THE ROLE OF ENVIRONMENTAL PROTECTION IN EDUCATION

Ligia Tuszyńska, Adam Kowalak*

Faculty of Biology, University of Warsaw,
ul. Mieczurina 1, 02-096 Warszawa, Poland
e-mail: ltuszynska@wp.pl

* Institute of Geography, Pomeranian Academy,
ul. Partyzantów 27, 76-200 Słupsk, Poland
jakowalakceew@hot.pl

Abstract

In this report we point out the requirement of local communities for environmental education of society that results from accession of Poland to the project titled „Decade for Sustainable Development 2005-2014”. The paper includes results of the surveys carried out among students, teachers and officers of communes that reveal the role of environmental education in schools, communes and universities. The results demonstrate that environmental education should become connected with actions in aid of both natural and social local environments.

Key words: environmental education, sustainable development, ecological awareness, local community, environmental protection

INTRODUCTION

Environmental education plays crucial role in teaching different subjects since enforcement of education reform in Poland (Cichy 2005). It is especially important for life sciences classes in elementary school as well as for additional classes titled “environmental education” that have been introduced at all levels of education (Tuszyńska 2006). “Environmental education” subject became also obligatory for all teachers educated at pedagogical majors and it encompasses the following issues:
– Human environment – its elements, structure and interactions;
– Directions of current and prospective changes in natural and social environment;
– The opportunities of fullfillment of human basic demands by environment;
– Principles of sustainable development and pro-environmental style of life;
– The aims and value of individual and collective actions in aid of environmental protection;
– The role of teachers and tutors in popularising environmental and ecological knowledge and creating proper attitude of people towards environment.
This direction of education results from new situation where teachers have to discharge new duties: introduction of elements of environmental education during their classes as well as participation in projects executed in aid of local social and natural environment. Poland and many other countries participate in “Decade for Sustainable Development 2005-2014”. The Decade was passed during General Assembly of the United Nations in December 2002 and obligated all countries to participate in this project. Passage of the Decade was a result of insufficient activity of UE and other countries in discharging recommendations of Agenda 21.

The aims of Decade became stated as “Millenium Aims” by United Nations Organization (UNO) and encompasses the following issues:

– Counteracting poverty;
– Natural resources protection;
– Health promotion;
– Respect for diversity and otherness;
– Respect for environment and natural resources.

Implementation of educational programmes should always take into account local natural, social, cultural and economic environment.

Education of eco-aware people belongs to the most important purposes of higher level education. Such people are urgently needed in schools, local governments and workplaces to coordinate actions for local environment protection (Cichy 1994, Kowalak 2001). These people should be aware of environmental hazard, but they also should become leaders in their local environment who can change attitudes of other people and create the society that can protect its local environment, respect its biodiversity and counteract the local hazard. Well-educated and active people are especially needed in communes to introduce environmental management systems.

The issue of sea protection is generally perceived in terms of the Baltic Sea as it is the only that Poland has access to. The main source of the sea contamination is release of industrial and agricultural sewage to the rivers and – in case of seaside places – directly to the sea as well as surface flow. Contamination release results from the lack of proper technical devices and sewage treatment plant, and also obsolete technologies. The relation between ecological awareness of society and effectiveness of implementation of environmental protection programmes including water protection is often omitted (Kozłowski 2002). Meanwhile Poland is one of the biggest Baltic countries, however environmental awareness of Polish society is severely limited in comparison to Scandinavian countries.

The convention signed in 1992 in Helsinki deals with sea environment protection globally taking into consideration air protection, virtues of nature and finally ecological awareness. One of the most important instruments of environmental protection is to guarantee the society to have broad access to information of environment state. We must realize that only ecologically educated society is able to benefit from this.
METHODS

The surveys concerning role of environmental education in schools, communes and universities were carried out among students, teachers and officers of communes (n= 60). For details see Suplement.

RESULTS AND DISCUSSION

Assuming that extensive knowledge of the environment is a basis for effective management, the need to recognise education as a key element of commune governments' activities seems unquestionable. However, the practice observed in Polish communes and districts is far from the deployment of this assumption. As rightly observed by Poskrobko (1998), the majority of communes do not go beyond the environmental protection solutions imposed by the law or by social and economic reasons. Commune self-governments mostly focus on administrating environmental issues or elaborating and implementing short-term (usually covering their term of office) environmental action programmes.

