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**ASSESSING THE IMPACT OF THE THIRD OFFERING
OF THE P.D.S. PROGRAM:
*ECO-MANAGEMENT - A CHANCE FOR THE ROMANIAN
ECONOMY***

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INTRODUCTION

During the last decade, the countries in transition from the Central and Eastern Europe (CEE) attempted to build a coherent body of environmental laws to meet their pressing needs for sound environmental management to support economic growth. Besides the regulatory efforts, there were many other actions trying to attain the same goal: bringing the CEE countries to a sustainable development path.

Romania shares common problems with the countries in the region, including internal conflicts within its government. These common problems that Romania shares, contributes to the sluggish development of the new legal system and reduces the chance for its enforcement. A low public environmental awareness, an immature non-governmental organization (NGO) movement, and a history of minimal public involvement in decision-making are other characteristics of the Romanian situation. Having limited resources and insufficient environmental data, the national and local governments often face incredible pressure to respond quickly to broad needs. Moreover, environmental issues do not always have a high priority in light of the social, political, and economic problems.

Efforts to promote sustainable development may affect certain aspects of the operational ability of a society, but it can only occur with increasing public awareness and participation, political will, and available resources. Experiences in both industrialized and developing countries have demonstrated the importance of training to build and implement strategies for sound environmental management.

These considerations magnify the importance of designing courses and training sessions adapted to the needs of all sectors of society. Involving all affected parties not only increases the chance of the establishment and acceptance of environmental goals, and the willingness to contribute to their accomplishment, but it also sets the foundation to develop an environmental education system.

Although good training programs are not easy to initiate and implement, countries in transition have an important advantage in that they can draw upon the broad experience of the developed states of the world. The Eco-Management Postgraduate Diploma Studies at the Technical University of Cluj-Napoca, a joint program with the Center for the Nations in Transition of the University of Minnesota, uses American and Romanian instructors together, is an example of a success story in environmental

training in Romania.

The main objective of this paper is to assess the impact of the third offering of this program. It presents the structure of the group of participants, their background and institutions, their work during the course and their dissertations, with a special attention to the most impressive results accomplished.

In order to get as much information as possible, interviews were carried out with the participants. In addition, two sets of questionnaires were used, one for the participants and one for their managers. The questionnaires are attached in the annexes.

The present paper is structured in 6 chapters.

Chapter 1, "Romanian PDS Program - Changes made in the 1998-1999 offering", describes the main modifications that were applied to the third edition of the PDS offered in Romania. Those changes came as a result of the experience accumulated during the first two years of the program. It took into account the opinions expressed by both participants and faculty members.

The second chapter is dedicated to the group of participants. It contains statistics on the structure of the group and enumerates the main characteristics of the PDS class.

Chapter 3 contains short descriptions of the dissertation topics and some comments on their chances to be developed and implemented.

Chapter 4, "Evaluation of the 1998-1999 academic year" presents the results of the evaluation questionnaires filled in by participants, as well as the feedback received from them throughout the years by instructors and PDS staff. The questionnaires were distributed after each module and at the end of the program. A comparison between the students' expectations (expressed in a pre-evaluation questionnaire) and their final opinions represents another measure of the success for the program.

The fifth chapter presents the formation of the PDS Alumni Association - "Eco-Management Group", which took place after graduation in June 1999.

The last chapter summarizes the results of the PDS assessment, the lessons learned in the 1998-1999 academic year, and enlists some recommendations for similar courses in the future.

CHAPTER 1

ROMANIAN POSTGRADUATE DIPLOMA STUDIES PROGRAM – CHANGES MADE IN THE 1998-1999 OFFERING

Since its first edition in 1996, the American-Romanian PDS program has been continuously improved, diversified, and adapted to the permanently changing needs of the participants.

Every year evaluation questionnaires have been distributed to the participants to assess the content of the lectures, the quality of the presentations, and participant opinions on how the program could be improved.

Taking into consideration the students' answers to these questionnaires, several changes have been made in the third PDS offering:

- the name of the course has been changed from "Industrial Eco-Management" to "Eco-Management";
- new modules have been developed and the content of the existent modules have been reviewed;
- additional financing sources were found;
- two visiting professors from the Central European University in Budapest joined the instructor team;
- PDS alumni have been invited to present case-studies based on their personal experience;
- the modality of establishing the final grades for the participants has been modified.

The previous two years were spent recruiting participants for the course. During this time, we learned that more than representatives of the industry were interested in attending the program. Those interested are private environmental consulting firms, research institutes, and governmental agencies

who are determined to specialize in this environmental field. We have decided to change the name of the course to "Eco-Management" instead of "Industrial Eco-Management" because all the organizations can bring their contribution to a better environmental and resource management in Romania.

During the previous years, many participants encountered serious problems in writing their thesis. Despite their excellent professional experience and sound knowledge, most of them had little or no experience in using computers. The new optional module offered in 1988, "Introduction to Computer Use", was a great success: 15 out of 35 participants attended the module and learned how to work with Windows, Word and Excel, how to use search engines on the Internet, and how to use e-mail. The course was held in the modern and well-equipped computer laboratory of the University's Computer Sciences Department.

The concept of Environmental Management System (EMS) is new for most Romanian organizations. Many companies, which are already ISO 9000 certified, became aware of the competitive advantage that such a certification can bring and have expressed their interest in getting the ISO 14000 certification. A special EMS course was developed for the PDS and was taught by a specialist from Bucharest, Ms. Mihaela Teaca.

Our program obtained a special grant from the ECHO Program of the Central European University in Budapest, which allowed two professors from the Department of Environmental Sciences and Policy to teach at the PDS. An overview of the environmental indicators and a practical computer presentation of the Geographical Information System (GIS) were made for the first time in the program, by Professor Ruben Mnatsakanian. Apart from Prof. Mnatsakanian, professor Diana Urge-Vorsatz lectured in the Energy Efficiency module, introducing sound knowledge of renewable energy methods (accompanied by practical examples, video and slide presentations) and discussing energy audits and the emerging markets in this field.

The module on Cleaner Technologies was fully reviewed and the content of the Environmental Legislation and Ethics was updated and added with the most recent information. In addition, Ms. Bacali invited a well-known professor from Bucharest, Mr. Demetrescu, to lecture on Eco-marketing during the marketing module.

