybody that the subject attracts the attention of the whole community.

*"At the public debate the representative of the Water Works Company recognised that they are aware that problems exist and they make efforts to attract funds to improve drinking water quality. One of the media representatives tried to exaggerate the situation, using words like non-potable or toxic. The public debate was a very good opportunity to mediate things. There are quality indicators that are not controlled on a daily basis and problems are also encountered with the distribution network, exceeding of average limits (compared to the standard) might appear (MM, NGO manager)"*

*"I think the journalist was looking for a "bomb" article, they often do so. She gave a personal interpretation to the data, and we start receiving phone calls from different organisations and the Water Works Company staff. Those who have seen the report were amazed to see different things in the newspaper (MSP, InterMEDIU TU science shop)".*

Publication of a report without ISBN was considered not a real problem at that time, but it turned out that usage of report without its citation was done.

*"We have discussed this issue in a recent national meeting of science shops. Some of us had problems with usage of data without proper citations. I think that there are cases when the authorised printing of the report by a Publishing House or Lithograph may solve the problem, but sometimes you just cannot predict everything from the beginning…(CT, InterMEDIU TU science shop)."*

- ***Possible improvements***

The majority of interviewees considered the project a real success, not needing improvements. A reference was made to a possible improvement:
*"I think the project reached its objectives and it was a success. However, if I would have to do it again, I would inform the media earlier about the project developments (CT, InterMEDIU TU science shop)."*

### *3.1.10. Policy Issues: Science shop collaboration*

Science shop collaboration seen from the perspective of the NGO, student, or science shop staff has particular features and advantages. Few of these as presented by the participants at the project are given below.

- ***Accordance with wider objectives of the organisation***

*"This co-operation is within our major field of preoccupations: to inform the public about the environmental problems and about possibility of remediation with the purpose of making them more aware and more involved in decision-making at local level (MM, NGO manager)"*

*"The science shop was a real, independent organisation situated in a neutral position, between the public, local administration and university, and if we judge after the long term results, benefits are there for all participants (MSP, InterMEDIU TU science shop)".*

- ***Subsequent projects***

*"Afterwards we had co-operations in projects with governmental organisations or other NGO's, not with other science shops. However, we have been invited by InterMEDIU science shop for other debates or received information about their projects or call of proposals (MM, NGO manager)".*

*"My co-operation with the science shop stopped only 1 year ago, when I started my Ph.D. I participated in several science shop projects, including the international one (BS, student)".*

*"There were other science shop project proposals or further research on the topics (public involvement or drinking water treatment together with my diploma students. We also received other requests from NGOs to contribute to project proposals with subjects related to water pollution and awareness programs. The NGO that requested our support for project proposal preparation, received funding to proceed with a survey and educational campaigns concerning the risk of nitrates and nitrites in the ground waters of Suceava plains, and the collaboration will continue in the period of project realisation (CT, InterMEDIU TU science shop)".*

- ***Advantages/disadvantages of co-operation (with science shops)***

The advantages of co-operation with science shops or other intermediary agencies collaboration are usually related to the experience, contacts, flexibility and communication.

*"The experience brought by the persons/organisations is very important, in some cases there could be disadvantages related to a good knowledge of the project area or specificity, but this was not the case of this project (MM, NGO manager)"*

*"For me, as a student, it is important to have somebody from outside to help me get more information about aspects that we don't usually study in the faculty (project proposals, project management, presentations). I had the opportunity to learn more about this while working in the science shop. I think these organisations are more open to cooperation" (BS, student).*

*"The advantage of science shop is that it can establish links with different department. For this project we contacted for advice a specialist from the Department of Social Sciences at the "Al.I. Cuza" University and also a specialist in Techniques of Social Inquiry at the Technical University, and we finalised the questionnaire in less than 1 week. Formal contacts would have taken a longer time, for sure" (MSP, InterMEDIU TU science shop).*

*"A neutral view on the problem that was formulated, a more flexible approach and cooperation/communication with different groups, as well as the enthusiasm brought by students are probably the major advantages of collaboration with science shops. I would add the fact that we had to think "in projects" if we wanted to preserve the science shop identity, because the science shop is self-financed (according to its statute). However, I think it is very important to integrate science shop activities into the general preoccupations of the university" (CT, science shop manager).*

### *3.1.11. References Case Study 1*

- ***Scientific papers and reports***

1. Teodosiu C., Stanciu-Petrea M. "Evaluarea situatiei calitatii apei potabile in orasul Iasi" (romanian), Centrul de Informare si Consultanta InterMEDIU, Facultatea de Chimie Industriala Iasi, 1999, p.1-39.
2. Teodosiu C., Stanciu-Petrea M., "Evaluation of the drinking water quality and quantity in the City of Iasi, Romania," *European Water Management*, 4(4), 2001, p.33-42.
3. Teodosiu C., Hristea M., "Possibilities to upgrade the conventional drinking water treatment technology", *Buletinul Institutului Politehnic Iaşi*, secția Chimie si Inginerie Chimică, Tomul XLVIII, fasc.1-2, p. 115-126, 2002.
4. Teodosiu C., Caliman A.F., "Science shop contributions to environmental curriculum development", *Environmental Engineering and Management Journal*, vol.1, no.2., 2002, p.271-293, ISSN 1582-9596

5. Teodosiu C., Caliman A. F., Petrea- Stanciu M. „Science shop projects of environmental education and possibilities to increase environmental awareness" *Studii şi cercetări ştiințifice vol.5*, secția Biologie, Universitatea de Stat Bacău, p. 305-312, 2000, ISSN 1224-919X

- ***Articles and talk-shows in the local media***

6. «How toxic is the tap water?» in Monitorul de Iasi, 22.11. 1999
7. «The drinking water in Iasi is not toxic» response of Teodosiu C. as representative of InterMEDIU science shop to the above mentioned article, in *Monitorul de Iasi*, 23.11.1999
8. «The drinking water is sometime dirty but is potable», in *Ziua de Iasi*, 24.11.1999
9. 1 hour talk-show on environmental subjects at the *T.V. Europa-Nova Iasi*, nov.1999
10. «The Dutch are interested in environmental protection», in *Evenimentul*, 6.03.2000

- ***Diploma Thesis***

11. Student Boros A., supervisor Teodosiu C., 2000
*Research theme*: "Consultarea societății civile-parte integrantă a fundamentării deciziilor privind protecția mediului (Consultation of civil society- integrand part of decision-making process regarding the environmental protection)"
*Design theme*: „Proiectarea unei stații de epurare pentru apele uzate rezultate dintr-o rafinărie petrochimică (Design of a treatment plant for wastewater resulted from an oil refinery)".
12. Student Hristea M., supervisor Teodosiu C., 2000
*Research theme*: "Studiu privind posibilitățile de modernizare a unei tehnologii convenționale de tratare a apei (Study concerning the possibilities to up-grade a conventional drinking water treatment technology)"
*Design theme*: "Proiectarea unei stații de tratare a apelor de suprafață care să furnizeze apă potabilă pentru un oraş de 100000 de locuitori, considerind conditii initiale specifice ale indicatorilor de calitate (Design of a water treatment plant for drinking water supply to a city with 100000 inhabitants, considering specific initial data of quality indicators)"
13. Student Manoliu A., supervisor Teodosiu C., 2001
*Research theme*: "Studii privind reținerea compuşilor organici din apele de suprafață pe răşini schimbătoare de ioni PURASORB AP- 250 *Purolite* (Studies regarding the removal of organic compounds from surface waters using ion exchange resins PURASORB AP- 250 *Purolite )*"
*Design theme*: "Proiectarea unei stații de tratare a apelor de suprafață care să furnizeze apă potabilă pentru un oraş de 150000 de locuitori, considerind conditii initiale specifice ale indicatorilor de calitate (Design of a water treatment plant for drinking

water supply a city with 150000 inhabitants, considering specific initial data of quality indicators).

- ***Follow up proposals***

14. "Impact of pollution over the quality of natural water sources"**,** co-operation with ANPED NGO (Northern Alliance for Sustainability, Amsterdam), The Netherlands, 2000, proposal should have been finalised by ANPED.

15. "Riscul prezenței nitriților şi nitraților în apele de fântână din câmpia Sucevei aparținând bazinului hidrografic Siret (Risk of the presence of nitrates and nitrites in the groundwaters of Suceava plains belonging to the Siret river basin)" proposal submitted by *Club Speo Bucovina* NGO, Suceava to Regional Environmental Centre Romania, in the framework of DANCEE program of Local Environmental grants (granted for the NGO in 2002).

## 3.2. Case Study 2

### *3.2.1. Fact sheet*

#### 3.2.1.1. *Title of the project*

*Romanian title*: **"Impactul apei uzate rezultate de la producerea industrială a drojdiei asupra râului Siret"**
*English title*: **"The impact of wastewaters resulted from the industrial production of yeast on the river of Siret"**

#### *3.2.1.2. Summary of the project*

This project started from the question of an environmental NGO and was developed as a science- shop project that was finalised with a report and also presented to the Annual Students' Scientific Workshop. The project had as objective the evaluation of the environmental impact of the wastewaters generated from yeast production over the receiving waters of the river Siret.
This project contains general information about technological process for yeast fabrication and about wastewaters resulted from this process. It also offers information depicted in literature regarding treatment processes recommended for removal of pollutants from the wastewaters resulted in industrial production of yeast. The impact of wastewaters on the receiving waters was also analysed, with suggestions for improving the environmental situation.
The NGO used the information presented in the report both for the NGOs members and local community information.

#### *3.2.1.3. Participants at the project*

- NGO- Clubul de Ecologie si Turism Moldavia (C.E.T.), Pascani;
- InterMEDIU Information Consultancy and ODL Department (science shop) Technical University of Iasi. The supervisor of the project (co-ordinating also InterMEDIU science shop) is a senior staff member of the Department of Environmental Engineering, entitled to supervise student research work;
- 1 Student of the Faculty of Industrial Chemistry, specialization *Environmental Engineering***,** in the 4$^{th}$ year of study.

#### *3.2.1.4. Duration of the project*

3 months (February, March and May 2000)

#### *3.2.1.5. Costs of the project*

All the costs involved for project realisation were supported by the science shop through the MATRA project funds, designed for the implementation of science shop activities at InterMEDIU TU Iasi. In this context, the use of MATRA funding to support the projects requested by NGOs was possible.

#### *3.2.1.6. Objectives of the project*

The research question that was the starting point of the project was:
*"Is it possible that, during the process of yeast fabrication from molasses, to result hazardous wastes which could led to pollution of the water of river Siret?"*
The major objectives of this project were:

- evaluation of the industrial process of yeast fabrication from molasses, with respect to emissions in wastewaters, their discharge and treatment possibilities;
- analysis of the environmental impact produced by wastewaters considering their possible discharge into the sewerage system without preliminary treatment;
- suggestions for improving the existent situation.

#### *3.2.1.7. Outcomes*

- Report;
- Meetings with NGO;
- Media press release;
- Presentation in the Annual Students' Scientific Workshop, Faculty of Industrial Chemistry;
- M.Sc. dissertation thesis.

### *3.2.2. Brief Description of NGO*

**NGO- Clubul de Ecologie şi Turism Moldavia (CET Moldavia), Pascani**

Clubul de Ecologie si Turism Moldavia (Ecology and Tourism Club Moldavia) is a non-political, non-profit, humanitarian and pacifist organisation, which has as mission the promotion of principles regarding the real and active protection of the environment. The main target groups for this NGO activity are the children and young people. It was founded in March 1995 as a non-governmental organisation, concordant to the Law no.21/1994.
C.E.T. Moldavia has three major objectives:

- involvement of citizens in activities related to public participation and action;

- promotion of a civilised and ecological tourism;
- public awareness regarding environmental problems and the importance of local communities for sustainable development of the region.

The NGO C.E.T Moldavia developed the following activities:

- Editing of an informative bulletin, brochures and folders financed by R.E.C. Romania and Tourism Office of the County of Iasi (DJTS Iasi);
- practical activities as Annual Ecological Camp “Moldavia Ecotur”, financed by AIDRom, DJTS Iasi and different companies;
- Environmental local campaigns financed by Milieukontackt Oost Europe, DJTS Iasi and R.EC. Romania;
- Creation of a network of environmental NGO from Moldova for ecological protection of Siret River, financed by R.EC. Romania, Milieukontackt Oost Europe, and PHARE TACIS program for democracy;
- Organisation of the Conference of environmental NGOs from Moldova, financed by the World Bank.

### *3.2.3. Process of project origination*

The project, realised at the InterMEDIU Information and Consultancy Centre, had as starting point the question posed by a NGO, Clubul de Ecologie si Turism Moldavia, from the city of Pascani, County of Iasi, which had as purpose to inform, both the NGO members and citizens of the city, regarding the quality of Siret river water, in order to verify if a certain company has a negative impact on the water quality of this river, because of wastewater discharges in the sewerage system of the city. The citizens of Pascani City complained many times about the Siret river water quality, an important natural source to obtain drinking water and claimed that the company in cause is responsible for the degradation of the river Siret. The NGO was interested if the wastewater could contain hazardous substances that can influence apart from water quality parameters also the existence of aquatic ecosystems.

*“The study was initiated by a request addressed by a NGO from Pascani city, County of Iasi” (B.S., student)*

*“The project was related to other research carried in the field of water and wastewater treatment. For our science shop the project was situated within the general context of evaluation of the quality of environmental factors and information of the public.” (C.T., InterMEDIU TU science shop).*

### *3.2.4. Process of project negotiation*

The project was planned and the activities were established by InterMEDIU Centre so as to respond to the request of the NGO. Since this project was not based on previous activities of the NGO in the same field, they were not effectively involved in project realisation, but a report containing the results was requested.

*"It was a perfect collaboration, which didn't need negotiations." (D.I., NGO manager)*

*"Considering that the InterMEDIU Centre has as objectives the realisation of studies for the civil society, it accepted the request posed by the respective NGO and as I know, no negotiation was necessary between the involved parts." (B.S., student)*

*"We received the question from the NGO, the project was financially supported within the MATRA program and also it contained a good educational component for our student of the specialisation Environmental Engineering and a possibility for her to get more experience with project work. We agreed that we will discuss the report with the NGO and that they can use this report for the general public and media information." (C.T., InterMEDIU TU science shop/scientific supervisor of the project)*

### *3.2.5. Data collection and analysis*

The research methods used for completing the project consisted in:

- Documentation on the technology of yeast production and main environmental emissions (gathering information from different reference materials: books, reports, Internet sources, standards of discharge limits or analysis of the data from the EPA referring to environmental permits);
- Interviews with the NGO and Environmental Protection Agency representatives;
- Analysis of the findings and report writing.

### *3.2.6. Channels of on-going communication*

The communication between the parts involved in the project was done as requested by the situations. Communication with NGO and Environmental Protection Agency was done through meetings or interviews, by e-mail, fax and telephone, whenever it was necessary, while the communication within the Science shop was done by regular (once/week) meetings and discussions between supervisor and student.

*"I had regular meetings with the project supervisor, and a good communication with the EPA representatives " (B.S., student)*

*"There was a good communication with the NGO, Environmental Protection Agency an student. A schedule to discuss project evolution was established with the student, while communication with the NGO was done by meetings, e-mail, fax/telephone, as requested by the project." (C.T., InterMEDIU TU science shop)*

### *3.2.7. Outcomes*

The objectives of the project were fulfilled and the main findings refer to the fact that there are some environmental problems caused by the yeast production process at the company level. The wastewaters generated contain quite a high level of biodegradable organic compounds and phosphorous, which is treated only to a limited extent within the company. At the same time, the study revealed that there are not toxic wastes generated by the production process, which could further affect the river ecosystem. However, the actual system assumes the discharge of the industrial wastewater into the municipal sewer and further treatment by the Water Works Company.

*"It was found that there are some environmental problems caused by the yeast fabrication process, and the wastewater treatment should be improved." (D.I., NGO manager)*

*"The main conclusion was that citizens that requested the accomplishment of this study should not be worried about the generation of hazardous wastes. The company doesn't pollute in a direct way the Siret River, and wastewaters are discharged in the sewerage system of the city, the effluent being further treated in the municipal treatment plant. Two types of effluents are discharged into the sewers and for one of these type, the levels of BOD, COD and phosphorus concentrations, exceed the discharge limits." (B.S., student)*

*"The main findings were that the wastewaters generated by the yeast Production Company contained quite a high level of biodegradable organic compounds and phosphorous and it is treated only to a limited extent within the company. The actual treatment system assumes the discharge the wastewater into the municipal sewer and further mechanical and biological treatment of the effluents by the Water Works company. Also, the research showed that there are not toxic wastes generated by the production process, wastes that could further affect the Siret river ecosystem.*
*Related to this fact, the main recommendation was that the yeast company should realise preliminary wastewater treatment (before discharging into the sewer system) considering mechanical and biological treatment stages in order to decrease the organic loading of the wastewater, improving thus, the quality of the discharge. This is also an*

*aspect that has to be considered by the Yeast Company in order to renew its environmental permit (C.T., INTERMEDIU TU science shop).*

*"For the company the recommendation was to build its own treatment plant and to show more transparency in its activity so that, interested persons to have access to information related to environmental issues will have this possibility. " (B.S., student)*

The results of the research project were presented as a written report for the NGO, available also for any other interested organisations. A presentation of the project has been done by the student at the Students' Scientific Workshop of the Faculty of Industrial Chemistry (2000), the 2nd prize being awarded for this work. The NGO CET Moldavia, Pascani, facilitated a press release in a local newspaper and a public debate.

