

TOWARDS MUNICIPAL ENVIRONMENTAL DEVELOPMENT: ENVIRONMENTAL MANAGEMENT SYSTEMS FOR LOCAL FORMAL EDUCATION ESTABLISHMENTS

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ABSTRACT

Educational institutions create certain environmental impacts in their operation – these impacts can be grouped into the sectors of waste, water, energy, transport and others. There is a need for educational institutions to adopt effective environmental management systems in order to reduce these impacts, as well as those of the whole municipality. The Eco-Schools programme is one of the most comprehensive and popular models of environmental education and management in the world. In recent years, the Eco-Schools programme has proved its effectiveness in numerous evaluations in several countries. The programme aims to raise awareness about environmental issues. Therefore, this programme encourages environmentally responsible behaviour involving not only members of specific schools but also reaching out to the local community. The aim of the present study was to evaluate an environmental management model of the Eco-Schools programme in Latvia. Moreover, the author assessed the country's potential to develop environmental management systems in schools, improve environmental education and create pro-environmental attitudes and values. For research, qualitative and quantitative research methods were used: analysis of documents and a survey. The conducted survey helped to evaluate the experience of the Eco-Schools programme and prepare recommendations for policy proposals about the Eco-Schools programme as an environmental management instrument in Latvia. Also, the role of the Eco-Schools programme in promoting sustainable development was assessed. As a result, the benefits and drawbacks of the programme were identified to plan further development and, therefore, to promote efficient environmental management in educational institutions and local communities. **KEYWORDS:** *sustainable development, municipal environmental management, environmental communication, Eco-Schools, local participation.*

JEL CODES: Q, Q5, Q56, Q58

DOI:

Introduction

The Eco-Schools programme is run by the Foundation for Environmental Education whose main goal is to promote sustainable development in schools and communities around them.

The Eco-Schools programme is one of the most comprehensive and popular models of environmental education and management in the world. The programme is an official partner in the United Nations Environment Programme (UNEP) in promoting environmental management and education, sustainability and certification of educational institutions internationally (FEE – UNEP Memorandum of Understanding, 2003). It is recognized as the largest international network of teachers and pupils in the world (UNESCO, 2014).

A key aspect of the programme is the creation of a simple and effective environmental management system at schools. The Eco-Schools programme is not exclusively related to environmental management; it

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increases insights and knowledge about the environment as well. The Eco-Schools themes are included in the curriculum of several subjects; therefore, the programme changes attitudes and creates values as a basis for further interest in environmental issues and motivates to take action. The Eco-Schools programme includes not only the members of the school but also the local community, thus promoting environmental awareness overall (FEE Latvia, 2016).

The Eco-Schools programme helps schools to create a local environmental management system with sustainability, habit creation and youth empowerment at the core. There is an increased emphasis on engaging local community groups and stakeholders – parents, municipality representatives, local businesses and organizations.

In recent years, the Eco-Schools programme has proved its effectiveness in numerous evaluations. The improvement of environmental management, environmentally friendly competencies and curriculum work have been highlighted as the main contributions of the Eco-Schools programme (Cincera, Krajhanzl, 2013).

In the Northern Ireland Eco-Schools, the efficacy of the programme has been confirmed by specific improvements in the sectors of waste, litter, water, energy, transport and others. For example, 111 Eco-Schools participated in the Power Down Day, which took place in November of 2013 and November of 2014, and a total saving of 3633.39 kWh was reported. It was estimated that the programme helped to reduce plastic waste by 39.18 t/yr. and unsolicited mail paper waste by 112.76 t/yr. in 2012 and 2013 (Keep Northern Ireland Beautiful, 2016).

The evaluation of the Eco-Schools programme in England showed that it helped to improve environmental, financial, personal and social aspects and catalyse behaviour change in the school and wider community (Keep Britain Tidy, 2013).

In South Africa, the programme improved the teachers' and students' motivation and knowledge, as well as their ability to deal with real-life environmental and social problems (Rosenberg, 2008). The evaluation of Flemish schools demonstrates that the Eco-Schools programme helps to improve students' knowledge about the environment (Boeve-de Pauw, van Petegem, 2011).