Financial Management was not a favorite amongst the participants. Mr. Doru Farcas changed the structure of the course and chose to address the Financial Management of Projects instead. During the

first two offerings of the PDS, most of the participants had little or no training on economic and financial issues and they found the content of the lectures too specialized and difficult to follow. By gathering data from all the modules it has been discovered that a high percentage of the modules have been improved and the results from these improvements have been developed through new case studies.

Considering all the aspects of the training process and in order to correctly reward the efforts of our participants, we decided to modify our final grading procedures. For the first time, it was not only the final paper or examination that was graded, but the attendance and the participation in the in-class activities which were also assessed. As a result, the attendance increased compared to the previous years. This is particularly significant, because most of the participants hold high level positions in their company and they have difficulty leaving the office to participate in this intensive training program. In addition, the lecturers were impressed by the increase in student participation during the exercises and group work.

Based on the evaluations of the participants questionnaires and the continuous feedback given to the organizers, the academic year 1998-1999 can be considered a success. (More information concerning this evaluation is to be found in Chapter 4.)

CHAPTER 2

GROUP OF PARTICIPANTS

In the academic year 1998-1999, the number of applicants to the PDS program increased up to 42. After taking into consideration their motivation, interest in environmental issues and their role in decision-making processes, the PDS team decided to accept 35 people in the program.

Many applicants have heard about the Eco-Management Program from the PDS alumni or during other courses organized by the ETP office and the Institute of Environmental Engineering. The advertisement campaign was better targeted this year. A database of people and institutions with an

environmental impact and/or responsibility has been developed. The leaflets of the course were nominally sent to the people in our database.

As a characteristic of the current years' group, the majority of the participants were not from Cluj-Napoca. Most of them had to travel great distances twice a month in order to attend the lectures. This detail is particularly important in appreciating the success of the PDS Program. While we had no competitors offering such a postgraduate course in 1996 and 1997, in 1998 other universities and institutions started to organize similar programs. However, due to its good reputation, people from large organizations such as Bucharest and other cities, preferred to travel to Cluj-Napoca and attend our program.

Table 2.1 contains the distribution of participants by the city of origin. Nearly 26% of the participants have been from Cluj-Napoca, while 74% from all over the country.

Table 2.1. Eco-Management 1998-1999 - Distribution of participants by their city

City	Number of participants
Cluj-Napoca	9
Rm. Vilcea	4
Bucuresti	3
Satu-Marc	3
Sibiu	3
Aiud	2
Baia Mare	2
Dej	2
Deva	2
Buzau	1

Dorna Candrenilor	1
Galati	1
Hunedoara	1
Iasi	1

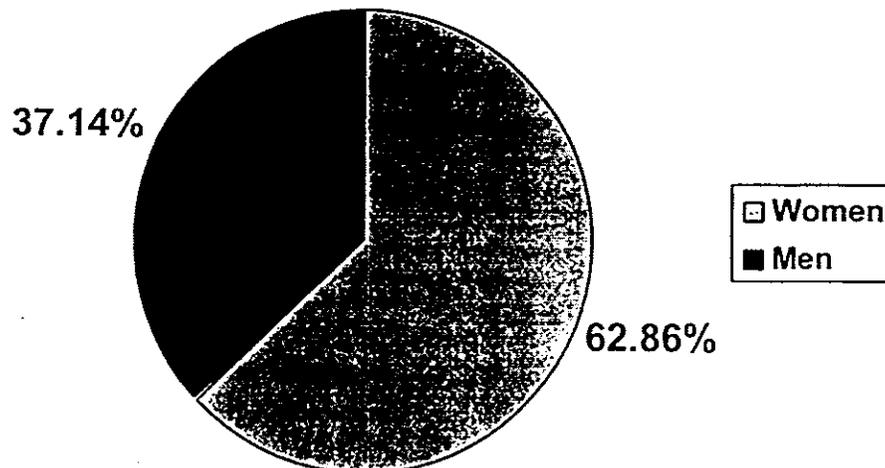
Figures 2.1, 2.2 and 2.3 show respectively the structure of participants by sex, age and position in the organization (decision level).

Women outnumber men by a larger ratio than last year. The reasons for this higher ratio is: that women, compared to a few years ago, tend to occupy higher positions in the organizations, their willingness to learn has also increased, they face far more difficulties in participating in these types of courses because of commitments outside of the work environment.

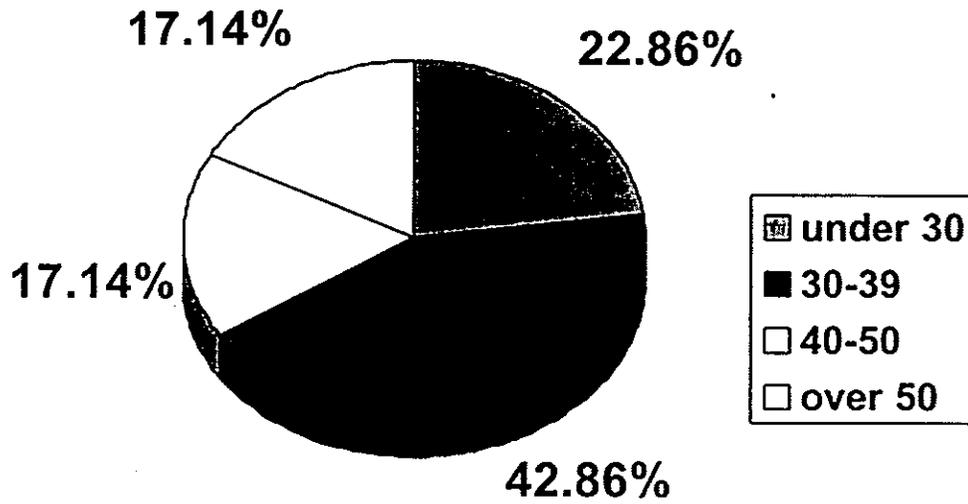
Age distribution of the participants was very interesting: although most of them were in their thirties (15 people), the young generation of specialists was quite well represented (8 students). There were also six participants over 50 who contributed their experience and knowledge to the success of the course and has demonstrated that it is never too late to study.

In addition, 20% of the participants hold the top positions in their organization and 34.29% are the environmental managers of their companies.