*"The report was discussed with the NGO and they have received as well a copy of it. A representative from the local press in Pascani interviewed me about the findings of the report, but their final article was written after they have interviewed the NGO representative as well. Our student gave a presentation, in the Annual Students' Scientific Workshop, a possibility for students to make known their research or project work. Some of them are very well motivated and the scientific level of the workshop increased each year" (C.T., InterMEDIU TU science shop)*

### *3.2.8. Usage of results*

Apart from the report, presentation of results in the Students' Workshop and in the local media, information available for this project was used, after 2 years as a background material for a M.Sc. thesis, by one of the employees of the same Yeast Company.
Considering the above-mentioned aspects, the project had an immediate and a long-term usage, as well, and allowed free access to information included in it.
The report had an internal and external use:

- NGO used the information both for NGO's members and local community information;
- Science shop used the report for promoting science shop activities, as an example of science shop project work done by students and also for raising public awareness concerning environmental impact of the discharges of industrial wastewaters.
- The student considered the project important for her future career (especially for project work realisation and application of existing knowledge to practical situations), mentioning it in her CV, with the specification that for this project she was awarded 2nd Prize in the Annual Students' Scientific Workshop.

The project didn't lead to further collaboration of NGO with other organizations or related agencies, while for the science shop it did partially, considering that student that

used the report for his M.Sc. dissertation participated in a Distance Learning program that is organised jointly by the Department of Environmental Engineering and InterMEDIU Department.

*"The report was used for local community information and didn't constitute a starting point for other projects." (D.I., NGO manager)*

*"Yes. I have included this research in my CV, since it was awarded the 2nd Prize in the Annual Students' Scientific Workshop at the Faculty of Industrial Chemistry. I always mention in my CV the co-operation with InterMEDIU and the projects in which I have participated." (B.S., student)*

*"The report was used by one of our students involved in the M.Sc. Distance Learning Program, he was working in the same company that was studied for this project. We have used the report as an example of science shop project work done by our student and to raise public awareness concerning environmental impact of the discharges of industrial wastewaters." (C.T., InterMEDIU TU science shop)*

### *3.2.9. Participants' Evaluation*

The project met entirely the interests of all the parts involved: information of the NGO members concerning the requested issue, getting experience in work with community groups and analysis of the possibilities to further introduce science shop projects as a permanent component of the Environmental Engineering curricula. For students participation in science shop projects is accompanied by the acquisition of valuable skills, such as: 'translating' a real-life problem in a scientific research proposal, problem-definition, planning/realisation of a research, co-operation, communication with colleagues/experts, improvement of computer and foreign language skills. The major drawback remains the allocation of credit points for students participating in science shop work.
Discussions with the staff of Department of Environmental Engineering revealed the fact that science shop activities represent a good opportunity for students to acquire experience in project work.

- ***Specific interests and expectations***

The student saw this project as a modality to improve knowledge, accumulated during the courses and practical work, with new notions based on reference material or Internet data and to apply all these to a practical situation; it also represented a good oppor-

tunity to organise the research plan and time-schedule, to analyse a real system, to formulate an adequate answer for the NGO and to present the results in a scientific workshop.

*"Our interest was to enlighten our NGO members, but especially the citizens of Pascani City, that pointed up this environmental problem." (D.I., NGO manager)*

*"My specific interest consisted in gaining experience in projects/reports realisation, development of the analysis and synthesis capacity, in order to transfer scientific information to the public, and these coincided with the objectives of the InterMEDIU Centre. My work was appreciated by my supervisor and the NGO representative." (B.S., student)*

*"Get experience in work with community groups, try to find the particularities of the science shop project development in order to further introduce it as a permanent component of the Environmental Engineering curricula (project based learning for students), these are probably the major issues related to interests and expectations. It is important however to try to find as well the possibilities to acknowledge students' work with credit points. It is very good that we are allowed to use the practical periods or diploma projects for science shop co-operation, but in this case the student worked on a voluntary bases" (C.T., InterMEDIU TU science shop)*

- ***Positive aspects***

Each partner involved in the project considered that some positive aspects resulted from this collaboration.

*"The most positive aspect was that the study offered detailed information to the local community members concerning a problem they were interested in." (D.I., NGO manager)*

*"For me it was important the fact that I could obtain more information from the field of environmental protection, particularly related to industrial wastewaters and their impact. I had to make a draft of a research plan and time-schedule, it was an "external client" who needed a response." (BS, student)*

*"There were several positive aspects of this project referring to:*

- *a good way to make known the science shop approach among the civil society organizations;*

- *a good demonstration project for students, raising the interest for other students in the department of Environmental Engineering to activate in the science shop with a guarantee of good work;*

*Since we were at the beginning of the science shop activities we wanted very much to encourage the NGOs in addressing their questions to us, this project was also a good example of NGO-science shop co-operation. (C.T., InterMEDIU TU science shop)*

- ***Problems encountered and solutions***

There were no barriers in co-operation between the NGO and the science shop, the only problems being related to the following aspects:

- the company (a private one), did not allowed a visit at the production site, although this was requested by the science shop. The necessary data regarding the characteristics of the wastewater discharged and information about the existent treatment facilities in the yeast company were obtained considering different references or obtained from the Environmental Protection Agency Iasi database;
- the time schedule for project completion was imposed by the science shop staff and student, because both were involved, in the same period, in an international project with the Universities of Groningen and Twente (The Netherlands).

- ***Possible improvements***

*"We wouldn't change anything in the project realisation." (D.I., NGO manager)*

*"As a modality to approach it, no. The study will be structured in the same way, having the same objectives, but I would complete it with a visit to the company (if this will be possible) for an unbiased evaluation of the situation." (B.S., student)*

*"It would be good to organise the public debate together with the NGO, for this project they didn't request our participation." (C.T., InterMEDIU TU science shop)*

### *3.2.10. Policy Issues: Science shop collaboration*

- ***Accordance with wider objectives of the organisation***

Science shop collaboration seen from the perspective of the NGO, student, or science shop staff has particular features and advantages. Few of these as presented by the participants at the project are given below.

*"The project responded to the objectives of our organisation concerning the involvement of citizens in activities related to public participation, public awareness regarding environmental problems and the importance of local communities for sustainable development of the region" (D.I., NGO manager)*

*"This project was important for my formation of environmental engineer and it was the first time that I wrote the report for an external organisation. I was more used to the scientific terminology, but I found out by discussing with my supervisor that technical details will have to be explained so as to facilitate their understanding by all community members." (B.S., student)*

*"The project responded to the objectives of our organisation: to offer to the civil society, information, consultancy and research in the field of environmental protection, to increase civil society environmental awareness, to offer to the students the possibility to gain experience with project work and co-operation with citizen groups, and to develop their practical oriented approach of environmental problems." (C.T., InterMEDIU TU science shop)*

- ***Subsequent projects***

No subsequent projects were derived specifically from this co-operation, however other NGOs continued to search at InterMEDIU for information, expertise or collaboration in the frame of different proposals submitted to national/international funding agencies.

- ***Advantages/disadvantages of co-operation (with science shops)***

The advantages of co-operation with science shops or other intermediary agencies collaboration are usually related to the experience, contacts, flexibility and communication.
*"The contact person outside the organisation is very important in establishing the links/relationships which could provide information that are hard to be obtained directly by us" (D.I., NGO manager)*

*"For me it was more easy, because my supervisor, established all necessary contacts with the company or the Environmental Protection Agency. For us, students it seems like a necessity to proceed in this way, because companies/governmental organisations usually request a more formal approach. While co-operating for another project with the Dutch students, I have remarked that for them it is quite common to establish appointments or request support for documentation directly to the organisations that they are interested in " (B.S., student)*
*"I think it is important to co-operate in this kind of projects with people that can offer the needed expertise, irrespective of the fact that they belong to governmental or non-governmental organisations. Usually, a letter of intent is very good to set-up the basis of such a co-operation, but sometimes more explanations and a discussion are needed. In this case, it was not possible for our student to have access at the company, but we had a very good co-operation with the local Environmental Protection Agency representative. For the Department of Environmental Engineering the science*

*shop approach is a very good opportunity for students to become more experienced in environmental projects" (C.T., InterMEDIU TU science shop).*

### *3.2.11. References Case Study 2*

- **Publications**

1. Sluser B., -"The impact of wastewater resulted from the industrial production of yeast on the river of Siret" (Impactul apelor uzate rezultate din procesul industrial de fabricare a drojdiei de bere asupra râului Siret)", Report to NGO CET Moldavia Pascani, 2000, p.1-12.
Supervisor of the project: Teodosiu C.

- **M.Sc. Thesis**

2. M.Sc. student: Ilade V., Supervisor: Ungureanu F., 2002
"Monitoring of the treatment system for wastewater resulted from a food industry company (Monitorizarea sistemelor de epurare a apelor uzate într-o întreprindere din industria alimentară)", M.Sc. thesis, Technical University of Iasi.

- **Presentations**

Sluser B.,- "Wastewaters resulted in the process for fabrication of the bakery yeast and their environmental impact on receiving waters (Ape uzate rezultate în procesul de fabricatie a drojdiilor de panificație şi impactul aceastora asupra receptorilor)", presentation in the Annual Students' Scientific Workshop, Faculty of Industrial Chemistry, May 2000 (2nd prize awarded).

## 3.3. Case Study 3

### *3.3.1. Fact Sheet*

#### *3.3.1.1. Title of the project:*

*Romanian title:* **Proiect Vladeni 2000- Conservarea biodiversității în zona umedă Vlădeni (județul Iaşi- România)**
*English title:* **Project Vladeni 2000- Biodiversity Conservation in the Wetland Vladeni (Iasi County- Romania)**

#### *3.3.1.2. Summary of the project*

Previous studies revealed the importance of the ponds existing in Vladeni area as nesting place offered to waterfowls. A. Papadopol and C. Mandru (1967) described the territory as important for the aquatic birds' migration. Consequent to the preliminary research achieved by C. G., the Romanian Ornithological Society comprised the ponds within the List of Important Bird Areas in Romania, issued in 1995.
Ponds are used for fish rearing while the Dam Lake Halceni is a very important water resource in the region (for ponds and agriculture). Reedbed covers more than 450 ha of Jijia's ponds. The ponds are a very valuable nesting place for waterfowls. Recently 4 species new for Moldova region fauna were registered as belonging to this region.

The major ponds of Larga Jijia area are characterised by a great diversity of vegetation (reed, hydrofyte vegetation, *Typha* and *Salix, Ciconiformes* bird species) or animals.
Larga Jijia ponds are considered to be eutrophic. Fisheries regularly increase the concentration of organic matter in water with a favourable effect on birds' development.
Jijia's floodplain ecological state relies on the water supply. High humidity in early spring and floods increase the biological potential of the grasslands and swamps around the ponds upstream (between villages Vladeni and Borsa) and downstream (near village Mihail Kogalniceanu) and the food available for the avifauna (especially for the passage one), consequently.
Fauna is diverse. Arthropods, worms, molluscs that shelter in the forests, pond water, or field vegetation represent food sources for many bird species.
In the marshes with reed and bulrush are found: dragon flies (*Libellula*), grasshoppers (*Tetigonia viridissima*), swamp beetles (*Dytiscus marginalis*) and (*Hydrous piceus*), and many other insects adapted to aquatic life. Most frequent shell is the lake shell (*Anodonta cygnea*).

Vladeni 2000 is the first systematic study in the area that provided needed information and helped the foundation of a long-term research and biological monitoring activity.

Data acquired were brought together into a computational database to which residents, students, scientists, and local authorities have free access. The study might be further developed as starting point for a more complex research project with the purpose to realise a monograph of the area.
Results can be further used as the scientific background for an official request regarding a RAMSAR site statement of the area. The project investigated the status, distribution and habitat requirements of several globally threatened species of birds: Pygmy cormorant (*Phalacrocorax pygmeus*), Lesser white - fronted Goose (*Anser erythropus),* Ferruginous Duck (*Aythia nyroca*), Red - breasted Goose (*Branta ruficollis*), Spotted Eagle (*Aquila clanga*), Imperial Eagle (*Aquila heliaca*), Pallid Harrier (*Circus macrourus*), White - tailed Eagle (*Haliacetus albicilla*), Corncrake (*Crex crex*), Great Snipe (*Gallinago media*) etc.
Study was realised by three NGOs: Romanian Ornithology Society, Romanian Mycological Society and Society for Ecology, InterMEDIU science shop, university staff and students from the Faculty of Biology.
At the same time with the study at Vladeni project, InterMEDIU has organised a pilot project concerning ecological education in several elementary and secondary schools from Iasi.
Close collaboration with local population and authorities helped to raise public awareness and to formulate an efficient conservation programme.

#### *3.3.1.3. Participants at the project*

- **Science Shop:** InterMEDIU Information and Research Centre from the Faculty of Biology, “Al. I. Cuza” University Iasi;
- **NGOs:** Association for Ecology- Iasi, Romanian Ornithological Society and Romanian Mycological Society;
- **Scientist/University:** members of Faculty of Biology;
- **Students:** 6 undergraduate students and 3 M. Sc. Students of the Faculty of Biology, “Al. I. Cuza” University, Iasi;
- **Pupils:** 16 pupils with ages between 12-15, from the Secondary schools no. 7, 16 and 39, that participated in the framework of a summer ecological holiday camp.

#### *3.3.1.4. Duration of the project*

12 months (January-December 2000).

#### *3.3.1.5. Costs of the project*

All costs were supported by British Petroleum Environmental Programme, MATRA project and by the Faculty of Biology, “Al. I. Cuza” University, Iasi.

### *3.3.1.6. Objectives of the project*

The project objectives were structured in three parts:
*Objectives related to environmental conservation:*
1. To evaluate the global situation regarding flora and fauna in the area;
2. To estimate the real ecological function of the protected area;
3. To identify the human activity with environmental impact and to estimate the level of human pressure in the area (industry, agriculture, fisheries, grazing);
4. To assess RAMSAR sites in the investigated area.
*Ornithological fieldwork objectives:*
5. To realise a monitoring study of birds migration in the area;
6. To realise a Red List of the area species: vulnerable and threatened species;
7. To create a teamwork for continuous survey of the wetland.

*Environmental education objectives:*
8. To involve local authorities and decision makers in key environmental problems in the district;
9. To educate public (school pupils and grown-ups) in both environmental and democratic awareness.

### *3.3.1.7. Outcomes*

- Official report to British Petroleum;
- CD ROM containing the Romanian and English version of the report;
- Public debates with invited representatives from the: Environmental Protection Inspectorate, "Romanian Water" S.A. Iasi, Romanian Ornithological Society, "Lotca" S.A., which administer the Larga Jijia-Vladeni fisheries area, NGOs, university staff, students and pupils;
- Press release/articles in the local and central newspapers, invitation for 2 radio debates;
- 7 papers published: 1 at Venice, Italy (2001), 1 at Xanthi, Greece, (2001), 1 at Brasov (2000) and 3 at Bacau (2000) and 1 at Timisoara;
- Presentation at the Students Scientific Workshop "Europe Day"; 2nd award
- Proposal for new projects;
- Acceptance for presentation at a future scientific communication.

## *3.3.2. Brief description of NGOs*

**NGO – Societatea Ornitologica Romana (SOR), Iasi branch**
Societatea Ornitologica Romana (Romanian Ornithological Society) has 13 years of existence in February 2003. SOR Iasi branch was founded in October 1993 and took part

at monitoring programs of some wetlands and breeding birds' species current status in Romania. Among the activities of the Romanian Ornithological Society may be cited:

- Identification of important Birds' Areas in Romania;
- The synchronic census of aquatic birds;
- The census of white stork (*Ciconia ciconia*);
- The national census of field corncrake (*Crex crex*);
- The identification of newly RAMSAR sites in Romania;
- National monitoring of breeding birds' species.

Iasi branch has yearly organised activities dedicated to "Birds Day" (1st April) Environmental Day (5th June) and Birds Festival (October first weekend). Since 1996, Iasi branch of SOR has organised an ornithological camp in Vladeni-Larga Jijia fisheries complex perimeter.

Since 1999, SOR has realised a periodical observation with an identification view of newly Important Birds' Areas in the Prut Basin.

Every winter are visited the most important wintering quarter in Moldavia (Stanca dam Lake) and some lakes in Dobrogea. During the months of May and June are programmed night trips for the review of *Crex crex*.

Birds Day has been marked since 1996 by trips organisation in Borsa-Vladeni-Halceni (Iasi County) and Carja (Vaslui County) as well as an essay symposium for pupils from the secondary school "Emil Racovita" Iasi.

By encouraging the participation of pupils from elementary and secondary high schools in Iasi SOR targets the creation of an environmental responsible attitude.

**NGO – Societatea Micologică Română (SMR)**

Societatea Micologică Română (Romanian Mycological Society) was established in December 1990. SMR is a non-governmental, scientific, apolitical, and non-profit organisation. SMR is a legal entity functioning within the framework of the Romanian legislation.

The main goals of the organisation are:

- promotion of the scientific research in the field of Mycology;
- popularisation of the knowledge regarding the fungi and their use in different areas of the human activity: biodegradation, culture of edible mushrooms, utilisation of the spontaneous mushrooms;
- prevention of the intoxication caused by fungi;
- prevention and control of the diseases fungi induced in humans, plants and animals;
- support for the development of modern Mycological biotechnology;
- protection of the mushroom threatened species and habitats.

Activities organised during 2000:

- National Symposium of Mycology – Radauti, August 23 – 26th, 2000;
- Edible and poisonous mushroom exhibition – Radauti, August 23 – 26th, 2000;
- Exhibition "10 years since the establishment of the Romanian Mycological Society", Iasi, December 15th, 2000;
- Partner within the project "*Vladeni - 2000, Biodiversity Conservation in the Wetland Vladeni (Iasi County, Romania)*" funded by the British Petroleum Conservation Programme.