The programme also contributes to school visibility. The evaluation of Eco-Schools in Scotland indicates that participation in the programme can increase the recognition of the school in the local community (Pirrie et al., 2006).

While the Eco-Schools programme demonstrates its effectiveness, problems still exist implementing the programme in real life. For instance, evaluation of the Eco-Schools programme in Denmark has found problems of keeping active participation after the first years of joining the programme, as well problems with participation of the whole school (Lysgaard et al., 2015). Evaluation of Eco-Schools in Slovakia showed similar trends with decreased motivation after the first years of participation and other problems related to less active student participation than intended in the programme (Cincera et al., 2012). In Scotland, the most poorly implemented part of the programme appeared informing and involving of local community (Pirrie et al., 2006). Moreover, insufficient integration of environmental education in the curriculum has been often detected, as schools tend to focus on practical changes more than changes in the education system (Mogensen, Mayer, 2005).

Researchers in the Netherlands have concluded that the most significant problems arise with the last section of the environmental governance model (eco-code). It is claimed that there is lack of direct communication from coordinators, lack of opportunities to exchange experience and that working with social media and environmental information is problematic (Verstappen, 2014).

While several studies from other countries are available, the contribution of the Eco-Schools programme to sustainable development has not been yet assessed in Latvia. Therefore, the experience described above is valuable, as similar problems may arise in Latvia, too.

A key issue of the Eco-Schools programme is the effectiveness of the programme as a united system. Yet, it is not clear what problems might arise introducing the programme in Latvia. There is some uncertainty about how to make this model effective in promoting sustainable development through interaction between the school and target groups in the local community.

The purpose of the present study is to evaluate the Eco-Schools environmental management model and environmental communication in Latvia.

The main tasks are to identify advantages and likely problems, to plan further development of the programme and to promote effective environmental management in educational institutions at the level of local communities.

Methodology

In order to conduct research, qualitative and quantitative research methods were used: analysis of documents and a survey. The conducted survey helped to evaluate the experience of the Eco-Schools programme and prepare recommendations for policy proposals about the Eco-Schools programme, as an environmental management instrument in Latvia.

In July 2016, the Eco-Schools coordinators were questioned in order to provide insights into the efficiency of the programme as the voluntary environmental management and communication initiative. Finally, 113 out of 200 registered schools in the programme filled in the survey. The activity was rated high as the survey was mainly filled by experienced schools which had participated in the programme for more than one year. Out of the 113 schools, only six were new members that had participated for less than a year. Also, there was studies the Eco-Schools coordinators' experience of running the programme in their schools. Based on professional experience of the Eco-Schools coordinators, the information received, and the view gained from the initial literature analysis, a survey, which comprised 20 questions, was developed.

The survey was mainly filled out by the coordinators who were able to assess the situation in their schools based on their experience. Therefore, 82 out of 113 respondents were teachers, 30 were members of administrative staff, and one was an assistant to a preschool teacher. Almost all types of educational institutions were equally represented: 34 preschools, 11 elementary schools, 35 primary schools, and 33 secondary schools. The survey was filled out by 26 of the Eco-Schools of Latvia, 68 of the international Eco-Schools, which are awarded the Green flag; and 19 schools that are in the process of gaining the Eco-School status. The survey provided valuable and, so far, unavailable data that was useful for the assessment of the situation, identification of necessary improvements and further research opportunities.

1. Eco-Schools programme development worldwide and in Latvia

In 1992, a UN conference on Environment and Development was held in Rio de Janeiro, where the necessity to involve the youth in the development of sustainable solutions was stressed (Agenda 21, 1992).

It was the beginning of the Eco-Schools programme. Its purpose was to help achieve the goals defined in the conference, encouraging young people and every member of a school to be the initiator of change in the field of environmental sustainability and to act to achieve this change.

The programme was created and introduced in 1994 in collaboration with the Foundation for Environmental Education (FEE) and the European Commission. The initial member countries of the programme were Denmark, Germany, Greece and the United Kingdom. In the following six years, the programme was developed on a European level with the addition of 21 countries (Eco-Schools Handbook, 2016).