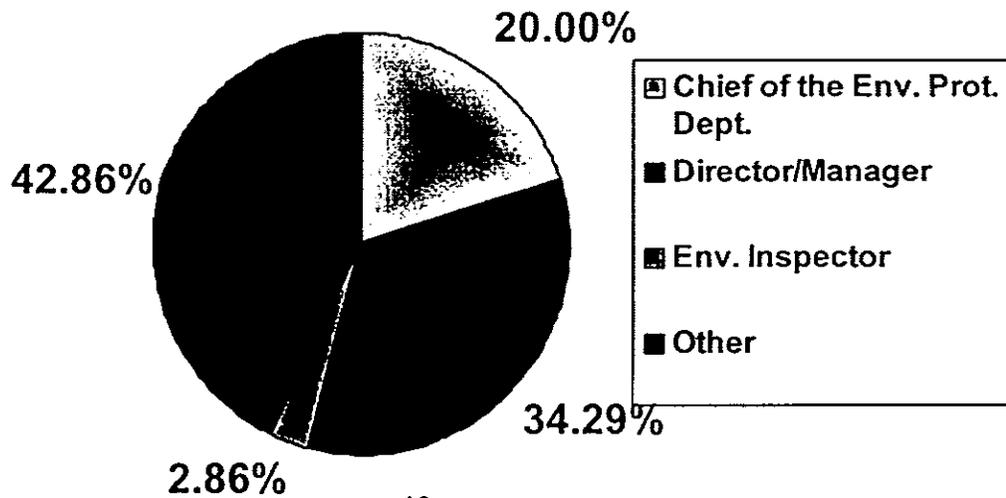
**Figure 2.1. Eco-Management 1998-1999 -
Distribution of participants by gender**



**Figure 2.2. Eco-Management 1998-1999 -
Distribution of participants by age**



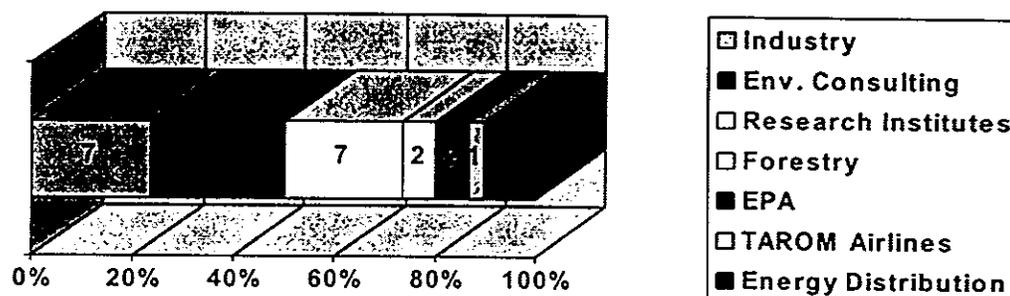
**Figure 2.3. Eco-Management 1998-1999 -
Distribution of participants by their position in
the organization**



As was mentioned before, there were fewer representatives of the industry enrolled in the last offering of the course. Instead, more managers from private environmental consulting firms and scholars from research institutes found the specialization in Eco-Management useful. This can be considered a good sign and proof of the development of the services (especially environmental) sector in Romania.

Figure 2.4 illustrates the types of companies that have been represented in the PDS.

Figure 2.4. Eco-Management 1998-1999 - Distribution of Participants by Types of Companies



The range of educational background of the participants is quite diverse: mechanical engineering (7), chemistry (6), biology (2), geology (2), geography (2), forestry (2), constructions (2), hydrotechnics (2), mine engineering (2), mathematics (1), zootechnics (1), ecology (1), electromechanics (1), electrotechnics (1), metallurgy (1), energetics (1), automatics (1), physics (1).

An interesting feature of the group of participants was their capacity to work as a team. The group was able to overcome the differences in age and professional experience faster than the other two generations of students. Despite the big gap existent among them concerning age and professional experience, they have managed to bring excellent contributions to the group exercises by sharing their knowledge with colleagues and instructors.

Moreover, they were able to collaborate on projects with each other and laid the basis for new common projects and activities. During the course, volumes of scientific literature, legislation and handbooks have been exchanged, methods and techniques used in environmental field have been discussed and interesting experiences have been shared among the PDS participants. An informal

network has been established that appears to be working very well. Apart from their colleagues from '98 PDS, the participants have contacted the PDS alumni and involved them in the ongoing activities. As a result of these relations and in an attempt to answer the need to formalize the Eco-Management students' network, participants decided to set up the PDS Alumni Association, a non-profit organization which will help them to keep in contact with their fellows and with the faculty members. More details on the PDS Alumni Association can be found in Chapter 5.

From the 35 students that attended the program in the '98-'99 academic year, only one did not defend his/her dissertation in the session of June 1999. In addition, two of the three participants in the second PDS offering who completed the course but did not take the final examination came to defend their theses this year. In each of the three years that we have been delivering the Eco-Management course, all students enrolled have completed the taught part of the program and only one of them did not defend his/her thesis and did not get the certificate. The number of certificates awarded every year and the excellent academic results of the participants are two important indicators of the success of the PDS course in Romania.

Other important achievements of our program include the projects written by some of the students for the ECOLINKS Partnership Program sponsored by USAID. First of all, switching from the course on Financial Management to Financial Management of Projects proved to be an excellent idea. Participants learned many skills including writing project proposals and budgeting. Our instructors advertised the Partnership Program and advised the participants to use the new knowledge gathered in the course to design innovative projects. For instance, projects were written on topics such as Implementation of an Environmental Management System, Setting Up an Energy Audit Department, Cleaner Technologies Transfer, Feasibility Study for Emission Reductions, etc. For most of the participants and their companies, this was the first attempt of writing a project proposal to financing part of their activities. Moreover, all projects had to be written in English, which required extensive efforts on behalf of both students and staff. Participants who were not in a decision-making position within their company had to convince the managers about the opportunity offered by Ecolinks to get them involved and committed to the environmental project. Up to now, four projects submitted by PDS participants passed the first selection stage and are in the process of finding a foreign partner.

Chapter 3

DESCRIPTION OF DISSERTATION TOPICS

The subjects of the dissertations written by '99 PDS students after one year of study and work are various and interesting. The theses deal with important and actual environmental problems in Romanian organizations: environmental impact assessment, waste management, environmental management systems, introducing new technologies, economic evaluation and feasibility studies, etc. A complete list of dissertation titles can be found in Annex 1. Figure 3.1 which illustrates the diversity of dissertation topics and the preferred subjects.

It is remarkable that most of the participants chose to work on practical applications, either for their companies or for other ones – under a consulting contract. Like in the previous years, the majority of the theses (27%) were environmental impact assessments of different developments. This was predictable due to the fact that many consulting firms were represented in the program. During the preparation of the dissertation, the participants have benefited from the advice of their instructors as well as the discussions with colleagues who have similar interests.