**NGO - Asociatia pentru Ecologie Iasi (AEI)**

Asociatia pentru Ecologie Iasi (Association for Ecology Iasi) was established in December, 1990. Association for Ecology Iasi is a legal entity, a non-governmental, apolitical and non-profit organization that brings together all the people interested by the Nature knowledge and preservation.
Goals:

- Promotion and defending the ecological principles on a moral, scientific and economic plan;
- Formation and education of the civil society members, viewing the building of an active ecological consciousness, in order to provide the protection of Mankind and Nature;
- Civil society information regarding the legal dispositions on ecological matters;
- Connections with other country and abroad NGOs that have similar objectives.

Activities organised during 2000:

- Actions for celebration of: Water World Day (March 22$^{nd}$, 2000); Earth World Day (April 22$^{nd}$, 2000); Environment International Day (June 5$^{th}$, 2000) – achievement of some promotion materials (posters, leaflets, photo exhibitions, interviews);
- "Christmas Tree" charity action – Orphanage Bucium, Iasi;
- Involved in "Lake Ciric" - International project (Dutch - Romanian) focused on water quality management, initiated by the Science Shop InterMEDIU, "Al.I. Cuza" University of Iasi;
- Children draws on asphalt, contest in the Botanical Garden Iasi for the "Earth World Day";
- "Red List of the plant and animal species threatened within Iasi County" – initiated by the Science Shop InterMEDIU, "AL. I. Cuza" University of Iasi;
- Hygienization of the Pleasure Area Ciric;
- Partner within the project "*Vladeni - 2000, Biodiversity Conservation in the Wetland Vladeni (Iasi County, Romania)*" funded by the British Petroleum Conservation Programme;
- Student Seminars: "Overpopulation and actual ecological crisis, Biology and Parapsychology";

- Environmental NGOs Workshop in Iasi.

### *3.3.3. Process of project origination*

Vladeni ponds are placed in the floodplain of River Jijia crossing the Central Moldavian Plateau. Jijia is the most important tributary of the River Prut. A large, liable to inundation area covering tens of thousands Ha of reedbed existed prior to 1970 at the confluence of Rivers Miletin and Jijia.
Jijia was scattered between Borsa and Vladeni, into few small branches that are gathered again in the main riverbed near the village Mihail Kogalniceanu. The region of the localities: Larga Jijia - Mihail Kogalniceanu – Borsa - Vladeni - Halceni supported some hydrotechnical arrangements (early '70 - early '80) in order to decrease the flood risk and enlarge agricultural areas. Jijia's course was regularised, while large chains of ponds and accumulation lakes used as water sources for localities, irrigation, and fisheries were created.
All the habitats of the wetland Vladeni are considered to offer favourable nesting and feeding conditions for the avifauna. The only exception is represented by the neighboured grasslands that get dry starting July and can not provide food resources in draught conditions.
Water is qualitatively good due to pond supply with water from Halceni dam lake and provides favourable conditions for the vegetation and aquatic fauna and consequently rich food resources for birds.
Borsa swamp is the most eutrophic basin in the area. The compact reed bed, submersed and floating aquatic vegetation, and the rich aquatic fauna are the elements that transform this ecosystem into an ideal place for the aquatic birds. During migrations periods, hundreds of waterfowls on the swamp may be observed.

Project VLADENI - 2000, Biodiversity Conservation in the Wetland Vladeni (IASI COUNTY - ROMANIA) continued the studies carried out between1995-1998 by the Romanian Ornithological Society (SOR), viewing a full biological documentation for a RAMSAR site assessment in the area. Results concerning only birds have been published in the Important Birds Areas List of the Romanian Ornithological Society.

*“At that moment the experience belonged to SOR through their members (including student members). 80% of the project is ornithological.”* (C.G., NGO manager)

The project proposal submitted to British Petroleum Environmental Programme was initiated by the students of the Faculty of Biology, “Al.I.Cuza” University of Iasi, under the supervision of InterMEDIU Science shop and SOR staff. They approached the field of Conservation Biology- a new domain of interest and research in Romania.
Later on Romanian Mycological Society joined them.

The objectives of this project have been established on the basis of pupils' questions and suggestions. The project proposal was prepared and presented by volunteer students (some of the members team "Vladeni- 2000" inclusively).

*"The project was developed on the basis of birds' areas research which established the huge importance of wet area Vladeni for the transit birds. It's like a second Danube Delta of Romania." (D.Z., student)*

*"The project was important to make aware the public and to change the attitude of native people regarding environmental protection." (C.G., NGO manager)*

The Centre InterMEDIU organised during the 2nd semester of the year 1999 - 2000 the pilot project "*Environmental Education in Schools."* Pupils from two high schools in Iasi ("Dimitrie Cantemir" and "Alexandru Ioan Cuza") and three elementary schools: no. 7 ("Nicolae Tonitza"), no. 16 ("Mircea cel Batran") and no. 39 ("George Calinescu") took part in this project.
Among the activities performed by the pupils that later on continued in the framework of Vladeni project may be cited:
- Exhibitions of draws on environmental topics;
- Essays and communications on the theme "Nature and Man";
- Contest with the subject "Birds and their life";
- "Birds festival";
- Collection and valorisation of waste paper, with the slogan "*Let's help the birds in our town*!" Money obtained were used to buy wooden material for artificial nests and birds feeding terraces that are to be installed in Iasi parks and monitored by pupils' teams.

Children with special results were granted diplomas and were selected for a free participation within the ecological summer camps "Vladeni – 2000".

16 children aged 12 - 15 years, pupils of the Elementary School no. 7, 16 and 39, participated at the first two Ecological summer camps (5- 10.07. 2000 and 23 - 29.07.2000, respectively) organised in the perimeter of the Larga Jijia ponds ("Lotca" fishery enterprise).

### *3.3.4. Process of project planning*

This is a student research project focalised on biodiversity maintenance (birds especially, plants and other micro-organisms) of wet area from the Larga Jijia-Vladeni perimeter.
*"It was a competition of environmental projects. We proposed a project, sent them the application form in November 1999, after that we waited the decision of the jury. We were introduced on the "short list" and the project was analysed in extenso, BPEP*

*Company sending the project to international experts. We found out that considering the selection criteria, our proposal won the third prise. The activities described in the proposal were planned for one year." (M.N., Science Shop manager)*

### *3.3.5. Data collection and analysis*

The main research question was:
*"What is the force of anthropogenic pressure on those wet areas and consequently to what extent are the birds threatened?"*
Other questions were:
*"What's the real state of respective ecosystems?"*
*"What's the biodiversity of those areas?"*
*"How many birds from the whole population are on the red list?"*
*"What are the main threats of anthropogenic origin?" (M.N. Science Shop manager).*
A detailed study regarding the characteristics of the area supplied information from the climatic, geotechnical, quality of environmental factors, hydrobiological and ecological point of view.
From the pedogeographic point of view, Vladeni ponds are situated in the Moldo-Sarmatian Province. Their foundation consists of alluvial soils, generally characteristic to the inferior terrace of the Jijia valley. In the lateral peripheral areas, including the land with forest plantations, there are levigated chernozems. These are very fertile, enabling the agriculture development in the area. Patches of puddles, salty pastureland weakly drained also exists on the low surfaces.
A temperate climate with excessive shade is characteristic for Jijia basin (to which Vladeni belongs) as well as to the whole Moldavian Plateau (an average yearly temperature of 9.8°C is registered).
Three teams with hydrobiological, mycobiological and ornithological specific tasks were formed, each of them being responsible to collect data according to their field of activities.
Hydrobiology team was involved in a specific work program consisting of: sampling, species identification, species monitoring, and ecological importance of biota assessment. Field trips for observation and sampling were organised periodically. Physico-chemical water properties assessment was provided by the "Romanian Waters" SA Iasi (County Waterboard). Numerical analysis of the pelagic primary producers (i.e. phytoplankton) was carried out using a Burker - Türk counting chamber, while biomass assessment was done using the volumetric equivalence method. Pelagic consumers were caught using nets with different mesh sizes and then numerically expressed. Information regarding the nekton diversity and numbers were gathered with the help of the fishers (sportive and employed) in the area. Benthic consumers (zoobenthos) were caught using a Marinescu grab, while the quantitative analysis run according to the

probe square method. Saprobiological analysis of the water quality was assessed using Sladecek method.
Macronevertebrate fauna collected in the Jijia - Miletin basin. 7 sampling points were fixed as follows: 1 - Miletin swamp; 2 - River Miletin; 3 - Lake Halceni; 4 - Jijia (Bridge); 5 – three different ponds.
Sampling sessions covered the period: June - November 2000.
In order to catch the amphibians and reptiles, Barber traps, and nets were used. Other materials used for the study and observations were recorder, photo camera, video camera, weights, and slides.
Stationary sites across the ponds were established the nets were successfully used to catch the animals and for anurans in the aquatic environment, while in the terrestrial environment the anurans and reptiles were successfully caught by hand.
Captured animals (anurans) were transported within the camp in plastic boxes 12-cm diameter and 10 cm height, filled with grass and water.
At the installation of the Barber traps the use of preservative substances such as alcohol or formalin was avoided; traps were checked twice a day in all the established stations.
Data were further computer processed and interpretation of results led to several conclusions established by each team, and presented in the report.

### *3.3.6. Channels of on-going communication*

**Internal Communication**
The main means of communication between the project participants were meetings, telephone, fax, and e-mail (all of these were done on a permanent base) and periodical telephone and e-mail with the funding organisation.
**External communication**
Mini-conferences were organised by InterMEDIU Centre, so as to communicate project aims and intermediate results:

- meetings with the Environmental Protection Agency representatives;
- mass-media meetings;

*“We had an easy communication, with the team members this was permanent (sometimes daily), with the financial organisation was periodical (once or twice per month), with mass media we communicated in different steps of the project development.” (C.G. NGO manager)*

### *3.3.7. Outcomes*

The results were presented in final rapport for British Petroleum, in local mass-media, in elementary and secondary schools that were involved in project, CD-ROM presentation, papers and posters presented at different scientific events.

*"Flora and mycoflora inventories were realised for those wet areas. By these inventories we could draw on the map the most important areas from the point of view of avifauna (areas affected or not by anthropogenic factors).*
*Supplementary courses of environmental protection were made at different elementary schools and secondary schools from Iasi and ecological summer camps were organised in the perimeter Larga Jijia ponds. I think the project succeeded in raising interest of young people for nature. The local authorities involved in one way or another in environmental protection were informed about the existing problems and in a way they were forced to promptly take decisions (DZ, student)".*

*"We could answer to the main question: What is the force of anthropogenic pressure on those wet areas and consequently how much are the birds threatened?" (M.N., Science Shop manager)".*

*"The scientific objectives of this project were completely fulfilled and the ecological education part was achieved at proposed parameters." (C.G., NGO manager)*

*"I can say that the objectives of the project have been fulfilled in relation also to the fact that population of the respective areas understood the goals of our project concerning nature conservation and education." (S.M., student)*
Several recommendations have been made:

- Given the first step already done (the scientific documentation) in order to include the wetland Vladeni on the list of the areas protected in Romania, a proposal to the Ministry of Environment with the support of the Environmental Protection Agency, Iasi County was submitted. Joint efforts have to be made in order to acknowledge at local and national level this important Birds'Areas;
- Construction of an ornithological stationary in the wetland Vladeni would facilitate the monitoring of the ecosystem evolution and have a positive impact upon public opinion at a local level;
- Achievement of a study on valorisation of ecosystem properties by the population of birds and on the impact of different human activities upon avifauna evolution;
- Contact with the Association of Romanian Hunters, Iasi branch, viewing limitation of the hunters' entry in the wetland Vladeni territory, especially during breeding period but

also in wintertime (n.b. At Larga Jijia ponds there is a rigorous control of human presence in the ponds' perimeter (S.C. 'Lotca' S.R.L.);

- Involvement of the children from the villages: Vladeni, Halceni, Borsa, Larga Jijia, and Mihail Kogalniceanu within ecological summer camps through popularisation of the project "***Vladeni – 2000***" by direct meetings with the team members, or in the framework of Biology classes in the 2nd semester of the teaching year 2000 - 2001 and further on;
- A campaign targeting on raising local population awareness is aiming the protection of the wetland Vladeni and limitation of birds' disturbance during the breeding season.

*"It is necessary to create a tradition for studies in this area, and thus the new generation will be accustomed with the importance of the environmental quality and protection." (D.Z., student)*

### *3.3.8. Usage of results*

The results of the project were used for different purposes; the project had an immediate and a long-term usage, internal and external use as well, and allowed free access to information included in it. Thus the following aspects can be mentioned:

- The results were used by the organizations involved for publishing of scientific papers in Romania and abroad.

*"We sent a demonstrative CD-ROM at Bucharest to apply for funding from the Small Grants Program of the World Bank and we requested continuation of the project. Abroad, the CD-ROM was used as an illustration of all project stages and results. Indirectly the results were used by the Environmental Protection Inspectorate to contribute to the list of the top ten annual projects for the county, and sent afterwards at the Water and Environmental Protection Ministry. Information about biodiversity were used for their databases and the same was done by the Romanian Water" (M.N. Science Shop manager).*

*"I think this project represented a starting point for future projects." (C.G, NGO manager)*

- Several students were co-authors at the papers published, and will be using the accumulated knowledge from this work for their curriculum or professional lives. Other students used the information to make their diploma theses.

*"I have presented the paper– "Project for biodiversity conservation in the wetland Vladeni"- at the European Studies Scientific Communications Symposium obtaining the second prize." (S.M., student)*

- The team members, university staff, or generally the public, have free access to the results of the project at the InterMEDIU Centre.

### *3.3.9. Participants' evaluation*

"Al.I.Cuza" University of Iasi considered "Biodiversity Conservation in the Wetland Vladeni" a very good research project. With head of department approval, the results of the project were used like "project groundwork" for the project "Neamt Forest Park" to assess RAMSAR sites in this area, and for the top ten yearly projects of Iasi County realised by the Environmental Protection Agency.

*"It was a good example of team work, considering the way how information circulated from those who worked at the project to the rest of the team, or to those people who were interested. Collecting, interpretation and processing of data were very good. Children from the elementary schools involved in the summer camp were a good target group that integrated very well in the student's team. Generally, the project was very well planned and organised." (T.C., university vicedean with research)*

The three supervisors involved in the project were well appreciated by the Faculty of Biology staff. They got points in theirs personal evaluation record and a bonus (premium) salary.
Especially InterMEDIU Centre, Romanian Ornithological Society, and Romanian Mycology Society appreciated students' work on the project.

*"Some of the team members, students at the Faculty of Biology, were in the same time members in NGOs: Association for Ecology Iasi, Romanian Ornithological Society, and Romanian Mycology Society. They had experience because they took part at previous activities achieved by these NGOs. Each of them made what they knew better." (C.G. NGO manager).*

Project "Biodiversity Conservation in the Wetland Vladeni" was evaluated by the organizations involved as the most ample project they have ever made and the best project realised with students.

*"This project offers an updated image of the situation from the Wetland Vladeni, completing the information that we had from the ornithological point of view, bringing new*

*information about fauna, mycofauna and hydrobiology part. This study allowed a better media coverage of the Wetland Vladeni, nationally and internationally plane: this area is an important Bids' Area since 1994, being included in the European circuit" (C.G., NGO manager).*

The local community supported and was interested in the results of the project. "LOTCA fishery enterprise" received a copy of the final report.

- ***Specific interests and expectations***

All the participants had scientific and personal interests in that project:

*"I wanted to do a taxonomic inventory." (S.M., student);*

*"I was interested in conservation of the area biodiversity, in making theoretical and practical ecological education at several levels in schools, by fieldwork, or by raising awareness among local people or companies." (M.N., Science shop manager)*

*"The creation of a student team that would like to be more involved in activities or raising of public awareness was very important for me. I wanted to do something for that area because of its sentimental value for me ". (C.G., NGO manager)*

*"I wanted to improve my personal knowledge regarding the manner of work within the framework of project." (S.M., student)*

*"To become more accustomed to research work and activities in international projects and to learn more about multi-disciplinary team work." (D.Z., student)*

- ***Positive aspects***

*"I had positive work experiences with students with whom I co-operated for Vladeni project, apart from the regular teaching and laboratory classes. I was also amazed by the interest and dedication of the children involved. For me, the project meant a return to nature". (M.N., Science Shop manager)*

*"A data base was realised regarding the state of plant, bird and animal species from the area. Young people and children could work together." (C.G., NGO manager)*

*"For me it was a step forward in understanding and application of environmental protection measures." (D.Z., student)*

- ***Problems encountered and solutions***

*"The state of weather conditions wasn't fine. Car access was difficult, tents were taken by the wind. The auto-maintenance in camp and communication for fieldwork were problems also. Mobile phones would have been useful." (M.N., Science Shop manager)*

*"If I will have to do this project again, I will do it differently. The science advances day by day and we have to use modern apparatus, field machines and satellite information (satellite teledetection means, performing optical instruments)." (Z.D., student)*

*"I would probably change things related to teamwork. The goal would be rather different; it would be interesting to have more aspects on biodiversity conservation and anthropic impact, and a better presentation of results for each period. " (S.M., student)*

### *3.3.10. Policy issues: Science shop collaboration*

Science Shop collaboration seen from the perspective NGO, student or science shop staff has particular features and advantages.