Currently, the Eco-Schools programme is executed in 62 countries uniting more than 49 thousand schools (Figure 1).

The Eco-Schools programme started operation in Latvia in 2002, and since then has grown to 200 participants: 63 preschools, 16 elementary schools, 61 primary schools, 58 secondary schools and two universities, 5630 teachers and 45 321 pupils (FEE Latvia, 2016). In the school year 2015/2016, there were 117 Green flags awarded, which is the highest honour of the programme with international significance, while 44 other schools received a first level certificate for their achievements in environmental education (Figure 2).

Initially, both in Latvia and internationally, Eco-Schools were mostly secondary schools, but Latvia is one of the few countries where the programme is carried out starting from preschools to universities (FEE Latvia, 2016).

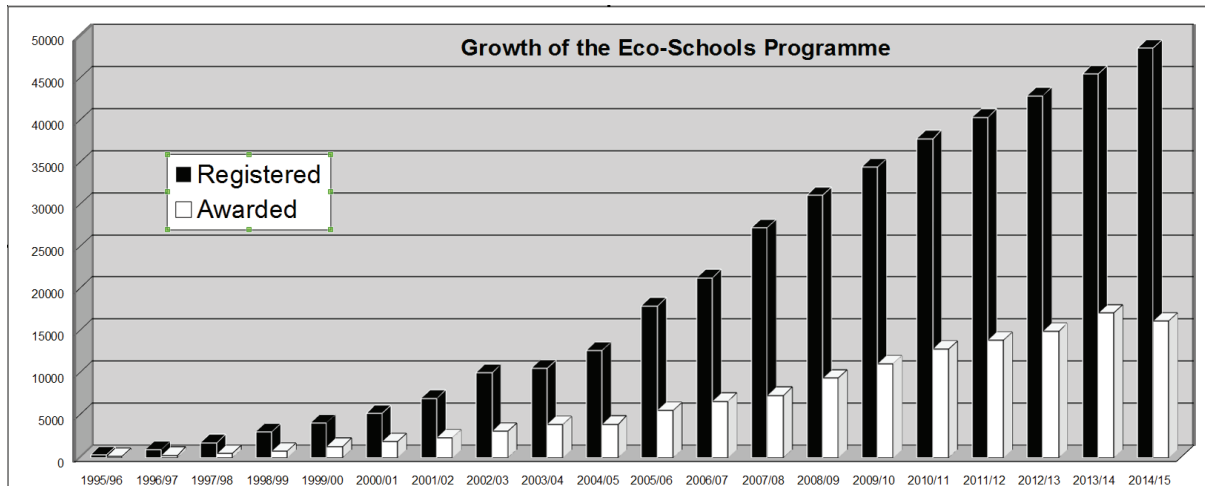


Fig. 1. Data of registered and awarded schools in the Eco-Schools programme over the years

Source: Eco-Schools programme international database (2016).

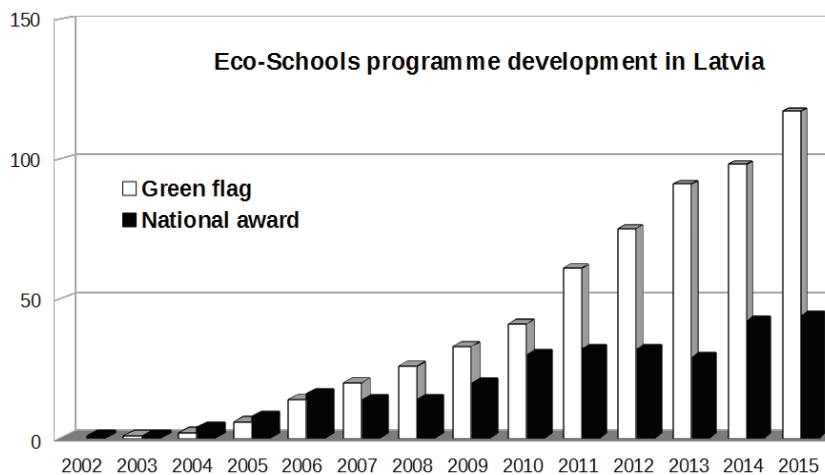


Fig. 2. Data of awarded schools in the Eco-Schools programme in Latvia

Source: Eco-Schools Programme database (2016).