The problem of waste was another major topic for dissertation work. This is strongly connected with the increasing importance attributed to the problem of waste by all environmental stakeholders.

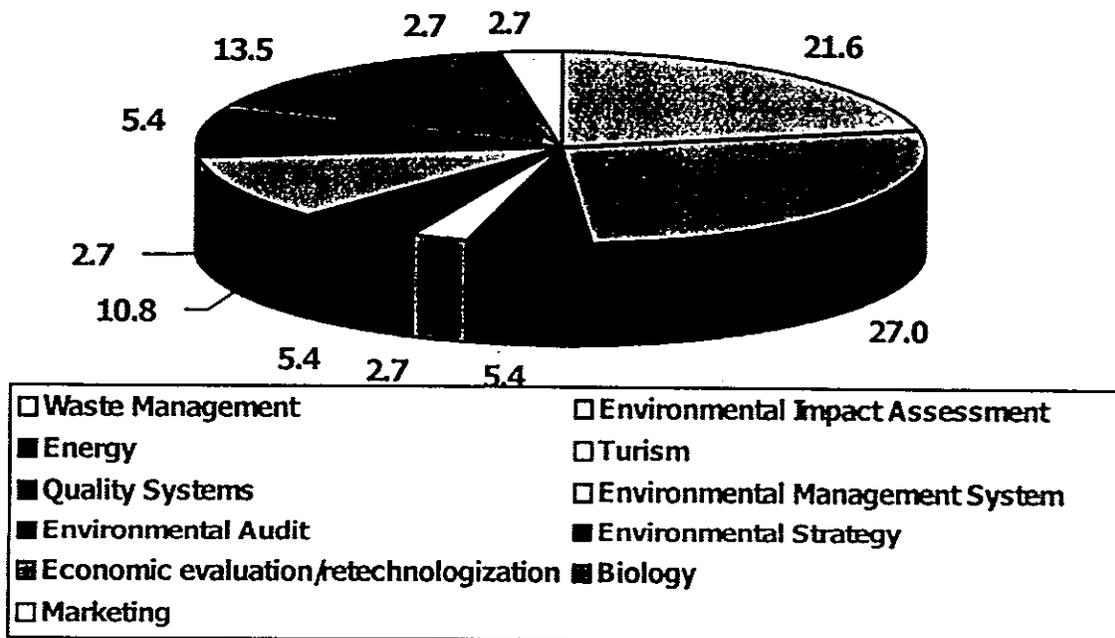
The Environmental Management System concept appears to be the subject that had the highest impact on the participants in the program. They have realized the usefulness of this system and have decided to pursue the development of EMS's for their industrial companies. Even if EMS is not present in the titles of all dissertations, it was thought to be a final goal of the project.

In the cases of SC Compa SA Sibiu and Tarom Airlines, the managerial team was already committed to implement an EMS. Using their dissertation work, students from other companies have worked to combine all the arguments in favor of the new concept to present to their respective managers. This is the case for SC Electrica SA Iasi, ARL Cluj, CONEL Galati, CONEL Buzau. The two participants from SC Carbochim SA, one of the major industrial polluters of the city of Cluj-Napoca,

planned to prepare the implementation of an EMS within the company by first developing an environmental strategy and respectively inventorying the waste.

Three theses were designed to be guidelines or methodologies: two for waste management and waste auditing and one for environmental impact assessment report reviewing. These guidelines can help many newcomers in the environmental field as well as different stakeholders to learn and apply their knowledge more easily.

Figure 3.1. Eco-Management 1998-1999 -Dissertation Topics



The main obstacles that the participants expect to face in putting their dissertations in practice include:

- ◆ lack of environmental awareness among the employees of the organizations
- ◆ lack of financial resources
- ◆ resistance to change within the organization
- ◆ gaps existent in legislation.

All the theses were publicly defended at the Technical University of Cluj-Napoca. After defense, a graduation ceremony was held. This was a memorable event for both PDS students and alumni. The two directors of the program, Dr. Zbigniew Bochniarz and Prof. Dan Candea delivered speeches. Followed by Prof. Gheorghe Lazea, Rector of the Technical University and two special foreign guests, Prof. Wiktor Askanas, Dean of the International Management Center in Budapest, Hungary, and Dr. Clive Morgan, environmental consultant on Environmental Management Systems at Ridgeway, Inc., UK.

The speakers made important points highlighting the need for cooperation and networking to solve environmental and managerial problems faced by organizations in a transition economy. They have stressed the important role of education in this field and the opportunity for participants by a joint program of universities like the Technical University of Cluj-Napoca and the University of Minnesota.

Chapter 4

EVALUATION OF THE 1998-1999 ACADEMIC YEAR

A number of indicators were developed in order to assess the performance during the academic year 1998-1999. Among others, number of applicants, number of selected participants, number of new and updated courses, level of attendance, and number of certificates awarded have already been

mentioned in the previous chapters. Other important achievements include: getting participants involved in project writing and the establishment of the Alumni Association.

In order to judge the worth of each of the courses that constitute the Eco-Management Program, participants were asked to complete a series of evaluation questionnaires. At the end of each module, they were asked to evaluate:

- the importance of the subject taught, on a scale from 1 to 5, where 1 = not important at all and 5 = vitally important
- the quality of the presentation, how effectively the topic was covered, on a scale from 1 to 5, where 1 = very poorly and 5 = very well

Figure 4.1 illustrates the answers given by the participants.

Some of the remarks received include:

- the new module on Financial Management of the Projects has been extremely well received;
- Strategic Management, Managerial Skills and Environmental Impact Assessment were especially considered important and well presented
- the module on Clean Technologies, despite the fact that it was renewed, was not presented at a standard similar to the other modules.

Another questionnaire was given at the end of the program to evaluate the performance of the lecturers. The results of this evaluation are presented in Figure 4.2.

Apart from the specific courses, participants commented on different aspects of the program as a whole. While 14 people considered the program very good, 9 described it as being excellent. They especially commended the interactive teaching methods, the novelty and the quantity of information presented, the integrated approach, and the learning and accommodation conditions.

From the organizational point of view, the program was again rated very good and excellent, with suggestions to cumulate two modules in a week, in order to reduce the number of trips for those coming from long distances.

Participants have found new ways of approaching problems in management and environmental protection, as well as economics and technologies. They developed new skills in problem solving and planning. The lessons learned helped them to solve problems of environmental protection, management, human resources, communication and technology. Many people appreciated the importance of learning from the others' experiences and 18 participants declared that the course made them reconsider their whole activity.