- ***Accordance with wider objectives of the organisation***

*"The project had important monitoring objectives for an important Birds 'Area for Romania, but the educational programs of the civil society in environmental problems have to be mentioned as well." (C.G., NGO manager)*

*"Like an applied research, this is the best project we have ever done with the students. By its secondary effects, it seems that all the Science Shop objectives were achieved." (M.N., Science Shop manager)*

*"I think this project was a little different, I thought the major objectives of Science Shop were related more to information of the civil society." (D.Z., student)*

- **Advantages/disadvantages of co-operation**

***For the science shop and science shop staff***

- *Experience gain for co-ordinators in science shop work;*
- *Experience in project management;*
- *Working with students and issues of responsibility in voluntary work;*
- *Advertising for Science Shop – the project had impact in our country and abroad ;*
- *We got "reliable credit" for ourselves as teachers, researchers, students and even for the Science Shop;*

- *We were able to deal with all the technical and financial aspects; we received proposals for others project;*
- *The university staff wanted to see the information we gathered. (M.N., Science Shop manager).*

***For students***

Although some of the students involved in project changed radically their career, they appreciate the positive experience and the improvement of communication skills, teamwork and mentioned this project in their CV.

There are some advantages to have someone from outside the organisation that is involved in such a project:

*"Grow up the impartiality degree of project matters and decisions." (M.N, Science Shop manager)*

*"Contribute with new ideas and a neutral point of view in the project progress. It's possible to obtain further advantages from these relations." (S.M., student)*

*"The disadvantages are the lack of a common languages and difficulty of their introduction in project theme." (M.N., Science Shop manager)*

*"The NGO co-operation with Science Shop was very open and the project was considered an achievement of all participants." (C.G., NGO manager)*

### *3.3.11. References Case Study 3*

**Project Report**

1. Nicoara M., Gache C., Tanase C., "Project Vladeni 2000- Biodiversity Conservation in the Wetland Vladeni (Iasi County- Romania)" - Final report in English submitted to British Petroleum Environmental Programme

2. Nicoara M., Gache C., Tanase C., Proiect Vladeni 2000- Conservarea biodiversității in zona umeda Vladeni (județul Iaşi- Romania) - Final report in Romanian

**Papers (published or in press):**

***Abroad:***

3. Nicoara M., Gache C., Tanase C., Miron St., "Problem - Based Learning Through Science Shops" at the Faculty of Biology, "Al. I. Cuza" University of Iasi, Romania, 2001 - Proceedings of 6th International *Audes* Conference, Bridging Minds &Markets; Bridging Environmental Education & Employment in Europe, Venice (Italy), 5-7 April 2001, p. 321-328.

4. Tanase C., Nicoara M., Gache C., Miron St., “Education of the Romanian Civil Society Aiming at Fungi Protection”, 2001 - Proceedings of The International Conference Ecological Protection of The Planet Earth Vol. II, Xanthi, Greece, 5-8 June 2001, p. 999-1004.

**In National Publications/Presented at National Scientific Events:**

5. Nicoară M., Gache C., Miron Şt., “Working to the Local Network and Consensual Approach of Nature Protection,” 2001 - Papers of the 5$^{es}$ National Conferences for Environmental Protection by Biological and Biotechnological Measures and Means; The 2$^{nd}$ National Conferences of Ecosanogeneza, Brasov, May 26-27 2000, p. 359-363.

6. Nicoară M., Gache C., Tanase C., Miron Şt, “Project for Biodiversity Conservation in the Wetland Vladeni (Iasi County)” –, Proc. Symp. Restoration Ecology, 2001, Timişoara, p.168-177.

7. Nicoară M., Miron Şt., Zaharescu D., “Hydrobiological Study of the Larga Jijia-Vladeni Ponds (Iasi),” 2001 - Studies and Researches, Bacău, Vol. 6, November 2001, p. 197-200.

8. Gache C., Boldu L., Müller J.W., “Education for Nature within the framework of the Ecological Summer Camps Vlădeni–2000” –, Studies and Researches, Bacău, Vol. 6, November 2001.

9. Gache C., Müller J.W., Boldu L., “Yearly Dynamics Study of Ornithofauna from Wetland Vladeni –, Studies and Researches, Bacău, Vol. 6, November 2001.

- **Follow up proposals**

10. “Biodiversity Management in the Wetland Vladeni (Iasi County, Romania) Targeting the Area Sustainable Development”, 2001- British Petroleum Environmental Programme (not granted).

11. **“**VLADENI - A New Future”, 2001- the World Bank's PGM, Small Grants Programme (not granted).

12. “Conservarea biodiversității zonelor naturale valoroase din bazinul râului Prut, în vederea dezvoltării regionale durabile” (Biodiversity conservation of valuable natural areas from River Prut basin, for sustainable regional development), 2002 – CNCSIS (in discussion).

# 4 Policy evaluation (comparison of cases and discussions with respect to impact)

The case studies analysed in this report represent the basis to investigate the impact of intermediaries such as science shops on research and curricula development in universities, on society groups and their development and involvement in environmental problems. This analysis is based on responses received from interviewees for the 2nd level questionnaire and facilitates discussion of cases with respect to issues as: collaborative research, knowledge production and usage, impact of science shop projects as perceived by community, universities and science shops. The support of such intermediary organizations is also discussed from the perspective of the groups involved, taking into consideration the wider context of available policies concerning public access to science and the development of university-community relationships.

## 4.1. Importance of collaborative research

Science shop activities in Romania are quite a new trend that links the expertise existent in universities with the requests of society groups (NGOs, associations), at the same time trying to contribute to the reform of higher education and modernisation of the curricula by increasing the involvement of students in project work. This section will analyse the importance of collaborative research as policy level interviewees emphasized it in relation to the Case Studies.

### *4.1.1. The client (NGO) perspective*

All NGOs involved in the cases presented are medium size organisations active in: environmental protection, habitat and species conservation, health-related topics and education.
Their participation in different debates, exhibitions, environmental programs or educational campaigns is realised by means of active and voluntary members that work either at a local level (mainly) or a regional one.
Another particularity is that four of the organisations that requested / co-operated to the projects described in Case Studies 1 and 3, i.e. OAIMDD, SOR, SMR and AEI have among their members both students and teachers / researchers, so we might say that these NGOs are above the medium level of scientific expertise and awareness existent normally in NGOs. While OAIMDD and AEI are local NGOs, SOR is a branch of an NGO situated in another town, SMR is an organisation represented at a national level.

The aspects presented above are quite different from another NGO involved in Case Study 2: CET Moldavia, also very actively involved in environmental protection and education of children and young people, but working with active members and volunteers of the local community.

For all these NGOs, the science shop concept and activities were for the first time known with the occasion of their co-operations with the InterMEDIU Centres. Even if these initial projects did not have follow-up direct activities, all NGOs remained in contact with the science shops and are aware of other science shop projects realised later on.

The request for / subject of co-operation was directly addressed by the NGO to InterMEDIU Centre (as for Case 2), or initiated in common by the NGOs and science shop members (as for Cases 1 and 3), as a result of the environmental and health related preoccupations.

For Case Study 2, CET Moldavia NGO raised a problem regarding the environmental impact of a certain type of industrial wastewater and wanted to receive information in the form of a documented report that will be used further to contact the authorities and to inform the local community. They were not actively involved in research and also the scale of the project was not that big (as number of students / researchers participating).

For Case Studies 1 and 3, common features of the NGOs involvement in the projects refer to the discussion of project objectives and involvement in the organisation of public debates and dissemination events.

For the project described in Case Study 1, the methodology and particularities related to water quality indicators, design of questionnaires and formulation of proposal to improve the existent situation were established by the science shop staff (supervisor of the project and researcher) in co-operation with students and specialists in Techniques of Social Inquiry.

For the 3rd Case study, the co-operation process involved the NGOs during the project effective realisation in two ways:

- students and staff that were members of the NGOs participated in project activities (including actual research work);
- since the grant financing Vladeni project was offered for students' project, they were beneficiaries and also responsible for project realisation and report, under the supervision of science shop staff.

*"I am aware of the other science shop projects and educational programs realised at InterMEDIU Centre at the Technical University, and even if we didn't effectively co-operate in other projects we were always invited at public debates or seminars organised by InterMEDIU and received information about their activities. We have as common features with the science shop: the protection of the environment and the need for a more active public involvement, and that is why, we appreciate information about*

*such activities or calls for participation in different projects. For instance, in one of our projects designed for introduction of PET recycling in the County of Iasi financed by an USAID grant, we have co-operated with the Dept of Environmental Engineering, with the Environmental Protection Inspectorate and several local high– schools" (MM, OAIMDD NGO manager).*

*"Most of the projects of our organisation involve either participation of our NGO members or co-operation with other NGOs and associations, being financially supported by national or international grants. "The impact of wastewaters resulted from the industrial production of yeast on the river of Siret" was the first project of co-operation that we had with a science shop and we consider that it was very well documented" (DI, CET Moldavia NGO manager).*

*"The research achieved through science shops involved university staff and students and brings new information and perspectives. I have to mention the fact that the educational component is important for the science shop and that new themes of study evolve from this co-operation. For Vladeni project, InterMEDIU science shop offered the logistical base for project-start up and also supported the working group for the whole duration of the project" (CG, SOR NGO manager).*

### *4.1.2. The University perspective*

The reform of higher education and the necessity of an active integration in the economic, social and cultural environment are aspects that are frequently discussed in conjunction with the transition phase that Romania is incompassing. This transition has multiple dimensions, and is mainly governed by the economical situation and the need to evolve from highly centralised, state owned property and controlled market mechanisms towards private property and free-market competition. These aspects together with the democratisation of society, the necessity to modernise governmental structures, legislation and to improve quality of life and environment in view of Romania's European integration are the major factors that influence current reforms that are taking place in all sectors of activity.

The opening of Universities towards the economy and society needs, the modernisation of curricula at all levels (undergraduate, post-graduate, continuous education), modernisation of research and facilitation of inter-disciplinary research programs, as well national and international co-operation are major issues that require a more flexible approach and specific changes at all institutional levels (INTERACTS State of the Art Report, 2003, p. 73 – 80).

In this context, the concept of partnership with the economic and social environment is encouraged, but in order to become operational has to be strengthened by adequate

legislation and supported by all sides (these partnerships differ as concept from the very traditional university-industry co-operation only by means of research contracts). For instance, enterprises can use M.Sc. or Ph.D. students to perform applicative research on a required subject during their study program (internships) or support them by means of fellowhips (attracting thus good students as future employees). Such activities might as well be encouraged by the state by means of specific legislation or taxes.

Or, the application to certain structural funding should be encouraged if partnerships are envisaged, i.e. Universities and enterprises/SMEs, or Universities and NGOs. In fact, this last example is mainly taken into consideration through the creation of APART (the National Agency for Partnership between Universities and Economic- Social Environment) (INTERACT State of Art Report, 2003, p. 79).

In this context, the science shops are structures characterised by flexibility and opening towards societal needs and can provide to Universities opportunities that:

- facilitate democratisation of society;
- contribute to modernisation of the curricula by introduction of project based learning and flexible modules of learning;
- facilitate international co-operation.

There are however, for the moment, problems related to the outreach to the society organisations and to the Romanian Universities network, and these are mainly explained by the fact that existing science shops are small entities known at a local or regional level, with limited access to national policy and media levels.

That situation will be fortunately improved in future by the creation of other four Romanian science shops in different Universities/ regions of the country and by the creation of a national science shop network that will be more involved in outreach activities.

Referring to the analysed case studies and the Universities perspective related to collaborative research few common aspects may be observed:

- all respondent at policy level (deans, vice deans) are informed of / or participated at science shops activities and projects realised in their faculties / universities;
- they know the general aspects that characterise science shop projects and positively appreciate the involvement of students, the inter-disciplinary approach and the facilitation of team-work;
- although there are several NGO projects or project proposals that the university representatives are informed about, these NGOs have usually as voluntary or active members students or staff;
- the majority of requests for research and consultancy from the economic agents is addressed to University departments or research centres. In the case of the Technical University, requests for co-operation are received from enterprises, governmental organisations, administrative organisations, research institutes, and only to a limited extent, from non-governmental organisations and associations.

Support of science shop collaborative research by the University is considered important as the interviewees underlined it:

*"The science shop concept is still very new for the universities in Romania. Our faculty encouraged this activity from the beginning, and I think that in future, many projects of co-operation with different organisations could be directed through science shops, they offer a direct and efficient co-operation with university staff and students" (IB, Dean of the Faculty of Industrial Chemistry).*

*"Science shop projects have clear objectives, the research is very well co-ordinated and can reach different target groups, being also attractive for students. In our faculty the science shop is a clear entity, has numerous contacts with national and international organisations. Considering the project that has been mentioned ("Impact of wastewaters from yeast production…") I think this has to be completed with specific researches envisaging environmental impact assessment or risk studies" (MG, vice-dean with research, Faculty of Industrial Chemistry).*

*"Vladeni project was a very good example of team-work and I appreciated the fluent circulation of information towards the team members and all interested persons. The involvement of pupils was also very well chosen and they integrated and worked very well with the students. Activities were well planned and organised. Problems were mainly represented by insufficient funding: participants stayed in tents and the weather was bad, a car for field work would have been needed." (TC, vice dean with research, Faculty of Biology, Iasi)*

### *4.1.3. The science shop perspective*

Irrespective of the science shop organisation (as an independent department of the University or as a part of another department of a Faculty) the science shop managers are permanent staff members of the faculties, usually in charge of scientific supervision of projects and co-operation with students, and have responsibilities for relation with the management and administration of the Faculty / University and media representatives. Apart from these tasks, the elaboration of project proposals and search for partners, as well as reporting for existing projects are also usual tasks for a Romanian science shop manager.

*"I have the responsibility of project proposals and reporting, search for partners, supervise students and give credit points (marks). I am also responsible for the relation with the management at the faculty and University level " (MN, science shop manager, InterMEDIU "Al. I. Cuza" University).*

*"I think that you need to be well organised, willing to be involved, have good communication and teamwork skills. The science shop activity is new and demands efforts to organise it and to make it visible for the university and the civil society. It is also true that we elaborated a strategy and then several project proposals in order to continue this activity that is considered in our University to be "self-financed by means of projects". All these activities are time– consuming and not always can be quantified in traditional research results (publications in peer reviewed journals, granted projects). However, it is rewarding for a university science shop to see the evolution of the students that participated at initial activities and the continuance of their co-operation on a voluntary basis or for diploma projects" (CT, science shop manager, InterMEDIU Dept., Technical University of Iasi).*

The science shop is perceived by many NGOs as a very good source of information and research, but also as a "free" one. This was partly due to the fact that in Romania the science shop concept was adapted from that of Dutch science shops (where most of these activities are supported by the Universities), and partly due to the fact that in Romania NGOs or associations have usually a limited number of members and resources and cannot afford to pay services such as: information, consultancy or research.

Moreover, one of the main targets of the science shop activity in Romania was to contribute to environmental issues (information, education, research) by unlocking domestic problem – solving capacity and facilitating co-operation between universities and society. In this context, all initial projects of InterMEDIU Centres were realised with no charges for the clients. Participation of students was not always accompanied by the achievement of credit points, yet considered valuable for their professional experience (such as the international student projects realised both at "Al. I. Cuza" University and the "Gh. Asachi" Technical University of Iasi with the MATRA Program financial support).

The particularities of co-operation with NGO members during the research process vary according to their expressed interest or expertise. For the projects that have been analysed in this report these interests refer to:

- participation in the project initiation phases, communication and information on project intermediate results (Cases 1, 2 and 3);
- organisation of public debates (Cases 1 and 3);
- participation in effective project realisation (Case 3).

The more participatory approach observed in case 3 may be explained by the fact that in this case, NGO members were also staff members of the Faculty of Biology that were scientifically interested in project Vladeni realisation.

## 4.2. The impact of science shop projects analysed in the Romanian Case Studies Report

The premises of such a discussion have to take into consideration two major questions:

- what is the clear definition of impacts in the context of science shop research, as a basis to judge its further influence and benefits for the society (particularly on the development of community groups), for the University, for the science shops and for the national policy on science and society?
- are there possibilities to quantify these impacts, especially taking into consideration objective factors such as: traditions of democratic structures and participatory research, level of development of society organisations, establishment and experience of small entities (such as science shops) situated at the interface between universities and community groups.

For the environmental studies there is a clear definition of the environmental impact, i.e. “Any direct and indirect effect of a human activity in a certain area that produces changes in the evolution and quality of ecosystems, or changes that may affect human health, environmental integrity, of the cultural heritage or of the socio-economical conditions”. There are also clearly depicted methods, qualitative or quantitative, to assess these impacts, but of course there are still aspects that are either quite difficult to quantify (e.g. in the cases of several interdependencies between the social and economic environment), depend very much on the experience of the evaluator (as in the case of qualitative methods), or need further investigations for the identification/ quantification of each impact.

There are similarities between these procedures of impact assessment applied for the evaluation of environmental projects and projects that are envisaging this co-operation between University and society (as science shop activities) and this is an interesting direction to investigate in future.

The methodology used for the elaboration of the Case Studies allowed us to approach the discussion on impact more from a qualitative point of view, and the responses at the questionnaires (1$^{st}$ and 2$^{nd}$ level) facilitated the understanding of these impacts as perceived by representatives of different groups: NGOs, students, researchers, University representative, science shop staff. That is why, these perspectives will be discussed and commented separately in this chapter, with separate references to each/all of the Case Studies. Citations that consider actual impacts or benefits gained by direct participants in the project (that have been described in the Case Studies) are not repeated in this section.