Administrating the environment consists in dealing with the issues of its protection exclusively within the competences possessed. Focusing on individual environmental issues such as the construction of a waste storage facility or a sewage treatment plant can, in the long run, be of little effectiveness or even lead to the hindrance in the commune’s development. Many authors feel that the strategy of small steps follows from:
– low level of eco-awareness;
– unpreparedness for accepting a new challenge such as the implementation of more complicated environmental management systems;
– the fact that small projects are simpler to carry out both in terms of funding and project coordination. They are also more likely to give a measurable effect during the particular term of office (Cichy 1994, Kowalak 2001, Giordano 2005).

Such approach of the commune authorities to environmental issues explains, to a certain degree, their reluctance to develop and implement long-term educational projects. The projects, although not very expensive, require a great organisational effort and specialist staff, while the accomplished results are usually noticeable only after many years. It is not always possible to see the effect within a single term of office.

The results of a survey we have carried out on the role of educational issues in eco-management of 115 communes (participants in eco-educational “Clean Vistula and Pomeranian Rivers” programme) for the years 1994-2003 showed that only 4 of the communes included the society’s ecological education in their development strategies. Despite this, all the 115 surveyed units carried out tasks in this area as early as in 1994. These were mostly occasional activities, like the organisation of Earth’s Day or Cleaning the World events. The participation in the national educational programme was an inspiration for permanent dealing with eco-education. The engagement of commune boards in ecological education clearly grew in the successive years of the “Clean Vistula and Pomeranian Rivers” programme implementation, i.e. during the years 1994-2002, and rapidly dropped after the project's implementation.
was finished. In December 2003, only 27.5% of communes declared permanent deployment of eco-educational projects.

The attitude of Polish communes to eco-education is radically different from the situation in other European countries, where it is common to implement eco-management systems by self-governments.

The term of environmental management was defined in the ICLEI Manual (1997) as the “resource of knowledge, skills and techniques of commune management, which ensures the growth of production and services, as well as improvement in the quality of the residents’ lives, with a minimal burdening of the natural environment. Environmental management is inscribed in the general system of commune management”. This means that the environmental content is permanently inscribed into all the commune boards’ activities: from eco-analysis of the consequences of the Council’s and Board’s draft resolutions, to allocation of duties to each commune office worker. The importance of issues related to shaping ecological awareness and social communication is considered to be equal to that of the environmental protection investment problems.

In West European countries, local self-governments increasingly see environmental management as a possibility to reduce the burdening of the natural environment, to reduce the operating costs, to increase effectiveness, as well as to improve their external and internal image in the eyes of investors, banks, insurance companies, consumers of locally-manufactured products, tourists, and their own residents.

Environmental management is most often associated with the quality improvement and risk management systems. Originally this type of management, as a tool for quality improvement, was developed for industrial enterprises and then adapted for the needs of local self-governments. The basis for its implementation is the EU regulation of 1993 on voluntary participation of industrial enterprises in the Environmental Management and Audit Scheme (EMAS), revised by the European Parliament and Council’s regulation of 19 March 2001 (EC No. 761/201), frequently described as EMAS II.

The regulation lays down the scope of the management, which covers:

– periodical ecological audits and continuous surveillance of the negative impact of the organisation on the environment;
– obligation of the organisation to fulfil legal requirements and environmental protection norms;
– development and implementation of strategy and policy of reducing the noxiousness of production processes and produced goods;
– programme of environmental protection objectives’ attainment by the organisation;
– ecological education of the organisation’s staff and their constant engagement in environmental protection;
– use of the best available, ecological and economically rational technology.

EMAS system was firstly adapted to requirements of local self-governments of seven communes in Great Britain. The system allows registration of organisation units like departments, but also puts more duties on whole local self-government. The commune has to execute its own ecological policy and initiate cooperation and coordination systems. Moreover, registration of the units is only temporary and ob-
taining the EMAS certificate depends on efforts of the whole commune. Commune’s government is also obligated to determine the deadline of final registration. Implementation of EMAS system is connected with many problems like a need for assurance of engagement of local community in environment protection (ICLEI textbook 1997, Poskrobko 1998). In our opinion, it is thus necessary to extend environmental education originally directed to commune’s officers to the whole local community. This is consistent with definition of commune in term of self-government community that guarantee the participation of its inhabitants in the management. Among advantages coming from participation of local community in environment management there are positive attitudes of inhabitants to the idea of sustainable development, promotion of commune, remaining local environment resources, supporting local environmental investments and broader participation of community in proenvironmental programmes and projects.