For the next year, participants suggested adding field trips to the program and an increase in the number of modules for Strategic Management, Managerial Skills, Environmental Impact Assessment and Strategies for Pollution Prevention.

The relationships established between participants and faculty members are considered an important achievement of the program. Students were impressed by the active involvement of the American professors in the program.

All participants expect to be able to utilize the skills learned as a result of the Eco-Management program and they will have an important role in the environmental policy development of their organization. Some plan to develop a special environmental department, others to raise the environmental awareness of the personnel. Also, a part of the consulting firms want to extend their activity in the fields of environmental audit and EMS implementation, and those with key positions (EPA director) hope to influence the national environmental regulation development.

Everybody would like to continue the collaboration with the Technical University of Cluj-Napoca and the ETP office in Bucharest and to be involved in the activities of the Eco-Management Center, ETP Foundation and Eco-Management Group. The participants also consider that the three organizations could be helpful in training other people from their organizations, especially at the decision making level.

Figure 4.1. Eco-Management 1998-1999.

Evaluations at the end of each module.

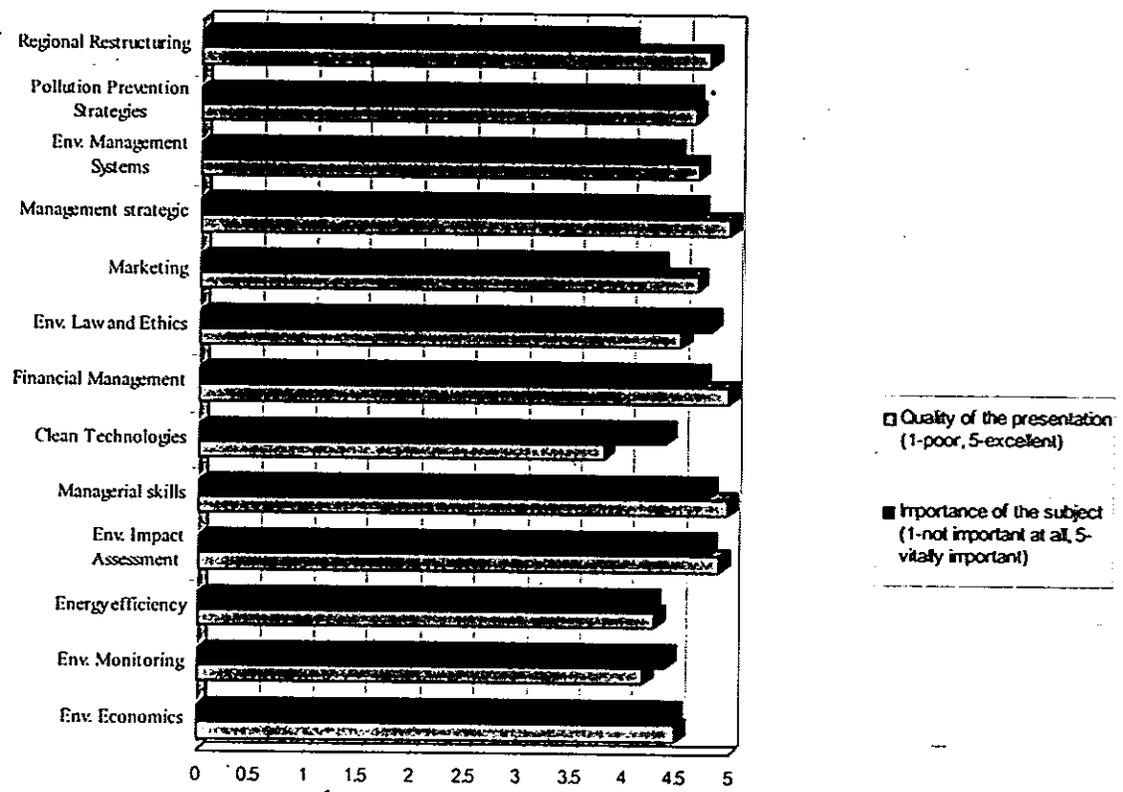
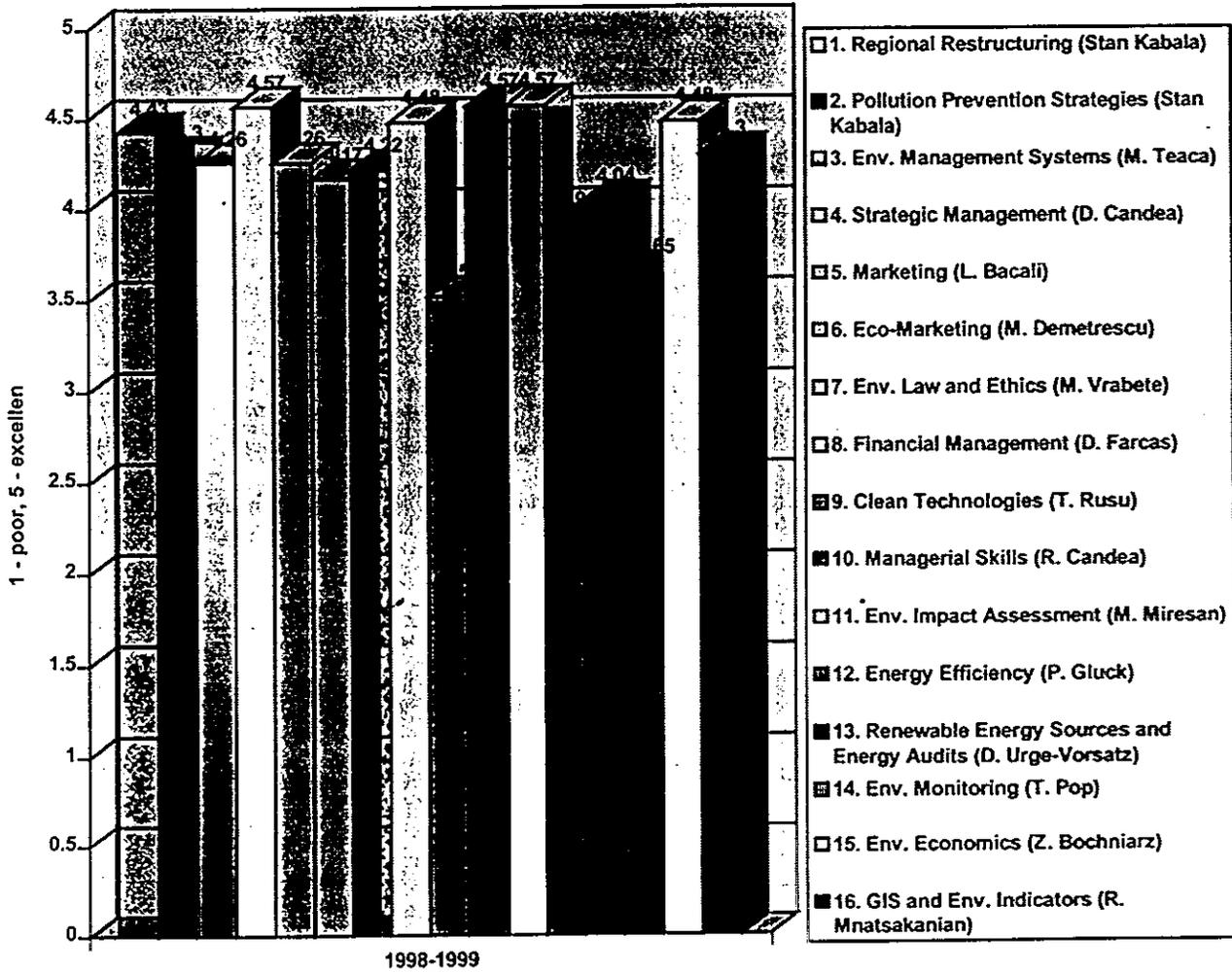