We are aware of the fact that during the workshops that will be realised as part of WP5 of the INTERACTS projects, other themes will emerge concerning the expectations of all beneficiaries/ actors of science shop projects, expectations that need to be also in-

cluded in strategies concerning the development of relationships between community, NGOs and academic institutions.

### *4.2.1. Impact on/ benefits of science shop projects for the clients (NGOs)*

For all the three Cases Studies several particularities are common:

- the direct need for knowledge as expressed by the NGOs (in Case 2) or together by the NGOs and science shop (Cases 1 and 3) was facilitated through the science shop structure. Contributions of students and researchers envisaged problem documentation, research, evaluation of existing activities and formulation of solutions for improvement;
- information of community groups, the organisation of public debates and, on the longer term, the increase of public awareness towards environmental and health-related problems;
- the possibility to attract representatives of different governmental organisations, media and public administration at these public debates (Environmental Protection Inspectorates, Research Institutes, University staff and students, Waterwork Companies, City Hall, Regional representatives);
- the existence of a public report, presented in an accessible format, produced by the science shop, an organisation that has the role of an external expert for the NGOs;
- there were no financial obligations for the NGOs that were involved in the projects;
- the relations with the respective NGOs were maintained even after the projects ended (they continued to receive information about call for proposals, possible partnerships and contact with specialists, InterMEDIU project updates).

*"The science shop research has particularities that relates it both to universities and society: it is well organised, supervised, and uses a specific methodology, but also the results are presented in an accessible manner for the wider public. The information of community and raising of awareness, that are both based on a scientific approach, are very important and specific for this type of activity" (MM, OAIMDD NGO manager).*

*"Science shop activities are important for us as NGOs due to the contact with specialists from different organisations, the widening of perspectives, the free access to different information, and the fact that in this way, a wider impact over the public is achieved" (CG, SOR NGO manager).*

*"The most important aspect is that through our co-operation with the science shop the community has access to scientific information" (DI, CET Moldavia NGO manager).*

The differences between the case studies can be summarised as follows:

- the organisation of the public debate for the project described in Case Study 2 was not done in common with the science shop;
- Case Studies 1 and 3 are considered to be large- scale science shop projects, according to the following criteria:
    - ambitious objectives / research work;
    - number of students and researchers involved;
    - relevance of the subject for a certain community / nature conservation;
    - educational predominant components (students, children, population).
- the extent to which the public report was used further by different organisations (Waterworks Company, Environmental Protection Inspectorate) was also different. In Case 1, there were initiatives to improve the current situation (submission of project proposals to support funding for modernisation of drinking water production), while for Case 3, a proposal was made to include Vladeni area among the natural reservations;
- only one of the NGOs, SOR (participant in the project described in Case 3) continued the activities related to Vladeni project with ecological summer camps and educational programs in schools.

### *4.2.2. Impact on/ benefits of science shop projects for the universities*

The impact of science shop projects is appreciated as being positive for the educational and research system, as well as for the general image of the Faculty as pointed out by the representatives of faculty management that have been interviewed.

*"The science shop activities contribute to an active presence of our Faculty, the development of its links with society and the identification of emerging research themes (suggested by community groups, other organisations). The science shop offers an efficient and direct contact between university and community, with direct benefits for students because of their involvement in such projects and for the image of the Faculty" (IB, dean of the Faculty of Industrial Chemistry).*

*"There are several benefits of the science shop projects. For our students the experience gained in science shop projects is materialised in: experience with project work that doesn't necessarily involve only technical aspects, improvement of teamwork, communication and computer skills, identification of dysfunctions that appear in the cooperation between governmental and non-governmental organisations.*
*Science shop activities facilitated the sharing of experiences between specialists in our faculty, and their Romanian or foreign colleagues (through debates, workshops, seminars) contributed to exchanges of students and to the improvement of documentary and research support (books, journals, equipment).*

*By co-organising together with the Department of Environmental Engineering the MSc ODL Course in Environmental Management, the links of InterMEDIU Centre with different industry representatives were also facilitated. To resume, I think that science shop contributes to the image and a better information about our faculty preoccupations" (MG, vice dean with research, Faculty of Industrial Chemistry).*

*"Science shop activities are very important for students, due to the scientific useful approach (they used part of these results for their diploma projects), and due to the fact that they become more aware about environmental and social problems. These activities are useful for the community groups as well, they can approach the science shop and ask for more information on certain environmental problems and means for remediation, if these exist" (IM, vice dean of the faculty of Biology)*

*"Science shop activities are very good examples for students' involvement in projects. This type of activities is very suitable for those students who are dynamic and full of ideas. Another positive aspect is that proposals of the science shop had impact on the local authorities" (TC, vice dean with research, Faculty of Biology).*

### *4.2.3. Impact on/ benefits of science shop projects for the students and researchers involved*

The **students** involved in the projects described in these case studies recognised the importance of science shop activities, as described by the interviews presented in Chapter 3 of this study. Thus there were mentioned aspects such as:

- improvement of communication, teamwork and computer skills;
- experience with project work (or international project work);
- improved knowledge on research methodology, presentations and publication of results (being also more aware that the presentations for the general public may involve an adequate usage of the scientific terminology);
- usage of the results in diploma projects or publication in peer-reviewed journals;
- acknowledgement of the quality of their work and positive evaluation in students' scientific events;
- CV improvement (important especially for students who continued with their MSc or PhD studies or started a career in the University).

The **researchers** involved in the science shop projects are permanent staff members of the respective Faculties and acted both as scientific supervisors and members of the research team at the same time (all case studies).
While for cases 1 and 3, direct participation of researchers/staff members was characteristic, for case 2, only the student acted as researcher.

Few particularities of researchers' involvement and the impact achieved are depicted below:

- scientific publications were published in peer reviewed journals (national or international) or communicated at different conferences, seminars (Cases 1 and 3);
- appreciation of the project achievements/results for the personal experience as researcher/teacher and inclusion of some project data in the regular teaching activity (Cases 1 and 3);
- co-operation with students and contribution to their scientific formation and education in the spirit of environmental protection, openness for co-operation with different groups (community or NGO members, staff, representatives of governmental organisations, media) and issues of responsibility with voluntary work;
- personal improvement of project management skills, reporting and communication with community groups, relation with the media;
- interest in scientific follow-up topics and formulation of new project proposals;
- achieve a social dimension of the scientific work and further actions/activities in relation with community requests (organisation of public debates, awareness/educational campaigns, specific discussions with governmental organisations).

### *4.2.4. Impacts on/ benefits of the projects for the science shop*

The initiation of the science shop activities in Romanian Universities was possible due to the Dutch involvement in the form of financial support, training and assistance with operational practices, facilitation of co-operation in the format of international student project (within the framework of the MATRA program financed by the Dutch Ministry of Foreign Affairs and co-ordinated by Dr. Henk Mulder, University of Groningen, The Netherlands).

A period of two years designed for this program brought important questions related to the way the science shop activities are perceived in the Romanian context by the University in general (students, staff, management) and by the society, and also about the sustainability of these activities in future. Even if the Romanian science shop adopted the operational model of a Dutch Faculty based science shop, there are still several differences that particularise them in the Romanian context, and that are not all necessarily related to the co-operation of the science shop with the University structures. These differences relate to the structures of the civil society (level of organisation, involvement, openness for co-operation with universities), general perception on the possibility to influence public attitudes or specific policies, perception of governmental organisations about public access to information, reduced experience with voluntary work. The economic differences also led to the inclusion of companies and public organisations (such as the Environmental Protection Inspectorate) among the clients, a situation that differs from the Dutch science shop cases.

So, there were many aspects that were interesting for each science shop in the creation of a strategy that could define its activities, related to its particular conditions of functioning within a specific university and city (SCIPAS Report no. 2, 2001, p. 41 – 49; InterMEDIU TU Iasi Strategy, 2001).

Thus, several questions might be considered relevant for a science shop in order to formulate its own strategy:

- how can these activities be integrated as part of the curricula in order to facilitate student participation?;
- how can the science shop contribute to the identification of new research or curricula improvement?;
- is it possible to make the local community more aware of the science shop existence? (for instance Iasi is known as being less active in the NGO sector, compared to other Romanian cites, i.e. Bacau or Galati);
- how can the science shop activities be continued in the absence of a core financing from the Ministry of Education (e.g. to act as centres for project co-operation to develop post-graduate courses in co-operation with other faculty departments, to provide consultancy for different companies or to participate in applied research contracts).

Some of these preoccupations may be depicted in the presentation of the Romanian Case Studies and probably are important for the general achievements and expectations of the science shop and of the groups that it co-operates with.

Therefore, in relation with the analysed Case Studies, the impacts of these projects for the science shop activities and its perception at the Faculty/University level can be summarised as follows:

- the initialisation of new projects, or follow up proposals was possible for Case Studies 1 and 2. For Case 1, these follow up proposals were requested by NGOs, for Case Study 3 the initiatives to continue the project Vladeni was of the science shop;
- due to the appreciation of student work within the science shop and the adequate supervision, students were allowed to continue to participate in such activities for diploma projects, M.Sc. thesis or practical periods and thus obtain credit points (Case Studies 1 and 3);
- the science shop used the project reports/results as a possibility to promote this type of activities both in the academic and the social environment (All cases). For Cases 1 and 3, an important contribution was brought by the media coverage and the diversity of participants involved in the public debates;
- further involvement of the science shops in educational programs in schools was possible by selecting students that participated in these projects (Case Studies 1 and 3);
- getting more experience in work with community groups made possible the identification of contributions/common activities that would further lead to: strengthening of these groups, a more active involvement, or co-operation in other projects (All cases).

### *4.2.5. Impact on/ benefits of science shop projects for other groups*

Other groups/organisation benefited of the project results and among these can be cited: Environmental Protection Inspectorate, Water Works Companies, children and teachers (Case Studies 1 and 3). Examples are given below:

- the Water Works Company used the project report (Case Study 1) as a justification for the necessity to improve the quality of drinking water and modernisation of water treatment facilities and also for the necessity to include these aspects in all the local development strategies;
- the project report (Case Study 2) was used by the Environmental Protection Inspectorate to contribute to the list of the ten annual priority projects for the county, and sent afterwards at the Water and Environmental Protection Ministry. The information about biodiversity was used for their databases and the Romanian Water Company did the same.

For the project Vladeni 2000, a special impact was achieved on the children that participated in the ecological summer camp. They presented their wish to come back in that area for another summer camp and some of them mentioned that they want to become students of the Faculty of Biology, in future.
Few of these impressions are cited below:

*"A place forgotten by humans, that looks like only protected by God and some people with large hearts is the camp at Larga Jijia. Here Science and Education interweave in a pleasant manner. I took boat trips, caught birds in the net, learnt about plants, fungi, birds, and fishes. That experience taught me what means to be free"* (C.C., pupil- aged 13, Elementary school no. 23, citation from Vladeni project report).

*"It was the most beautiful camp in my life. I saw there many birds about that I knew and heard nothing before. I most enjoyed birds ringing and determination. I liked that we could release the birds"* (T.R., pupil- aged 13, Elementary school no. 39, citation from the project report).

*"I discovered that I wish to become an ornithologist or a veterinary able to help the wounded animals"* (B.C., pupil- aged 12, Elementary school no. 7, citation from the project report).

The opinion of C.F. (Physics teacher, Elementary school no. 16), volunteer participating in ecological summer camp "Vladeni – 2000" (24 - 29.07.2000):

*"With adequate equipment: binoculars, guidebooks, reviews, field equipment, photo cameras, pneumatic boat and the very enthusiastic organisers helped us to get into the marvellous world of birds and plants. We spent wonderful days within a unique area through its landscape. Field activities were very attractively organised, children getting without a special effort the Ecology and Ornithology knowledge. Pupils had at the same time the opportunity to learn how are organised a fieldtrip, how an Ecology paper is written, how a tent is installed, how a bird is ringed, and how the birds census is made. They got into the secrets of medicinal plants, and amphibians." (*Citation from Vladeni project report*)*

## 4.3. Response to and support for intermediary organisations as science shops

Although the science shop initiatives are still in an initial phase in Romania, the activities of InterMEDIU Centres are known mainly at a local/regional level, in the context of co-operation with society groups, provision of valuable learning experiences for students and of flexible educational programs (undergraduate or postgraduate.).
Due to the existing links with the Dutch parteners involved in the foundation of Romanian science shops, the majority of the 2nd level interviewees knew more details about the specificity of Dutch science shops.

### *4.3.1. NGOs' points of view*

The intermediary role of the science shops is considered useful since they provide access to scientific research, information and contributes to an increased environmental awareness of community groups.
Since in the science shop approach the direct contact with civil society groups is encouraged, the role of these organisations is perceived as an efficient way to connect universities and communities, using systematic methods and adequate presentations of results. In this context, apart from the contributions to capacity building, raise of awareness at the level of community groups, the initiation of legislative proposals can be facilitated by the public debates organised for discussion of science shop projects.

*"The facilitation of public access to scientific knowledge can be improved by organising special debates, workshops, different radio and TV information programs, but also conferences at the level of local communities, administration, or in schools. The public debates organised for the presentation of science shop projects can represent the support to initiate legislative proposals or the opportunity to discuss the way in which the environmental strategies are applied at a local level. We consider that thematic work-*

*shops on topics of interest for the community are an important way to strengthen the relationships between university and the civil society.* (M.M., OAIMDD NGO manager)*"*

The development of University-community relationships and a more active role of the NGOs can be achieved through the facilitation of more co-operation projects that contain practical activities (enabling participation of community groups), dissemination of scientific information or educational campaigns.

*"In order to increase the involvement of NGOs and to develop their relation with the universities, intermediary structures such as science shops are quite important when providing co-operation projects, participatory activities or information that are accessible for community groups. Most of the problems are related to the financing of such activities.* (D.I., CET Moldavia, NGO manager)*"*

*"The science shops represent intermediaries and their activities can strenghthen the relations between NGOs and universities through project proposals educational campaigns and support for financing. The facilitation of regular presentations of environmental problems (leaflets, radio, TV presentations) can contribute to a more responsible attitude towards nature and resources conservation. However, we have to admit that there are many social problems nowadays and it is difficult to influence public attitudes.* (C.G., SOR NGO manager)*"*

*"It would be useful to consider the functioning of science shops in well established universities, either functioning as a partener NGO or as a separate department. The lack of a stable source of financing that would allow permanent staff members (who can further contribute to the formation of volunteers) is a problem for the development of science shop organisations. NGOs are encouraged to participate in science shop activities in these approach problems requested by the community. The results of this co-operation should be continued with implementation of certain strategies/actions that would produce changes of the existing situations.* (M.M., OAIMDD NGO manager)"

It is useful to mention that from all the NGO managers interviewed (2nd level questionnaire) in relation with the case studies, 2 of them are experienced university staff members (Cases 1 and 3) and only 1 is not at all connected with university structures (Case 2). This particular aspect may be characteristic for cities with well-established academic education structures, where after 1990 it was observed that many members of Universities or Research Institutes established themselves NGOs or participated in NGO activities.

### *4.3.2. Universities (faculties)' management points of view*

In the development of university-society relations, the science shop is perceived as an interface (due to its functions and activities), science shop contributions being beneficial to both parteners, i.e. university and society (teaching, research, widening of perspectives, capacity building, effective involvement of students in projects of interest for the community).

*"Science Shops are interface organisations that can enable public access to scientific research. The public may not easily understand some of the research results, especially when it comes to technical issues. For Technical Universities (usually considered less open towards the society) the existence of the science shop is connected with finding of research themes that respond to society needs and also with the facilitation of communication and co-operation with the local communities.* (M.G., vice dean with research, Faculty of Industrial Chemistry)*"*

*"The research part of the science shop activities and the formation of students are very important, but educational aspects shouldn't be neglected in order increase awareness towards environmental problems and to encourage involvement of society groups. For the educational programs, InterMEDIU Centre selected schools of the peripheric neighborhoods, where diversified educational programs are not always available. However, in order to facilitate public understanding of science, there should be more activities related to awareness campaigns, realisation of accessible publications, leaflets that would make known also the activities of science shop and attract as well national and international funders* (T.C., vicedean with research, Faculty of Biology)*"*

Considering the role of science shops for improving public participation and capacity building of NGOs, the results can be seen especially for the NGOs that respect the initial objectives and the type of activities mentioned in their statute.

*"The role of the science shop is essential, and addresses changes of the mentalities in the process of decision-making. To see the relations between causes and effects and to improve awareness that is the important role of science shop* (T.C., vicedean with research, Faculty of Biology)*"*

*"The science shops could also propose programs designed to allow participation of different society groups, such as the professional reconversion programs, or environmental education programs, these are means to develop university-society relationships"* (I.B., dean of the Faculty of Industrial Chemistry)

*"It is important that the science shops contribute with information and assist NGOs in their dissemination, there are active NGOs (in the sense that they are really interested by civil society democratisation and don't have secondary objectives related to business) and can benefit of the co-operation with science shops. The facilitation of contacts between governmental and non-governmental organisations is also a possibility to increase public participation in the decision making process. (M.G., vicedean with research, Faculty of Industrial Chemistry)"*

The problems regarding science shop development and its active role in the universities are not only related to financial aspects, but also to organizational, administrative, communication and visibility (marketing strategy) of science shop activities.