Results of guiding research conducted in 60 communes showed that the main problem connected with implementation of EMAS system is attitude of local governments to environmental education issue. Research was conducted in 2004 and 2005 in 15 communes of 3 provinces. The questionnaires filled by eco-management’s officers enclosed the following questions: What are the priorities of commune in environment protection policy? What part of environment protection is the most interesting for you? What are the main factors that have an influence on quality of environment management? Respondents were also asked whether their commune is interested in implementation of EMAS system (Kowalak 2005, 2006). The results presented in table 1 show the commune officers’ interest in environmental issues. Only 6.11% of the officers were interested in environmental education issue.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Answers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable development</td>
<td>38.89</td>
</tr>
<tr>
<td>Water protection</td>
<td>44.45</td>
</tr>
<tr>
<td>Air protection</td>
<td>21.67</td>
</tr>
<tr>
<td>Environment protection</td>
<td>16.12</td>
</tr>
<tr>
<td>Waste management</td>
<td>45.56</td>
</tr>
<tr>
<td>Environmental education</td>
<td>6.11</td>
</tr>
<tr>
<td>Environmental risk management</td>
<td>12.22</td>
</tr>
<tr>
<td>Others</td>
<td>14.98</td>
</tr>
</tbody>
</table>

Table 2 presents attitude of respondents to the requirement of trainings in environment protection and management. According to 27.78% of respondents it is necessary for communes’ officers to have more trainings in environmental protection, but only 11.11% of them consider environmental education issue as worthy to be mentioned during these trainings.
Obtained results show that communes’ officers are only little interested in environmental education of inhabitants. This suggests the underestimation of the social factor in commune management. Ecological awareness of inhabitants is not considered to be important for environment quality. Suprisingly, none of the communes’ officers found the local governments’ professional background as a crucial for environment quality. Ecological awareness of inhabitants and local governments’ knowledge background are also not considered to be indicators of efficiency of environment management system.

Table 2

<table>
<thead>
<tr>
<th>Subject of training</th>
<th>Answers %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental protection law</td>
<td>49.45</td>
</tr>
<tr>
<td>Wastewater management</td>
<td>49.45</td>
</tr>
<tr>
<td>Waste management</td>
<td>51.11</td>
</tr>
<tr>
<td>Environment protection</td>
<td>27.78</td>
</tr>
<tr>
<td>Valuation of influence on environment</td>
<td>40.00</td>
</tr>
<tr>
<td>Environmental education methods</td>
<td>11.11</td>
</tr>
<tr>
<td>Environmental management</td>
<td>39.45</td>
</tr>
</tbody>
</table>

Results of the survey we carried out in 2005 and 2006 among students of Warsaw University showed that all of them were convinced that introduction of environmental education programme for local community is necessary and this process should be monitored by schools, commune governments, ecological organisations and environmental education local centres. Over 70% of students confirmed their great interest in environment protection and 50% of them indicated courses, workshops, seminars and media as the main sources of information about environment. However, 85% of respondents did not participate actively in any environmental actions in their place of living. Moreover, students had very little knowledge about environmental education in their communes (for instance, 40% of participants did not know if their communes executed environmental education programme and 80% of them did not know whether there were any trainings in environmental education for teachers). According to the participants, the most important issues in environmental education are waste management, water protection and biodiversity protection. Most of respondents pay attention to proenvironmental attitude of their family and friends, but from the other side, over 90% of them do not understand “sustainable development” definition although think that there is a proenvironmental behavior like waste segregation.

Another survey was carried out among teachers that undertook postgraduate studies in life sciences education at Warsaw University in 2005 and 2006. Results of the survey show that 42.5% of teachers very rarely lead outdoor classes. Sixty per cent of them did not revealed the reason of this situation, but 40% of respondents men-
tioned insufficient education and lack of time as the major obstacles. In addition, lab classes were lead regularly only by 37% of teachers.