Figure 4.2. Eco-Management 1998-1999 - Evaluation of the Lecturers at the End of the Program



Chapter 5

PDS ALUMNI ASSOCIATION

At the end of every academic year, the PDS team invites alumni to take part in the graduation ceremony. This event offers a good chance for those who graduated from this program to meet with their fellows and to establish new contacts. As a result of having three generations of PDS students together, it was decided by the graduate students to set up an Alumni Association. Participants from the previous years embraced the idea.

The Association is a non-profit organization that will help former participants in the Eco-Management program keep in touch with their colleagues and maintain contact with the faculty members, both from the Technical University of Cluj-Napoca and from the University of Minnesota.

On June 18, 1999, participants from the first three PDS offerings discussed the statute of the organization, the activities to be promoted, members' admission and the name of the new association. Finally, "Eco-Management Group" was chosen as a name for the Romanian PDS alumni association. The same day, members of the newly formed group elected their representatives, made a list of personalities who will be asked to become honorific members of the Eco-Management Group, and proposed a board of advisors.

The association was officially registered in October 1999. The recently established Eco-Management Center at the University of Cluj-Napoca, managed by the same PDS team, is foreseen as one of the tools to be used by the Alumni Association in initiating and developing its activities.

Chapter 6

CONCLUSIONS AND RECOMMENDATIONS

The Postgraduate Diploma Studies in Eco-Management at the Technical University of Cluj-Napoca, a joint program with the University of Minnesota, has become a well known and well appreciated educational program in Romania. The variety and actuality of the topics included in the course, as well as the quality of the lecture presentations, determined an increased number of applicants and participants over the years. The 1998-1999 class consisted of 35 people and, with one exception, all participants defended their thesis and successfully graduated in June 1999.

This year, there were more participants who held decision-making positions in their organizations. Also, the number of participants representing environmental consulting firms has increased. People from almost all regions of the country were enrolled in the program. Also, the group of participants was very diverse in terms of age, working experience, and professional and educational background. Former PDS students and the ETP Office in Bucharest proved to be very efficient in recruiting new participants.

As a result of the students' opinions expressed in the questionnaires from the first two PDS offerings, the Program has continuously improved its content and organization. Additional funding was attracted and new lecturers and speakers have been invited. Also, PDS alumni were involved in the teaching activities and presented their experience in case-study exercises.

The new grading system applied this year has included the attendance and in-class participation in the final grade. That has resulted in a higher attendance rate and very good participation in the activities during the lectures. All the participants in the course obtained "excellent" and "very good" qualifications at the end of the academic year.

More active than any other group before, this generation of participants has established a PDS Alumni Association, "Eco-Management Group". Together with the Eco-Management Center at the

University of Cluj-Napoca, developed by the PDS faculty members, the association will organize activities for alumni and will maintain an information network between them and their instructors. All questionnaires revealed that interaction with their colleagues was a major benefit for the participants. They were able to share experience and information with specialists having a similar interest.

The new modules offered in 1998-1999 academic year have also been very well received. Encouraged by the PDS staff, several participants wrote their first project proposals for the Ecolinks Program financed by of USAID.

The majority of dissertation topics were based on real cases. Environmental impact assessment continued to be the subject preferred by the PDS students this year, followed by problems concerning waste (inventory, management, recycling). An interesting observation has to be made on the Environmental Management System topic: despite the fact that this is very new subject all over the world, Romanian participants were very interested in the subject and four of the theses dealt directly with it. Moreover, many others dissertations were considered as a first step in preparing future EMSs for participants' organization.

Among the main obstacles that the participants expect to face in putting in practice their dissertation the most common were: lack of environmental awareness among the employees of the organizations; lack of financial resources; resistance to change within the organization; and gaps existent in legislation.

As a whole, the program has been considered very good and excellent by all of the participants. In addition, the instructors received very good to excellent appreciation for their activity.

Still, there are a number of issues that could be recommended for improvement in the organization and delivery of the Eco-Management Program:

- ◆ modules on Managerial Skills, Strategic Management and Environmental Impact Assessment should have a longer time reserved for lectures and exercises, as they are at the top of the participants' interest;
- ◆ presentation of the modules on Energy Efficiency, Clean Technologies and Environmental Monitoring need to be improved;

- ◆ more cases prepared by PDS alumni should be presented as training materials for the new generations;
- ◆ short intensive courses should be organized by the Eco-Management Center for those who need a higher specialization in part of the topics introduced by PDS;
- ◆ Alumni Association should be involved in the activities of the Center and PDS Program, in order to offer as much information as possible to current and former students;
- ◆ ETP Foundation and Eco-Management Center should help increasing the environmental awareness within organizations and communities by diversifying the range of courses offered;
- ◆ a special module on writing project proposals and finding financing sources would help the participants' organizations to overcome some of the financial problems;
- ◆ the support from the American instructors was very much appreciated and ways to develop further collaboration need to be found.