*"The problems of communication, the organisational structures or the modesty in promoting specific results are barriers in gathering around science shops more stabile members*. (T.C., vicedean with research, Faculty of Biology)*"*

*"The science shop role and activities should be promoted more actively, so as to increase visibility of these organizations at the level of civil society, universities and Ministry of Education. This would involve charges of mentalities and attitudes of Romanians in general, especially of those who are in management positions.* (I.B., dean of the Faculty of Industrial Chemistry) *"*

*"It is necessary to involve other staff members in science shop activities, with the condition that they are open and would like to promote these activities. The understanding and the openness towards changes in University structures and activities are important isuess for the development of science shops. The facilitation of international co-operation and the links with European policies for Research and Technology are also important for the science shop development.* (M.G., vicedean with research, Faculty of Industrial Chemistry)*"*

### *4.3.3. Science shop managers' points of view*

The particularities of science shop activities and the support they receive are influenced to a large extent by their intermediary positions in the Universities. For the civil society groups, the provision of information, consultancy and research has been done until now without any financial obligations. For the universities, important are contributions related to the formation of students by means of project work and usage of appropiate research methodology, the opening of new perspectives related to teaching and research activities and the possibility to make known the Faculties to the local communities.

In order to really encourage students in participating to science shop activities, the allocation of credit points for student work should be considered in connection with the structural changes of the curricula and the need to increase the importance of project work. Only the practical periods (summer period) or the work for diploma thesis (final year of study) are not always in accordance with the time frame of certain science shop projects or requests, the alternative for students being their volunteer participation at science shop activities.

*"The research made for NGOs was not implying any obligations from their side. We consider that science shop projects contribute to the scientific formation of students and also promote a positive trend towards environmental protection. For instance, even if we didn't succeed to include Vladeni area among the natural reservations, we answered the major questions related to the real state of ecosystems, endangered birds, biodiversity aspects and important anthropic threatens. To a certain extent, the science shop contributes to the image of the universities/faculties and the science shop activities have not only to be agreed with, but should benefit of a financial support as well.* (M.N., science shop manager, InterMEDIU "Al. I. Cuza" University)*"*

*"The way in which science shops functioned from the beginning in Romania (based on the Matra program funding) encouraged NGOs- science shop co-operation without any charges. Apart from the projects in which students are involved (that require also staff supervision), there are requests coming from NGOs or SMEs related to assistance with project proposals, supply of information concerning environmental protection or legislation, assistance for organisation of public debates, organisation of post-graduate courses, all together activities that require the participation of science shop staff members. If all these activities bring added value and contribute to the opening of the universities towards the social and economic environment, it is fair to acknowledge them at the level of universities/faculties by allocating staff time, credit points for students and adequate resources. The creation of other 4 science shops in Bucuresti, Ploiesti, Brasov and Oradea and the development of a Romanian network of science shops in the framework of the new Matra project will contribute to a better dissemination of the science shop methods and activities and an increased visibility for society groups and universities.* (C.T., science shop manager, InterMEDIU Dept., Technical University of Iasi).

The development of University- community relationships, the facilitation of public access to science and society contributions to the development of national science policy are aspects that are materialised in concrete actions that include: opening of the universities and inclusion of these clear objectives in their mission statements, development of participatory activities and contributions to capacity building in civil society (in a

certain area, e.g. environmental expertise). Universities could develop through the science shops special programs that envisage capacity building of NGOs, i.e. project management, organisational development, and special trainings. Science shops and students can contribute to university- society relationships by means of different activities and educational programs, but since they are still small entities, the support of university management, media, local administration and especially communities is essential for strengthening these relations.

*" I think that science shop activities are important because otherwise a big gap is created between the academic community and the civil society. The objectives of the initial Matra project were to strengthen the NGOs, so as to achieve a more active public involvement concerning environmental problems.*
*The students are sort of "social ferments" outside the universities, they can make known by themselves their knowledge in their own community, especially when they are members of a local NGO. Also, an environmental education program implemented in schools can lead to a "chain education" for different categories of people. Other ways to increase public participation could be represented by different seminars organised in universities (weekly, monthly) in which could be discussed the positive experiences in the transfer of information towards the public. Effective communication, that would allow questions, topics for further discussion or exchange of ideas proposed by community representatives should be considered. Radio and TV programs that would support these activities and where representatives of universities, science shops, students and communities would be beneficial for all parties* (M.N., science shop manager, InterMEDIU "Al. I. Cuza" University)*"*

*"Public access to scientific information and public participation require a more active role of the universities and scientists, supported by adequate policies at national level, in close relation with the reform of higher education, flexibility and adaptability of university programs to the needs of society and industry, or the access to general information from governmental organisations. We have to consider the fact that the political, economical and social changes from a dictatorship to a democratic regime in Romania after 1990, needed to a certain extent re-building of civil society structures. There are changes that take time, financial resources and involvement, but at the local level, activities of some of the NGOs or the co-operation between governmental and non-governmental organisations prove that there are ways to involve different community groups in programs that envisage environmental, health or educational issues. The idea of listening to each other, transfer knowledge and share experiences should be valued by both universities and society organisations. All these problems have to appear also in the general public debates and be fairly reflected by the media, maybe examples of the small steps, different activities that are done in common or illustration of*

*involvement of different communities (at national or international level) are ways to start with. We have never had in our science shop a specialist in marketing or publicity, therefore all the publicity folders, leaflets, brochures, organisations of workshops have been made by ourselves, however we feel that we should have some assistance in this field in order to make more people aware of the science shop existence* (CT, science shop manager, InterMEDIU Dept., Technical University of Iasi).

Discussing about the future of science shops and the needed support to develop these entities and their activities, there are several elements that have to be considered: recognition of students and staff work within the science shops, financial support, diversification of activities in the context of integration into the universities trends of development, support of policy makers (national, local). In a way, the existent Romanian science shops have their own particularities generated from the adaptation to the specific social and economical environment, and the fact that they had to find possibilities to generate their own funding (projects, grants) in the absence of the core funding provided from the Matra program (first Matra program was granted for 1998-2000, the second one started in November 2002). To fund science shop activities only from projects is time consuming and not always successful in terms of results (number of proposals vs. granted projects). A specific policy at the national (Ministry of Education) or supra-national level (EU, international organisations) would encourage more Universities to start and support science shop activities.

*"Science shop activities should be developed in future, human resources are usually interested in this approach, but most of the things relate to the "financial" force of the science shop. By providing different alternatives, services, projects/grants, the science shop services could attract complementary funding (nationally or internationally) that would decrease the burden for the University budget. However a basic funding is necessary. The barriers, perceived for the moment, in achieving development in future are specific to all actors, i.e.:*

- *for NGOs: the insufficient organisation and the lack of appropriate funding,*
- *for the Universities: the weak relations with the civil society,*
- *for the science shops: the financial problems and the recognition of the Universities/Ministry of Education of the staff and (partially) students' involvement.*

*If a national strategy would encourage the development of NGOs and their involvement in policy making (especially for environmental issues), then also the Universities that are active in these domains (directly or through science shops) should be supported accordingly.* (M.N., science shop manager, InterMEDIU "Al.I.Cuza" University)

*"When science shops are obliged to sustain all activities only on project funding, the diversification of activities appears and the clients sector may not be only represented by*

*the NGOs, but also by SMEs or other type of companies. This fact is characteristic for other science shops in Europe, and can be considered a normal aspect, as long as all activities remain non-profit. However, in Romania, it is difficult to apply for funding to national or international grants as a science shop, we cannot apply in the NGO sector, even if we are non-profit organisations, the same is valid for classical university research funds (we are neither a NGO, nor a typical faculty department). So, partnerships with university departments or NGOs are probably the best solution in terms of diversification of activities and sustainability of the science shop. Such a partnership with the Department of Environmental Engineering in our Faculty allowed us to co-organise the post-graduate course of Environmental Management- M.Sc. distance learning and also a short post-graduate course for industry professionals. The flexible approach and the possibility to widen perspectives (national and international connections) bring added values in such partnerships.* (C.T., science shop manager, InterMEDIU Dept., Technical University).

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# 5 Conclusions

The analysis of the Romanian Case Studies was based on projects that have been realised in 2 different science shops according to the methodology adopted by the INTERACTS consortium (methodology illustrated by the Section 1 of this study and by the interview questionnaires). This analysis facilitated the understanding of the collaborative research process, the role and the impact of science shops projects, as well as of the response and support of such activities in the Romanian context. Several conclusions that may be drawn from this study are presented below considering each of the groups involved in this study.

- **Community groups (NGOs, associations)**

The non-governmental sector is represented in Romania by medium sized organisations that activate mainly at the local level. Their level of expertise, the usage of permanent or voluntary members and the real involvement in environmental activities, educational programs, public debates or contributions to policy making are several of the characteristics that particularise the “active” type of NGOs. These groups are usually those that are open to co-operation with other organisations, including science shops, and basically their requests can be related to:

- problem documentation,
- knowledge enhancement,
- development of new perspectives/organisational capabilities,
- improved visibility for community, and other types of organisations,
- indirect access (through the science shops) to information from other organisations (especially governmental ones) or links with other groups with similar interests (national, international).

The three cases that have been analysed proved a different approach for the NGOs involvement, including discussion of project objectives, involvement in the organisation of public debates and dissemination events and participatory actions during the actual research period. The science shop neutral position between the public, local administration and university is considered useful for the communities since it provides access to scientific research, information and education. The usage of systematic methods, adequate presentation of results and the accessibility to project publications, as well as the affordability of science shop projects (until now, with no financial obligations for the NGOs) represent a possibility to connect universities and communities through intermediaries such as science shops.

## ➢ Universities

The reform of higher education and the opening of universities towards economy and society needs are important objectives mentioned in the policy of the Romanian Ministry of Education and research. In order to facilitate true partnerships of universities with the economic and social environment, changes should be accomplished also for the specific policy and legislation of financing agencies (that would allow, for instance, participation at Call for proposals of consortia of universities, NGOs and science shops or the financial support of enterprises for the realisation of MSc and PhD thesis on themes of interests for the industry).

The science shop activities can bring specific contributions in direct relation to the modernisation of the curricula and research, i.e. flexible modules of learning/project based learning, post-graduate courses, inclusion of science shop project results into the regular teaching activity, multi-disciplinary research (usage of techniques of social inquiry or environmental and health assessements), formulation of new project proposals.

The important aspects concerning the development of science shops activities in Romanian Universities are related to the following issues:

- official acknowledgement at the University/ Ministry of Education level for this type of activities and the allocation of credit points for students and staff time for supervision. For instance, the introduction of a course in Project Management and the facilitation of project work through the science shop or NGOs structures would allow students to get more experience with projects (practical activities) and thus increase their chances in obtaining a job after graduation;
- considering the extent to which the opening of new perspectives and collaborative research with society groups are priorities for the universities (and thus specifically expressed in the mission statements), the support of science shop activities can be facilitated at least at the level of operational costs and adequate administrative rules;
- the development of other programs through the science shops (educational, post-graduate, professional reconversion) can contribute to the broadening of the university preoccupations and also provide supplementary funding;
- the visibility of science shops activities at the local level and the facilitation of international co-operation contribute indirectly to the image of the faculties/universities and thus needs adequate support from the university management structures to improve outreach towards society organisations and the network of Romanian Universities.

## ➢ Science shops

The objectives of Romanian science shops refer to provision of information, education and research especially in environmental topics. Education is not perceived only in the

context of providing programs that are designed for different target groups, but especially for the engagement of students in formative activities, project work and co-operation with community groups.
Current science shop activities are represented by:

- co-operation projects with NGOs, SMEs, other groups in which university staff and students participate;
- assistance with project development for NGOs, or contributions to their capacity building (information, trainings), normally accomplished by science shop staff;
- co-operation with University departments (for different projects or post-graduate programs);
- educational programs realised for different organisations (schools, high-schools, NGOs).

Apart from these activities, science shops developed quite an important experience with environmental project proposals elaboration in order to sustain activities in the absence of a core funding.
The analysis of the case studies revealed that there was a good coverage with publications of the science shop projects, either in the form of reports for the community groups, or scientific publications in national or international journals. Also, in two of the cases, follow up proposals were developed.
The existence of such organisations that links university and communities and enables identification of new research themes, debates on subjects of interest for the society or the development of new projects of co-operation cannot be seen as functioning without the adequate support of the universities or society organisations. In this context, support may vary according to existent situations, from core funding provided by the universities, acceptable charges paid by the client groups for the services that are provided, publicity for science shop projects and advertising materials facilitated through the universities central structures.
The access of such small organisations as science shops to relevant media or national policy is to a certain extent limited and their visibility concerns the local or regional scale. However, this situation could be improved to a certain extent considering the creation of 4 new science shops and of a national network of science shops (that will also approach social and health related aspects), but the recognition and support of the Universities for the development of such activities remain very important.

### ➢ Students, researchers, other groups

The interest of **students** for engaging in science shop projects under different circumstances (voluntary work, credit points, diploma and M.Sc. projects) is mainly connected with acquiring valuable skills that contribute to their professional development and increase their chances to be employed immediately after graduation. Thus, aspects that

are important for the students and their particular interest in science shop co-operation refer to: improvement of communication, teamwork and computer skills, experience with national/international project work, improved knowledge on research methodology and practice, presentations and publication of results. The interviewed students have also mentioned the contributions to their formation, co-operation with society groups or governmental organisations, as well as their CV improvement.

For the **researchers** involved in science shops projects several benefits have been outlined, i.e. the impact on teaching and research activities (scientific publications, case studies to be used for teaching purposes, interest in scientific follow-up topics and formulation of new project proposals), co-operation with students and contribution to their scientific formation and education in the spirit of environmental protection and of responsibility with voluntary work. The personal improvement of project management skills, reporting and communication or relations with the media, as well as the achievement of a social dimension of the scientific work have been also mentioned as positive aspects of their involvement in such projects. However, there are problems related to the fact that science shop activities are time consuming and not always can be quantified in traditional research results or granted projects. The researchers acting also as science shop staff have to be responsible for other activities such as administration, search for partners/funding, relation with the university management and the press, apart from the regular research and supervision of students.

There are also **other groups** that benefit indirectly from science shop activities by receiving the information provided in the projects and using it for local, national/international programs, or by creating linkages with other experts or governmental organisations.
The educational programs developed through science shop projects had an important impact on the pupils and teachers involved, and as in the case of students, this sort of “chain education” can contribute even further to an increased awareness in the society towards environmental problems.

# 6 Annex: Interview questionnaires (English and Romanian)

## 1st level Participants in Project

| Q | NGO key respondent | Researcher / Supervisor | Science Shop |
|---|---|---|---|
| | **BACKGROUND** | | |
| 1 | Briefly describe your organisation | Briefly describe the programme of study and institution (student or supervisor)<br>Briefly describe your organisation (research worker) | Briefly describe your organisation |
| 2 | Is there any written information on your organisation you can let me have? | Do you know where I could find written information on your course of study? | Is there any written information on your organisation you can let me have? |
| 3 | Describe your own role in the organisation | (student / researcher) Describe how the research fitted in to your degree / role at the institution<br>(supervisor) Describe your own role as supervisor for the research | Describe your own role in the organisation |
| | **PROJECT DESCRIPTION** | | |
| 4 | How would you (briefly) describe the research project? | How would you (briefly) describe the research project? | How would you (briefly) describe the research project? |
| 5 | What was/were the main research question(s)? | What was/were the main research question(s)? | What was/were the main research question(s)? |
| 6 | Did you have an input into the research methods used? If so, what input? | What was your input into the research methods used? | Did you have an input into the research methods used? If so, what input? |

| | | | |
|---|---|---|---|
| 7 | What were the main findings? | What were the main findings? | What were the main findings? |
| 8 | What were the main recommendations? | What were the main recommendations? | What were the main recommendations? |
| | **ORGANISATION OF THE PROJECT** | | |
| 9 | Who initiated the project? | Who initiated the project? | Who initiated the project? |
| 10 | Did the project build on previous activities of your organisation? (Why did the project need to be done?) | Did the project build on previous activities of your organisation? (Why did the project need to be done?) | Did the project build on previous activities of your organisation? (Why did the project need to be done?) |
| 11 | How was the project planned or negotiated? | How was the project planned or negotiated? | How was the project planned or negotiated? |
| 12 | What are the main features you remember of the negotiations / planning? (Was it difficult to reach agreement?) | What are the main features you remember of the negotiations / planning? (Was it difficult to reach agreement?) | What are the main features you remember of the negotiations / planning? (Was it difficult to reach agreement?) |
| 13 | What time-frame did you agree on? (Any intermediate milestones?) | What time-frame did you agree on? (Any intermediate milestones?) | What time-frame did you agree on? (Any intermediate milestones?) |
| 14 | What was the budget of the project? (Who was finally responsible for the funding?) | What was the budget of the project? (Who was finally responsible for the funding?) | What was the budget of the project? (Who was finally responsible for the funding?) |
| 15 | What channels of communication were used? (meetings / phone / email) | What channels of communication were used? (meetings / phone / email) | What channels of communication were used? (meetings / phone / email) |

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| 16 | How regular was the communication? (How easy or difficult was the communication?) | How regular was the communication? (How easy or difficult was the communication?) | How regular was the communication? (How easy or difficult was the communication?) |
| 17 | Was the project to be open-ended and exploratory, or structured and focused? (How did it turn out?) | Was the project to be open-ended and exploratory, or structured and focused? (How did it turn out?) | Was the project to be open-ended and exploratory, or structured and focused? (How did it turn out?) |
| 18 | What were your specific interests and expectations for the project? | What were your specific interests and expectations for the project? | What were your specific interests and expectations for the project? |
| 19 | How did the knowledge and experience of the different participants contribute to the project? (NGO members / public, student / researcher, supervisor, Science Shop) | How did the knowledge and experience of the different participants contribute to the project? (NGO members / public, student / researcher, supervisor, Science Shop) | How did the knowledge and experience of the different participants contribute to the project? (NGO members / public, student / researcher, supervisor, Science Shop) |
| | **PROJECT OUTCOMES** | | |
| 20 | To what extent did the research actually fulfil the original objectives set by your organisation? | To what extent did the research actually fulfil the original objectives set by your organisation? | To what extent did the research actually fulfil the original objectives set by your organisation? |
| 21 | Were there any questions that did not get answered by the research? | Were there any questions that did not get answered by the research? | Were there any questions that did not get answered by the research? |
| 22 | How did the results get presented? (reports / oral presentations / press etc.) Who now has access to the results? | How did the results get presented? (reports / oral presentations / press etc.) Who now has access to the results? | How did the results get presented? (reports/ oral presentations / press etc.) Who now has access to the results? |
| 23 | Are the findings available to the public? (Do you know where I can get hold of a copy / publication details?) | Are the findings available to the public? (Do you know where I can get hold of a copy / publication details?) | Are the findings available to the public? (Do you know where I can get hold of a copy / publication details?) |