Table 3
Use of different methods of life sciences education by teachers

<table>
<thead>
<tr>
<th>No</th>
<th>Methods of education</th>
<th>Very often</th>
<th>Often</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Outdoor classes</td>
<td>7.5%</td>
<td>27.5%</td>
<td>42.5%</td>
<td>15%</td>
</tr>
<tr>
<td>2.</td>
<td>Lab classes</td>
<td>7.5%</td>
<td>30%</td>
<td>42.5%</td>
<td>17.5%</td>
</tr>
<tr>
<td>3.</td>
<td>Activating methods</td>
<td>17.5%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>4.</td>
<td>Multimedia classes</td>
<td>10%</td>
<td>15%</td>
<td>45%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Twenty two per cent of respondents did not answer whether they used activating methods during their classes. These methods were often used by 47.5% of teachers. The most popular activating methods were team work, brainstorm and metaplan. Teachers that undertook postgraduate studies at Warsaw University also pointed out their expectations towards their education. They were mostly interested in extending their knowledge about life sciences (42.5% of respondents) and improving their methodological skills (25%), but 27.5% of respondents also revealed that they were studying to get the certificate necessary for their further career.

CONCLUSIONS

1. Education of students during life sciences studies should be more focused on the issue of environmental education of local communities, especially by organising proenvironmental actions in their environment.
2. Students can be better prepared for environment management and work in local self-governments by executing of educational projects for local communities.
3. Teachers are better motivated to extend their knowledge during postgraduate studies and to implement educational projects for the local environment protection due to new principles of their careers’ development.
4. The efficiency of environment management mostly depends on participation of local society on countering the environmental damage by making up the proper decisions.
5. The little interest of commune’s officers in popularising the proecological attitude among local community indicate that local society has little influence on commune management.
6. The lack of cooperation between local government and society counteracts the efficient implementation of environmental management programmes in Polish communes.
7. There is a great need for creating and executing educational programmes focused on engagement of local community into environment management in communes.
REFERENCES


Supplement

Survey concerning role of environmental education in schools, communes and universities (100% = 60 people)

Select one answer.

1. What is your subject speciality?
   a. Biology – 37.5%
   b. Chemistry – 5%
   c. Physics – 15%
   d. Geography – 22.5%
   e. Other – 30%
2. Is multimedia equipment available for life sciences teachers in your school?
   a. Yes – 45.0%
   b. No – 52.5%
   c. I don’t know – 2.5%

3. How often do you use multimedia equipment during your classes?
   a. never – 30.0%
   b. rarely (2–4 times per year) – 45.0%
   c. often – 15.0%
   d. very often – 10.0%

4. How often do you lead outdoor classes?
   a. never – 15%
   b. rarely – 42.5%
   c. often – 27.5%
   d. very often – 7.5%

5. Why do not you lead outdoor classes often? Select the reason.
   a. insufficient knowledge – 15%
   b. organisation problems (mostly pupils’ behaviour) – 10%
   c. no possibility – 35%
   d. others like lack of didactic equipment – 10%

6. How often do you lead lab classes?
   a. never – 17.5%
   b. rarely – 42.5%
   c. often – 30%
   d. very often – 7.5%

7. How often do you use activating methods during classes?
   a. never – 10%
   b. rarely – 20%
   c. often – 30%
   d. very often – 17.5%

8. What kind of activating methods do you use?
   a. Brainstorm – 30%
   b. Metaplan – 25%
   c. Team work – 22%
   d. Didactic games – 12.5%
   e. Playing role – 12.5%

9. What are your expectations towards education at Warsaw University?
   a. Gaining certificate for further career – 27.5%
   b. Extending life sciences knowledge – 42.5%
   c. Development of methodological skills – 25%
   d. Improvement of language and computer skills – 10%

10. Can you prepare multimedia presentation for your classes?
    a. Yes – 37.5%
    b. No – 62.5%

11. Give the province and commune of your school
    a. Mazowieckie province – 95%

Thank you for your answers.
OCHRONA ŚRODOWISKA W EDUKACJI

Streszczenie

W pracy wskazano na zapotrzebowanie środowiska lokalnego na edukację środowiskową społeczeństwa, wynikające z przystąpienia Polski do udziału w projekcie Dekada Edukacji dla Zrównoważonego Rozwoju 2005-2014. Praca zawiera wyniki badań ankietowych studentów, nauczycieli i pracowników gmin wskazujące miejsce i rolę edukacji środowiskowej w szkole, gminie oraz na studiach przyrodniczych i pedagogicznych. Wyniki świadczą o konieczności zbliżenia trendów kształcenia przyrodniczego do praktycznych działań na rzecz lokalnego środowiska przyrodniczego i społecznego.