QUESTIONNAIRE ADDRESSED TO THE PDS PARTICIPANTS

In the end of each academic year, we assess the impact of the PDS course on its participants and their companies. In order to get a real picture of this issue, we kindly ask you to answer next questions:

1. Name:
2. Company:
3. Locality:
4. County:
5. Position in the organization:
6. How long have you been working for this company?
7. Academic background:
8. How would you describe your environmental knowledge before enrolling in this course?
9. Did this program change your opinion on the importance of the environmental issues for business?
10. What percent of the information presented in this program was completely new for you?
11. List five of the new elements, concepts and/or principles from the lectures and specify in what way would they be useful to you.
12. Have you been able to raise the awareness of your colleagues concerning the environmental problems of your organization? How?

13. Have you been able to influence your supervisor in making decisions related to the environmental protection?
14. What are the main pollutants released by your company?
15. Does your company show any interest in increasing profitability, reducing pollution, increasing energy efficiency, reducing the water and resource consumption, investing in new technologies, other (what)? (List them in order of their importance for your company)
16. What was the impact of your participation in the program on your company? What changes were made as a result of your participation? Did your company save money, gain revenue, help the environment?
17. What did the program mean to you personally? What did it mean for your career? For your organization? How did the program prepare you for the future? How has it helped you professionally?
18. Who chose the topic of your dissertation? (yourself, your boss, other (who?))
19. Have your colleagues and managers supported you in writing the thesis? How?
20. How would you classify your thesis? (theoretical, practical, general, specific, etc.)
21. Who is involved in putting in practice the outcomes of your thesis?
22. Give an estimation of the annual environmental fines and taxes paid by your company.
23. What exactly would your project improve, related to the firm-environment relationship?
24. What are the chances for your project to be implemented?
25. How much money would be necessary for its implementation?
26. In your opinion, what are the chances for the implementation of sustainable development in Romania? And for the environmental management systems?
27. What main obstacles do you see?
28. Do you have any ideas on how these could be surpassed?

29. Overall, what role do you feel the PDS plays in improving the operations of companies that participate in your country? What impact does it have overall on the economy? What impact does it have overall on the environment?
30. Has meeting other students in the program helped you? In what ways? Do you intend to keep in touch with students from the program? For what reasons?
31. Would you recommend this course to other potential participants?
32. What other results that have taken place as a result of your participation in the program would you like to mention?

QUESTIONNAIRE ADDRESSED TO THE MANAGERS OF THE PDS PARTICIPANTS

In the end of each academic year, we assess the impact of the PDS course on its participants and their companies. As we are very much interested in the results of our work to be reflected in the activities of the organizations that were represented in the course, we kindly ask you to answer next questions:

1. Company:
2. Locality:
3. County:
4. Sector of activity:
5. Number of employees
6. Your position:
7. How long have you been working for this company?
8. Your academic background:
9. List three of the main environmental impacts of your company:
10. Does your company have an environmental permit?
11. Are you involved in a compliance program?
12. Are you familiar with the subject of courses in the Eco-Management program?
On a scale from 1 to 5, where 1 = very poor and 5 = very good, how do you appreciate:
13. The chances for implementation of the knowledge brought in the organization by the participant in the PDS program? 1 2 3 4 5
14. The chances for implementation of his/her project described in the dissertation? 1 2 3 4 5

15. The chances for this project to be financially supported by your organization? 1 2 3 4 5
16. Have you considered the implementation of an environmental management system in your company?
17. Do you consider the environmental issues as a threat or an opportunity for your organization?
18. Are you willing to make public the environmental performance of your company?
19. What are three main obstacles that you see for your activity, from the environmental perspective?
20. Will you consider recommending this program to other employees/managers?

ANNEX I

POSTGRADUATE DIPLOMA STUDIES

Eco-Management

1998-1999

LIST OF PARTICIPANTS AND DISSERTATION TITLES

Nrc	Name	Position	Company	Dissertation title
1	Elisabeta-Leti ia ARDEVAN	Chief of the Env. Prot. Dept.	SC CARBOCHIM SA Cluj- Napoca - abrasives manufacturing Pta 1 Mai nr. 3 Tel:064- 437005/288, Fax:064-437026	Inventorying the waste at SC Carbochim SA. Modalities of collecting and recycling.
2	Viorica Georgeta BARABAS	director	Environmental Protection Agency DEVA Str. Aurel Vlaicu Tel:054-212252, Fax:054-212252	Environmental impact assesment as a part of the general urban plan of Orastie town .
3	Mariana BERINDE	manager	ENERGETIC CONSULTING SRL C. Dorobantilor 101 Tel:064- 410729, Fax:064-410729	Increasing the energy efficiency and reducing the emission of noxes from the high capacity steam generators, using Ionic Fuel Technology

4	Brîndu a-Monica BOCO	Biologist	INST. of PUBLIC HEALTH Cluj- Napoca Str. L. Pasteur 6 Tel:064-194252, Fax:	Ecological implications of the occurrence of <i>Aeromonas</i> genus in different categories of water.
5	Dinuca BRETAN	independent environmental consultant	Baia Mare Valea Rosie 62, Tel:062-276276, Fax:062-276673	Aspects of paper waste management. Paper waste collection in public institutions in Baia Mare.
6	Svetlana CABA	laborant	TECHNICAL UNIV. of Cluj- Napoca Bd. Muncii 103-105 Tel:064- 415051/161, Fax:	Turistic management for Cluj county area
7	Elena CARCADEA	computer programmer	NAT. INST. CRYOGENY Rm Valcea OP 4 CP 10 Tel:050-732744/134, Fax:050-732746	Quality and feasibility at INC - DTIC - ICSI Rm. Vâlcea
8	Iacob DAN	Director	ROMSILVA - FORESTRY Authority AIUD Str. Transilvaniei 83 Tel:058- 862744, Fax:058-862744	Environmental impact assessment of Tifra, Aiud wood processing factory