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| 24 | Have you used, or will you be using, the research?<br>(specify, internal to the organisation, external, direct, indirect) e.g. improve service provision, as evidence of outcomes for own funding, raise awareness generally, answer specific questions, put pressure on other agencies | Have you used, or will you be using, the research?<br>e.g. career, publication, degree, curriculum development | Have you used, or will you be using, the research?<br>(specify, internal to the organisation, external, direct, indirect)<br>e.g. promote science shop, raise public awareness of an issue, get other projects, as evidence of outcomes for own funding |
| 25 | How successful has this use been? | How successful has this use been? | How successful has this use been? |
| 26 | What accounted for the success?<br>(What hindered you achieving success?) | What accounted for the success?<br>(What hindered you achieving success?) | What accounted for the success?<br>(What hindered you achieving success?) |
| | **POLICY** | | |
| 27 | Has there been any long term benefit from the project for your organisation?<br>(How was this long term benefit achieved?) | Has there been any long term benefit from the project for your career / research interests?<br>(How was this long term benefit achieved?) | Has there been any long term benefit from the project for your organisation / research interests?<br>(How was this long term benefit achieved?) |
| 28 | How does the project relate to the wider objectives of your organisation? | How does the project relate to the wider objectives of your organisation? | How does the project relate to the wider objectives of your organisation? |
| 29 | Has this project led to further projects with Science Shops or related agencies? | (supervisor / research worker) Has this project led to further projects with the same or similar organisations? | Has this project led to further projects with the same or similar organisations? |
| 30 | What are the advantages and disadvantages of having someone from outside the organisation investigating the issue you have raised? | What are the advantages and disadvantages of having someone from outside the organisation investigating the issue you have raised? | What are the advantages and disadvantages of having someone from outside the organisation investigating the issue you have raised? |
| 31 | What, if anything, was the added value from cooperation with a science shop / intermediary agency rather than directly | What, if anything, was the added value from cooperation with a science shop / intermediary agency rather than directly with a university or re- | What, if anything, was the added value from cooperation with a science shop / intermediary agency |

| | | | |
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| | with a university or research organisation? | search organisation? | rather than directly with a university or research organisation? |
| | **SUMMARY** | | |
| 32 | Can you summarise the most positive aspects of the project | Can you summarise the most positive aspects of the project | Can you summarise the most positive aspects of the project |
| 33 | Can you detail any problems or barriers which were encountered<br>(e.g. conflicts, uncertainties, relationships) | Can you detail any problems or barriers which were encountered<br>(e.g. conflicts, uncertainties, relationships) | Can you detail any problems or barriers which were encountered<br>(e.g. conflicts, uncertainties, relationships) |
| 34 | (If problem mentioned) How did you deal with the problem? | (If problem mentioned) How did you deal with the problem? | (If problem mentioned) How did you deal with the problem? |
| 35 | If you could do it again, would you do the project the same way or differently? | If you could do it again, would you do the project the same way or differently? | If you could do it again, would you do the project the same way or differently? |
| 36 | What do you see as the advantages or disadvantages of (social) scientific research being applied to tackle issues in the community? | What do you see as the advantages or disadvantages of (social) scientific research being applied to tackle issues in the community? | What do you see as the advantages or disadvantages of (social) scientific research being applied to tackle issues in the community? |
| | ***Thank you very much for your cooperation.*** | | |

## 2nd level Participants in Project

| Q | NGO (consortium) Manager | University Dean of Research/Teaching | Science Shop Manager |
|---|---|---|---|
| | **BACKGROUND** | | |
| 1 | Please describe your own role in the organisation | Please describe your own role in the organisation | Please describe your own role in the organisation |
| 2 | How much collaborative research with Science Shops goes on in your organisation / consortium? | How much collaborative research with local NGOs goes on with Science Shops in your university? | How much collaborative research with local NGOs goes on in your university / city with Science Shops? |
| 3 | And how much collaborative research with universities not involving Science Shops? | And how much collaborative research with NGOs not involving Science Shops? | And how much collaborative research with NGOs not involving Science Shops? |
| 4 | Can you give me an example of Science Shop research? | Can you give me an example of Science Shop research? | Can you give me an example of Science Shop research? |
| 5 | Can you give me an example that did not involve a Science Shop? | Can you give me an example that did not involve a Science Shop? | Can you give me an example that did not involve a Science Shop? |
| 6 | What comparisons would you draw between Science Shop and non-Science Shop research? | What comparisons would you draw between Science Shop and non-Science Shop research? | What comparisons would you draw between Science Shop and non-Science Shop research? |
| 7 | Have you heard of the (case study project)? If so, what do you think of it?<br>(positive outcomes? problems or negative outcomes?) | Have you heard of the (case study project)? If so, what do you think of it?<br>(positive outcomes? problems or negative outcomes?) | Have you heard of the (case study project)? If so, what do you think of it?<br>(positive outcomes? problems or negative outcomes?) |

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| | **SCIENCE SHOPS** | | |
| 8 | How much do you know about Science Shops, here and in other countries? | How much do you know about Science Shops, here and in other countries? | How much do you know about Science Shops, here and in other countries? |
| 9 | What do you see as the most important features of Science Shop research? | What do you see as the most important features of Science Shop research? | What do you see as the most important features of Science Shop research? |
| 10 | Are there any negative features for you of Science Shop research? | Are there any negative features for you of Science Shop research? | Are there any negative features for you of Science Shop research? |
| | **SCIENCE SHOPS EVALUATION** | | |
| 11 | How important is Science Shop activity / community based research for your organisation? | How important is Science Shop activity / community based research for your university? | How important is Science Shop activity / community based research for your university / city? |
| 12 | How important is Science Shop activity / community based research for improving the public understanding of scientific knowledge (including social science)? | How important is Science Shop activity / community based research for improving the public understanding of scientific knowledge (including social science)? | How important is Science Shop activity / community based research for improving the public understanding of scientific knowledge (including social science)? |
| 13 | What other mediation procedures do you think are important for improving the public understanding of scientific knowledge? | What other mediation procedures do you think are important for improving the public understanding of scientific knowledge? | What other mediation procedures do you think are important for improving the public understanding of scientific knowledge? |
| 14 | How important is Science Shop activity / community based research for the development of national science policy (including social science policy)? | How important is Science Shop activity / community based research for the development of national science policy (including social science policy)? | How important is Science Shop activity / community based research for the development of national science policy (including social science policy)? |

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| 15 | What other mediation procedures do you think are important for allowing public input into the development of national science policy? | What other mediation procedures do you think are important for allowing public input into the development of national science policy? | What other mediation procedures do you think are important for allowing public input into the development of national science policy? |
| 16 | How important is Science Shop activity / community based research for building capacity in civil society / empowering NGOs? | How important is Science Shop activity / community based research for the building of capacity in / empowering NGOs? | How important is Science Shop activity / community based research for the building of capacity in / empowering NGOs? |
| 17 | What other mediation procedures do you think are important for building capacity in civil society / empowering NGOs? | What other mediation procedures do you think are important for building capacity in civil society / empowering NGOs? | What other mediation procedures do you think are important for building capacity in civil society / empowering NGOs? |
| 18 | How important is Science Shop activity / community based research for developing relations between universities and the community? | How important is Science Shop activity / community based research for developing relations between universities and the community? | How important is Science Shop activity / community based research for developing relations between universities and the community? |
| 19 | What other mediation procedures do you think are important for developing relations between universities and the community? | What other mediation procedures do you think are important for developing relations between universities and the community? | What other mediation procedures do you think are important for developing relations between universities and the community? |
| | **FUTURE OF SCIENCE SHOPS** | | |
| 20 | Should Science Shop work be developed further? How do you think this work could be developed? | Should Science Shop work be developed further? How do you think this work could be developed? | Should Science Shop work be developed further? How do you think this work could be developed? |
| 21 | What are the problems or barriers to its development?<br>(specify: in NGOs, universities, science shops, financial, administrative, political etc.) | What are the problems or barriers to its development?<br>(specify: in NGOs, universities, science shops, financial, administrative, political etc.) | What are the problems or barriers to its development?<br>(specify: in NGOs, universities, science shops, financial, administrative, political etc.) |
| 22 | What changes would be necessary to en- | What changes would be necessary to encourage | What changes would be neces- |

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| | courage more organisations to take part in Science Shop activity / community based research? | more universities to take part in Science Shop activity / community based research? | sary to encourage more NGOs and universities to take part in Science Shop activity / community based research? |
| 23 | How do you see Science Shop activity / community based research relating to Research and Technology policy in this country? And in Europe as a whole? | How do you see Science Shop activity / community based research relating to Research and Technology policy in this country? And in Europe as a whole? | How do you see Science Shop activity / community based research relating to Research and Technology policy in this country? And in Europe as a whole? |
| 24 | Do you have any other suggestions about how the concerns of civil society could be reflected in Research and Technology policy? | Do you have any other suggestions about how the concerns of civil society could be reflected in Research and Technology policy? | Do you have any other suggestions about how the concerns of civil society could be reflected in Research and Technology policy? |
| 25 | Do you think Science Shop activity is relevant to any other current policies affecting the NGO sector? | Do you think Science Shop activity is relevant to any other current policies affecting universities? | Do you think Science Shop activity is relevant to any other current policies affecting the NGO sector or universities? |
| | **FINALE** | | |
| 26 | Would you like to be kept informed about the INTERACTS project as it develops, and to be involved further in any way? | Would you like to be kept informed about the INTERACTS project as it develops, and to be involved further in any way? | Would you like to be kept informed about the INTERACTS project as it develops, and to be involved further in any way? |
| | ***Thank you very much for your cooperation.*** | | |

# CHESTIONARE PENTRU STUDIILE DE CAZ/ VERSIUNEA FINALA, MARTIE 2002 (LB.ROMANA)

*Traducere realizată de Carmen Teodosiu şi Daniela Teleman*

## Primul nivel – Participanți la proiect

| Nr. | Intervievatul cheie ONG | Cercetător (student) / Supervizor | Science Shop (coordonator) |
|---|---|---|---|
| | **CADRU** | | |
| 1 | Descrieți pe scurt organizația dumneavoastră | Descrieți pe scurt programul studiului şi al instituției<br>Descrieți pe scurt organizația dumneavoastră (cercetător) | Descrieți pe scurt organizația dumneavoastră |
| 2 | Există informații scrise despre organizația dumneavoastră pe care le putem obține? | Ştiți unde pot găsi informații scrise despre programul dumneavoastră de studiu? (plan învățământ, programme analitice) | Există informații scrise în organizația dumneavoastră pe care le putem obține? |
| 3 | Descrieți propriul rol în organizație. | **student /cercetător:** Descrie cum se încadrează cercetarea în formarea profesională/ activitatea dvs.<br>**cadru didactic / supervizor în instituție:**<br>Descrieți rolul dumneavoastră ca supervizor pentru cercetarea în cauză. | Descrieți rolul dumneavoastră în cadrul organizației. |
| | **DESCRIEREA PROIECTULUI** | | |
| 4 | Cum ați descrie pe scurt proiectul solicitat Science Shop-ului ? | Cum ați descrie pe scurt proiectul de cercetare? | Cum ați descrie pe scurt proiectul de cercetare? |
| 5 | Care a fost/ au fost principalele probleme formulate (legate de cercetare)? | Care a fost/au fost principalele probleme formulate? | Care a fost/au fost principalele probleme formulate? |
| 6 | Ați avut o contribuție în metodele utilizate pentru cercetare? Dacă da, ce contribuție? | Ați avut o contribuție în metodele utilizate pentru cercetare? | Ați avut o contribuție în metodele utilizate pentru cercetare? Dacă da, ce contribuție? |
| 7 | Care au fost principalele rezultate? | Care au fost principalele rezultate? | Care au fost principalele rezultate? |
| 8 | Care au fost principalele recomandări? | Care au fost principalele recomandări? | Care au fost principalele recomandări? |

| | **ORGANIZAREA PROIECTULUI** | | |
|---|---|---|---|
| 9 | Cine a inițiat proiectul? | Cine a inițiat proiectul? | Cine a inițiat proiectul? |
| 10 | Este proiectul structurat (construit) pe baza activităților anterioare ale organizației dumneavoastră? (De ce a trebuit realizat proiectul?) | Este proiectul structurat (construit) pe baza activităților anterioare ale organizației dvs. ? (De ce a trebuit realizat proiectul?) | Este proiectul structurat (construit) pe baza activităților anterioare ale organizației dumneavoastră? (De ce a trebuit realizat proiectul?) |
| 11 | Cum a fost proiectul planificat sau negociat? | Cum a fost proiectul planificat sau negociat? | Cum a fost proiectul planificat sau negociat? |
| 12 | Care sunt punctele principale ale negocierii sau planificării pe care vi le amintiți? A fost dificil de ajuns la o înțelegere? | Care sunt punctele principale ale negocierii sau planificării pe care vi le amintiți? A fost dificil de ajuns la o înțelegere? | Care sunt punctele principale ale negocierii sau planificării pe care vi le amintiți? A fost dificil de ajuns la o înțelegere? |
| 13 | Care a fost perioada de timp necesară proiectului?<br>(Ați avut obiective intermediare?) | Care a fost perioada de timp necesară proiectului?<br>(Ați avut obiective intermediare?) | Care a fost perioada de timp necesară proiectului?<br>(Ați avut obiective intermediare?) |
| 14 | Care a fost bugetul proiectului?<br>Cine a fost principalul finanțator? | Care a fost bugetul proiectului?<br>Cine a fost principalul finanțator? | Care a fost bugetul proiectului?<br>Cine a fost principalul finanțator? |
| 15 | Ce mijloace de comunicare au fost utilizate?<br>(întâlniri / telefoane / e-mail) | Ce mijloace de comunicare au fost utilizate?<br>(întâlniri / telefoane / e-mail) | Ce mijloace de comunicare au fost utilizate?<br>(întâlniri / telefoane / e-mail) |
| 16 | Cât de regulată a fost comunicarea?<br>(Cât de dificilă sau de uşoară a fost comunicarea?) | Cât de regulată a fost comunicarea?<br>(Cât de dificilă sau de uşoară a fost comunicarea?) | Cât de regulată a fost comunicarea?<br>(Cât de dificilă sau de uşoară a fost comunicarea?) |
| 17 | A avut proiectul finalitate deschisă (a avut urmări) sau a fost structurat şi focalizat? Cum s-a finalizat? | A avut proiectul finalitate deschisă (a avut urmări) sau a fost structurat şi focalizat? Cum s-a finalizat? | A avut proiectul finalitate deschisă (a avut urmări) sau a fost structurat şi focalizat? Cum s-a finalizat? |

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| 18 | Care au fost interesele dumneavoastră specifice şi aşteptările dumneavoastră privind acest proiect? | Care au fost interesele dumneavoastră specifice şi aşteptările dumneavoastră privind acest proiect? | Care au fost interesele dumneavoastră specifice şi aşteptările dumneavoastră privind acest proiect? |
| 19 | Cum au contribuit la proiect cunoştinţele şi experienţa diferiţilor participanţi ? (membri ONG / publicul, studenţi / cercetători, supervizori, Science Shop) | Cum au contribuit la proiect cunoştinţele şi experienţa diferiţilor participanţi ? (membri ONG / publicul, studenţi / cercetători, supervizori, Science Shop | Cum au contribuit la proiect cunoştinţele şi experienţa diferiţilor participanţi ? (membri ONG / publicul, studenţi / cercetători, supervizori, Science Shop |
| | **REZULTATELE PROIECTULUI** | | |
| 20 | În ce măsură cercetarea îndeplineşte de fapt obiectivele originale stabilite de organizaţia dumneavoastră? | În ce măsură cercetarea îndeplineşte de fapt obiectivele originale stabilite de organizaţia dumneavoastră? | În ce măsură cercetarea îndeplineşte de fapt obiectivele originale stabilite de organizaţia dumneavoastră? |
| 21 | Există vreo întrebare la care nu aţi obţinut răspuns în timpul cercetării? | Există vreo întrebare la care nu aţi obţinut răspuns în timpul cercetării? | Există vreo întrebare la care nu aţi obţinut răspuns în timpul cercetării? |
| 22 | Cum au fost prezentate rezultatele? (rapoarte, prezentări orale, presă etc.)<br>Cine are acces la rezultatele proiectului acum? | Cum au fost prezentate rezultatele? (rapoarte, prezentări orale, presă etc.)<br>Cine are acces la rezultatele proiectului acum? | Cum au fost prezentate rezultatele? (rapoarte, prezentări orale, presă etc.)<br>Cine are acces la rezultatele proiectului acum? |
| 23 | Constatările/rezultatele proiectului sunt disponibile publicului?<br>(Ştiţi de unde pot obţine o copie / publicaţie detaliată?) | Constatările/rezultatele proiectului sunt disponibile publicului?<br>(Ştiţi de unde pot obţine o copie / publicaţie detaliată?) | Constatările/rezultatele proiectului sunt disponibile publicului?<br>(Ştiţi de unde pot obţine o copie / publicaţie detaliată?) |
| 24 | Aţi utilizat sau veţi utiliza cercetările/proiectul? (specific, în interiorul organizaţiei, extern, direct, indirect)<br>Ex: îmbunătăţirea serviciilor oferite, ca o evidenţă a cercetărilor în vederea finanţării ulterioare, creşterea conştientizării generale, influenţarea altor agenţii, instituţii, organizaţii | Aţi utilizat sau veţi utiliza cercetările/proiectul?<br>Ex: carieră, publicare, avansare, dezvoltare curriculară | Aţi utilizat sau veţi utiliza cercetările/proiectul? (specific, în interiorul organizaţiei, extern, direct, indirect) ?<br>Ex: susţinerea science shop-urilor, creşterea conştientizării generale, obţinerea de alte proiecte, ca o evidenţă a cercetărilor în vederea finanţării ulterioare. |