9	Paula-Lumini a DANCIU	design engineer	National Institute for Railways, BUCURESTI Bd. Dinicu Golescu 38 Tel:01- 2223769, Fax:01-3123145	Environmental impact assessment - enforcement of Bucure ti - Bra ov railway, component of the pan-European corridor IV, for a maximum train speed of 160 km/hour
10	Mariana DEAC	chemical engineer	SC COMPA SIBIU - Str. Henri Coanda 8-10 Tel:069- 239400, Fax:069-237770	Economic and financial assessment of the investment project of purchasing a galvanization installation by SC COMPA SA Sibiu
11	Rodica DRAGOTA	Chief of the Env. Prot. Dept.	SC SOMES DEJ SA - paper plant Str. Bistritei 63 Tel:064-432182, Fax:064-433418	Possibilities to reuse the waste generated during the cellulose and paper production processes at SC SOMES SA Dej
12	Ovidiu Marius DUMA	manager	AGROPROIECT SRL Ardud - env. consulting Str. Stefan cel Mare 15 Tel:061- 771267, Fax:061-710540	Environmental impact assessment for the general urban plan of Halmeu, Satu Mare
13	Alexandru FLOREA	chief of the forestry dept.	Forestry Authority DORNA CANDRENILOR Str. Principala 104 Tel:030- 371596, Fax:030-371596	Economic aspects of forest sustainable management in Dornelor Basin, Suceava

14	Daniela FLOREA	ecologist	SC OLTCHIM SA RM VALCEA - chemical plant Str. Uzinei 1 Tel:050-731519, Fax:050-735030	The need for implementation of an air monitoring network within SC Oltchim SA
15	Georgeta Mihaela HONU	Chief of the Env. Prot. Dept.	SC TAROM SA Bucuresti - National Airlines Comp. Sos Bucuresti-Ploiesti 40 Tel:01- 2302493, Fax:01-2323686	Waste management for airlines
16	Roxana Elena LAZAR	engineer	NAT . INST. for CRYOGENY Rm Valcea OP 4 CP 10 Tel:050-732744, Fax:050-732746	Quality and safety control at the National Research and Development Institute for Cryogenic and Isotopic Technologies - ICSI Rm. Vâlcea
17	Gheorghe-Ioan LUPAN	general manager	SC ECOTECH SRL Satu-Mare - env. consulting Martirilor Deportati 20A Tel:061- 713421, Fax:	Reducing the pollution of the environment by industrial and domestic waste treatment and reuse
18	Gabriela LUPU	Chief of the Env. Prot. Dept.	National Electricity Company - Distribution Dept. IASI Str. Uzinei 38 Tel:032-142420, Fax:032-210980	Specific problems of the EMS implementation at SC Electrica SA and electricity distribution subsidiaries.

19	Sanda M NESCU	manager	SC ECOTERRA ING SRL Baia Mare - env. consulting I.L. Caragiale Bl.12/3 Tel:062- 429614, Fax:062-276885	A review checklist for environmental impact statements
20	Monica MI CA	engineer	National Roads Maintenance Comp. Cluj-Napoca Str. Cojocnei 93-97 Tel:064- 410848, Fax:064-413036	Preparatives for EMS implementation at A. R. L. Cluj
21	Teodor-Gabriel MOCANU	chemist	Design and Research Inst. for Water, Bucuresti Sos. Panduri 90-92 Tel:01- 4100377/152, Fax:01-4100575	A methodology for waste auditing
22	Alexandru MORARIU	Chief of the Env. Prot. Dept.	SC CASIAL DEVA - cement factory Principala 1 Chiscadaga Tel:054- 213140, Fax:054-225929	Reducing powder emissions at SC CASIAL SA Deva
23	Daniela MO OC	Chief of the Env. Prot. Dept.	National Electricity Company - Production Dept. GALATI Str. N. Balcescu 35A Tel:036- 460500, Fax:036-461759	Designing the electricity distribution installations

24	Ovidiu Nicolae MUR AN	inspector	Environmental Protection Agency Sibiu Str. Hipodromului 2A Tel:069-481852, Fax:069-444145	Environmental audit, level I and II, at SC URBIS SA Agnita, Sibiu county
25	Lucia MURE AN	technician	SC CARBOCHIM SA Cluj- Napoca - abrasives manufacturing Pta 1 Mai 3 Tel:064-437005/288, Fax:064-437026	Environmental strategy of SC Carbochim SA
26	Catrinel Lauriana NEGRU	Chief of the Env. Prot. Dept.	National Electricity Company - Distribution Dept., Buzau Bd. Maresal Averescu 3 Tel:038-433431, Fax:038-431123	Analysing human resource use and defining its role in implementation of the environmental protection system at Buzau Electricity Distribution Subsidiary
27	Ana POP	Chief of the Env. Prot. Dept.	SC SOMES SA DEJ - paper plant Str. Bistritei 63 Tel:064-211331/323, Fax:064-433418	Environmental and economic effects of the modernisation of the cellulose whitening equipment at SC SOMES SA Dej
28	Nicolae POPA	director	SC MAGIC AGROJET Aiud - manufacturing sprayers for agriculture Str. Tribun Tudoran 7 Tel:058-862865, Fax:058-862865	Managerial strategies in the business of manufacturing equipment for phytosanitary treatments in agriculture, in the spirit of sustainable development concept, at SC MAGIC AGROJET SA Aiud

29	Toma PRIDA	technical manager	Research Institute for Non-ferrous Substances Cluj-Napoca Str. T.Vladimirescu 15-17 Tel:064-435011, Fax:064-435030	A strategy for integrated solid urban waste management in Cluj-Napoca and surrounding localities
30	Cristian ST NIC		Cristian ST NIC	quality assurance engineer
33	Environmental Judita Irina Impact assessment for Brad gas station, DN 76, Km 29+340 VAS	subsidiary manager	SC ECOTECH SRL Cluj-Napoca - env. consulting Str. Fabricii 9/15 Tel:094-218173, Fax:	Urban plan for production and storage area, Apahida village
34	Carmen Silvia VIDA	manager	VIDA TM SRL Satu-Mare - env. consulting Al. Tarnavei 7/11 Tel:061-739539, Fax:092-721901	Environmental impact assessment for a supermarket
58 42, 59 x:0 54- 71 23 38	Radu VITOC	director	STUDIO AMBIENT CONSULTING Cluj-Napoca - env. Consulting Str. D. Bolinteanu 23 Tel:064-198466, Fax:064-195592	Environmental impact assessment for an underground parking lot in Avram Iancu Square, Cluj-Napoca

35	Dumitru MOLDOVAN	Marketing Director	SC COMELF SA Bistrita Str. Industriei nr. 4 063-231151, 063-250383	Marketing Department structure at SC Comelf SA. Promotion of Stahlermatic biological treatment installations
36	Remus-Florin DEAC	Chief of the Design Dept.	SC COMELF SA Bistrita Str. Industriei nr. 4 063-231151, 063-250383	Review and modernisation of the equipment for air pollution control at SC Comelf SA Bistrita

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1. S. Kabala, Ecological management in the international companies (transl. P. Alexa) , 1995, course support