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| 25 | Cât de mult succes a avut utilizarea rezultatelor (cunoştinţelor acumulate)? | Cât de mult succes a avut utilizarea rezultatelor (cunoştinţelor acumulate)? | Cât de mult succes a avut utilizarea rezultatelor (cunoştinţelor acumulate)? |
| 26 | Cum justificaţi succesul?<br>Ce a stânjenit realizarea succesului? | Cum justificaţi succesul?<br>Ce a stânjenit realizarea succesului? | Cum justificaţi succesul?<br>Ce a stânjenit realizarea succesului? |
| | **STRATEGII** | | |
| 27 | Au fost beneficii pe termen lung de la proiect pentru organizaţia dvs.?<br>Cum a fost realizat acest beneficiu pe termen lung? | Au fost beneficii pe termen lung de la proiect pentru carieră / interesul de cercetare?<br>Cum a fost realizat acest beneficiu pe termen lung? | Au fost beneficii pe termen lung de la proiect pentru organizaţia dumneavoastră?<br>Cum a fost realizat acest beneficiu pe termen lung? |
| 28 | Cum se încadrează proiectul în obiectivele mai largi ale organizaţiei dumneavoastră? | Cum se încadrează proiectul în obiectivele mai largi ale organizaţiei dumneavoastră? | Cum se încadrează proiectul în obiectivele mai largi ale organizaţiei dumneavoastră? |
| 29 | Acest proiect a condus la realizarea de proiecte viitoare cu Science Shops-uri sau organizaţii asemănătoare? | (supervizor /cercetător)<br>Acest proiect a condus la realizarea de proiecte viitoare cu aceeaşi organizaţie sau cu organizaţii asemănătoare? | Acest proiect a condus la realizarea de proiecte viitoare cu aceeaşi organizaţie sau cu organizaţii asemănătoare? |
| 30 | Care sunt avantajele şi dezavantajele de a avea pe cineva din afara organizaţiei dumneavoastră care să investigheze problemele pe care le-aţi solicitat? | Care sunt avantajele şi dezavantajele de a avea pe cineva din afara organizaţiei dumneavoastră care să investigheze problemele pe care le-ati solicitat? | Care sunt avantajele şi dezavantajele de a avea pe cineva din afara organizaţiei care să investigheze problemele/aspecte pe care le-aţi solicitat? |
| 31 | Care a fost, dacă a fost, beneficiul dumneavoastră din cooperarea cu un Science Shop / agenţie intermediară comparativ cu cooperarea directă cu o universitate sau organizaţie/institut de cercetare? | Care afost, dacă a fost, beneficiul dumneavoastră din cooperarea cu un Science Shop / agenţie intermediară comparativ cu cooperarea directă cu o universitate sau organizaţie/institut de cercetare? | Care afost, dacă a fost, beneficiul dumneavoastră din cooperarea cu un Science Shop / agenţie intermediară comparativ cu cooperarea directă cu o universitate sau organizaţie/institut de cercetare? |

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| | **CONCLUZII** | | |
| 32 | Puteți rezuma cele mai pozitive aspecte ale proiectului? | Puteți rezuma cele mai pozitive aspecte ale proiectului? | Puteți rezuma cele mai pozitive aspecte ale proiectului? |
| 33 | Puteți descrie în amănunt orice problemă sau barieră cu care vați întâlnit? (Ex: conflicte, incertitudini, relații) | Puteți descrie în amănunt orice problemă sau barieră cu care vați întâlnit? (Ex: conflicte, incertitudini, relații) | Puteți descrie în amănunt orice problemă sau barieră cu care vați întâlnit? (Ex: conflicte, incertitudini, relații) |
| 34 | (Dacă au existat probleme) Cum v-ați descurcat cu problema apărută? | (Dacă au existat probleme) Cum v-ați descur-cat cu problema apărută? | (Dacă au existat probleme) Cum v-ați descurcat cu problema apărută? |
| 35 | Dacă ați putea să realizați din nou acest proiect l-ați face în acelaşi mod sau altfel? | Dacă ați putea să realizați din nou acest proiect l-ați face în acelaşi mod sau altfel? | Dacă ați putea să realizați din nou acest proiect l-ați face în acelaşi mod sau alt-fel? |
| 36 | Ce vedeți ca avantaje sau dezavantaje ale cercetării ştiințifice (sociale) aplicate pentru a aborda problemele comunității? | Ce vedeți ca avantaje sau dezavantaje ale cercetării ştiințifice (sociale) aplicate pentru a aborda problemele comunității? | Ce vedeți ca avantaje sau dezavantaje ale cercetării ştiințifice (sociale) aplicate pentru a aborda problemele comunității? |
| | ***Mulțumim foarte mult pentru colaborarea dumneavoastră*** | | |

## Nivelul al doilea – Participanți la proiect (nivel decizional)

| Nr. | ONG Manager (consortiu) | Decan sau Vicedecan cu cercetarea/didactic | Science Shop Manager |
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| | **INFORMAȚII GENERALE** | | |
| 1 | Vă rog să descrieți rolul dumneavoastră în organizație | Vă rog să descrieți rolul dumneavoastră în organizație | Vă rog să descrieți rolul dumneavoastră în organizație |
| 2 | Cât de multe proiecte de colaborare cu Science Shop-urile are organizația/consorțiul dumneavoastră? | Cât de multe proiecte de colaborare cu ONG-urile locale/regionale are Science Shop–ul din universitatea dumneavoastră? | Cât de multe proiecte de colaborare cu ONG-urile locale au loc în universitatea dumneavoastră prin Science Shop? |
| 3 | Şi cât de multe proiecte de colaborare nu implică Science Shop-urile? | Şi cât de multe proiecte de colaborare cu ONG-urile nu implică Science Shop-urile? | Şi cât de multe proiecte de colaborare cu ONG-urile nu implică Science Shop-urile? |
| 4 | Cunoaşteți un exemplu de studiu (cercetare) realizat de Science Shop-uri? | Cunoaşteți un exemplu de studiu (cercetare) realizat de Science Shop-uri? | Cunoaşteți un exemplu de studiu (cercetare) realizat de Science Shop-uri? |
| 5 | Îmi puteți da un exemplu de studiu care să nu implice un Science Shop? | Îmi puteți da un exemplu de studiu care să nu implice un Science Shop? | Îmi puteți da un exemplu de studiu care să nu implice un Science Shop? |
| 6 | Ce comparații puteți trasa între cercetarea realizată de Science Shop-uri şi cea care nu este realizată de Science Shop-uri? | Ce comparații puteți trasa între cercetarea realizată de Science Shop-uri şi cea care nu este realizată de Science Shop-uri? | Ce comparații puteți trasa între cercetarea realizată de Science Shop-uri şi cea care nu este realizată de Science Shop-uri? |
| 7 | Ați auzit de (proiectul care se discută)? Dacă da ce credeți despre acesta? (rezultate pozitive? rezultate negative sau probleme?) | Ați auzit de (proiectul care se discută)? Dacă da ce credeți despre aceasta? (rezultate pozitive? rezultate negative sau probleme?) | Ați auzit de (proiectul care se discută)? Dacă da ce credeți despre acesta? (rezultate pozitive? rezultate negative sau probleme?) |
| | **SCIENCE SHOP-uri** | | |
| 8 | Cât de multe ştiți despre Science Shop-uri de la noi sau din alte țări? | Cât de multe ştiți despre Science Shop-uri de la noi sau din alte țări? | Cât de multe ştiți despre Science Shop-uri de la noi sau din alte țări? |

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| 9 | Care credeți că sunt cele mai importante aspecte ale cercetării realizate de Science Shop-uri? | Care credeți că sunt cele mai importante aspecte ale cercetării realizate de Science Shop-uri? | Care credeți că sunt cele mai importante aspecte ale cercetării realizate de Science Shop-uri? |
| 10 | Există din punctul dumneavoastră de vedere aspecte negative ale cercetării realizate de Science Shop-uri? | Există din punctul dumneavoastră de vedere aspecte negative ale cercetării realizate de Science Shop-uri? | Există din punctul dumneavoastră de vedere aspecte negative ale cercetării realizate de Science Shop-uri? |
| | **EVALUAREA SCIENCE SHOP-urilor** | | |
| 11 | Cât de importantă este activitatea Science Shop-urilor / centrelor de cercetare/colaborare ale comunității pentru organizația dumneavoastră? | Cât de importantă este activitatea Science Shop-urilor / centrelor de cercetare/colaborare ale comunității pentru organizația dumneavoastră? | Cât de importantă este activitatea Science Shop-urilor / centrelor de cercetare/colaborare ale comunității pentru organizația dumneavoastră? |
| 12 | Cât de importantă este activitatea Science Shop-urilor/centre de cecetare/colaborare ale comunității pentru îmbunătățirea înțelegerii publice a cunoştințelor ştiințifice? (incluzând şi ştiințele sociale) | Cât de importantă este activitatea Science Shop-urilor/centre de cecetare/colaborare ale comunității pentru îmbunătățirea înțelegerii publice a cunoştințelor ştiințifice? (incluzând şi ştiințele sociale) | Cât de importantă este activitatea Science Shop-urilor/centre de cecetare/colaborare ale comunității pentru îmbunătățirea înțelegerii publice a cunoştințelor ştiințifice? (incluzând şi ştiințele sociale) |
| 13 | Ce alte proceduri de mediere credeți că sunt importante pentru îmbunătățirea înțelegerii publice a cunoştințelor ştiințifice? | Ce alte proceduri de mediere credeți că sunt importante pentru îmbunătățirea înțelegerii publice a cunoştințelor ştiințifice? | Ce alte proceduri de mediere credeți că sunt importante pentru îmbunătățirea înțelegerii publice a cunoştințelor ştiințifice? |
| 14 | Cât de importantă este activitatea Science Shop-urilor /centrelor de cercetare/colaborare ale comunității pentru dezvoltarea strategiilor ştiințifice naționale (incluzând strategii care se referă la aspecte sociale)? | Cât de importantă este activitatea Science Shop-urilor /centrelor de cercetare/colaborare ale comunității pentru dezvoltarea strategiilor ştiințifice naționale (incluzând strategii care se referă la aspecte sociale)? | Cât de importantă este activitatea Science Shop-urilor /centrelor de cercetare/colaborare ale comunității pentru dezvoltarea strategiilor ştiințifice naționale (incluzând strategii care se referă la aspecte sociale)? |
| 15 | Ce alte proceduri de mediere credeți că sunt importante pentru a permite contribuția publică/a societații civile în dezvoltarea strategiilor ştiințifice naționale? | Ce alte proceduri de mediere credeți că sunt importante pentru a permite contribuția publică/a societații civile în dezvoltarea strategiilor ştiințifice naționale? | Ce alte proceduri de mediere credeți că sunt importante pentru a permite contribuția publică/a societații civile în dezvoltarea strategiilor ştiințifice naționale? |

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| 16 | Cât de importantă este activitatea Science Shop-urilor/ centrelor de cercetare/colaborare ale comunității pentru creşterea implicării şi capacității decizionale a societății civile sau a ONG-urilor? | Cât de importantă este activitatea Science Shop-urilor/ centrelor de cercetare/colaborare ale comunității pentru creşterea implicării şi dezvoltarea capacității decizionale a ONG-urilor şi a contribuției acestora la dezvoltarea societății civile ? | Cât de importantă este activitatea Science Shop-urilor/ centrelor de cercetare /colaborare ale comunității pentru creşterea implicării şi dezvoltarea capacității decizionale a ONG-urilor şi a contribuției acestora la dezvoltarea societății civile? |
| 17 | Ce alte proceduri de mediere credeți că sunt importante pentru creşterea implicării şi capacității decizionale a societății civile sau a ONG-urilor? | Ce alte proceduri de mediere credeți că sunt importante pentru creşterea implicării şi capacității decizionale a societății civile sau a ONG-urilor? | Ce alte proceduri de mediere credeți că sunt importante pentru creşterea implicării şi capacității decizionale a societății civile sau a ONG-urilor? |
| 18 | Cât de importantă este activitatea Science Shop-urilor/ centrelor de cercetare/colaborare ale comunității pentru dezvoltarea relațiilor dintre universități şi comunitate? | Cât de importantă este activitatea Science Shop-urilor/ centrelor de cercetare/colaborare ale comunității pentru dezvoltarea relațiilor dintre universități şi comunitate? | Cât de importantă este activitatea Science Shop-urilor/ centrelor de cercetare/colaborare ale comunității pentru dezvoltarea relațiilor dintre universități şi comunitate? |
| 19 | Ce alte modalități credeți că sunt importante pentru dezvoltarea relațiilor dintre universități şi comunitate? | Ce alte modalități credeți că sunt importante pentru dezvoltarea relațiilor dintre universități şi comunitate? | Ce alte modalități credeți că sunt importante pentru dezvoltarea relațiilor dintre universități şi comunitate? |
| | **VIITORUL SCIENCE SHOP-urilor** | | |
| 20 | Ar trebui ca activitatea Science Shop-urilor să fie dezvoltată pe viitor?<br>Cum credeți că această activitate poate fi dezvoltată? | Ar trebui ca activitatea Science Shop-urilor să fie dezvoltată pe viitor?<br>Cum credeți că această activitate poate fi dezvoltată? | Ar trebui ca activitatea Science Shop-urilor să fie dezvoltată pe viitor?<br>Cum credeți că această activitate poate fi dezvoltată? |
| 21 | Care sunt problemele sau barierele în realizarea dezvoltării?<br>(specifice ONG-urilor, universităților, Science Shop-urilor, financiare, administrative, politice etc.) | Care sunt problemele sau barierele în realizarea dezvoltării?<br>(specifice ONG-urilor, universităților, Science Shop-urilor, financiare, administrative, politice etc.) | Care sunt problemele sau barierele în realizarea dezvoltării?<br>(specifice ONG-urilor, universităților, Science Shop-urilor, financiare, administrative, politice etc.) |

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| 22 | Ce modificări ar fi necesare pentru a încuraja mai multe organizații ale societății civile să participe la activitățile Science Shop-urilor / centrelor de cercetare/colaborare ale comunității? | Ce modificări ar fi necesare pentru a încuraja mai multe universități să participe la activitățile de tipul Science Shop-urilor / centrelor de cercetare/colaborare ale comunității? | Ce modificări ar fi necesare pentru a încuraja mai multe ONG-uri să participe la activitățile Science Shop-urilor / centrelor de cercetare/colaborare ale comunității? |
| 23 | Cum vedeți activitatea Science Shop-urilor / centrelor de cercetare/colaborare ale comunității în concordanță cu Strategiile privind dezvoltarea cercetării şi tehnologiilor din țara noastră? Dar în Europa? | Cum vedeți activitatea Science Shop-urilor / centrelor de cercetare/colaborare ale comunității în concordanță cu Strategiile privind dezvoltarea cercetării şi tehnologiilor din țara noastră? Dar în Europa? | Cum vedeți activitatea Science Shop-urilor / centrelor de cercetare /colaborare ale comunității în concordanță cu Strategiile privind dezvoltarea cercetării şi tehnologiilor din țara noastră? Dar în Europa? |
| 24 | Aveți vreo sugestie cum preocupările societății civile se pot reflecta în Strategiile privind dezvoltarea cercetării şi tehnologilor? | Aveți vreo sugestie cum preocupările societății civile se pot reflecta în Strategiile privind dezvoltarea cercetării şi tehnologilor? | Aveți vreo sugestie cum preocupările societății civile se pot reflecta în Strategiile privind dezvoltarea cercetării şi tehnologilor? |
| 25 | Credeți că activitatea Science Shop-urilor este relevantă pentru orice altă strategie curentă afectând sectorul ONG-urilor? | Credeți că activitatea Science Shop-urilor este relevantă pentru orice altă strategie curentă afectând universitățile? | Credeți că activitatea Science Shop-urilor este relevantă pentru orice altă strategie curentă afectând sectorul ONG-urilor (societăți civile) sau universităților? |
| | FINAL | | |
| 26 | Doriți să fiți ținuți la curent cu proiectul INTERACTS, şi să fiți implicați prin diverse mijloace pe parcursul desfăşurării lui? | Doriți să fiți ținuți la curent cu proiectul INTERACTS, şi să fiți implicați prin diverse mijloace pe parcursul desfăşurării lui? | Doriți să fiți ținuți la curent cu proiectul INTERACTS, şi să fiți implicați prin diverse mijloace pe parcursul desfăşurării lui? |
| | ***Mulțumim foarte mult pentru colaborarea dumneavoastră*** | | |