The Eco-Schools programme has become a well-known framework for uniting educational institutions for environmental activities in Latvia. In the recent years, the development of the programme is not only related to the increase in number of member schools, but also to improvement in the content of activities (methodical and informative materials about the environment, teacher training, thematic environment campaigns and contests, direct support to schools, etc.).

Next important step is to improve collaboration among the national institutions and the institution that coordinates the Eco-Schools programme in Latvia. Countries that have stronger support and collaboration system have bigger rate of involvement of schools in the programme. For example, Iceland (49% of all scho-

ols are Eco-Schools) Malta (58%) England (72%) Wales (91 %), Ireland (98%) Northern Ireland (100%). These countries have strong governmental support. (FEE International, 2016) This is a clear example of how important is develop collaboration.

2. The Eco-Schools methodology of seven steps

The Eco-Schools environmental management system was created and developed according to the principles of the Environmental Management and Audit System of the European Union and the environmental management standard 14001 of the International Organization of Standardization (ISO 4001). It was based on the goals defined in the UN conference on Environment and Development in the Agenda 21 (Eco-Schools Handbook, 2016).

With getting involved in the Eco-Schools programme, educational institutions show their motivation to work independently on environmental education and protection long-term. They have to execute it according to a specific methodology, which is based on seven mandatory elements (eco-committee, environmental review, action plan, monitoring and evaluation, curriculum work, inform and involve, and eco-code) and in addition to the regular curriculum, they work on one of the eight themes of the programme (waste, water, energy, forest, health and wellbeing, transport, school grounds, climate change) – different routes of sustainable development. Moreover, they work with other topics and initiatives promoting environmental education and protection and sustainable development.

An Eco-Committee is responsible for the communication and management of the programme. It mainly consists of students. J. Cicncera and J. Krajhanzl (2013) note that the involvement of students in the decision-making of the school should be an essential part of implementing the programme, as there is a link between the kind of knowledge and skills necessary for decreasing the environmental impact and pupils' participation in decision-making (Cicncera, Krajhanzl, 2013). While the Eco-Schools programme prioritises empowering the youth, it should involve all the relevant stakeholders. It is possible that the Eco-Committee can transcend the level of the school, as the cooperation of environmental activists and local municipality has been extended to initiatives not related to school itself. This can be seen in the Ropazi municipality, where the Eco-Councils of the local preschool and secondary school have created a municipality level Eco-Council that works as a mediator between schools, municipality leaders and wider society (Ropazi municipality, 2014).

Environmental Review is a systematic investigation of the ecological footprint of the school as well as the state of environmental education, seeking to find the most urgent areas for improvements. Schools are suggested to invite local experts to help with carrying out the review process.

The Environmental Review is carried out in at least eight areas – waste, energy, water, transport, school environment and surroundings, school grounds, curriculum work and participation.

The results show the schools are able to collect this information successfully, but the main problem remains summarising of results and integrating them into the action plan, which is lacking or is not sufficiently done in a number of schools on the programme.

As the Review is updated every year, it provides an opportunity to evaluate progress using hard numbers as exemplified in Table 1.

The Environmental Review is primarily related to environmental information and provides a basis for making decisions. However, it also holds potential as a powerful supplement to environmental education, as it can be integrated into the curriculum activities. The review may also inform the local community about the environmental impacts of the school and the possible solutions to reduce them. To illustrate, a school is evaluated by the energy consumption not only in their school but also in the whole municipality, including detailed suggestions for efficiency (Eco-Schools Programme database, 2016).

In the process of the Environmental Review, the participants also evaluate the engagement level of students (e.g., Has the Eco-Committee recently made proposals for local municipality? Is there any support for Eco-School activities in the municipality and from the parents? How well has the school managed to inform the local community about its activities?). Evaluating these points can encourage further cooperation with the local community.

Table 1. Data of annual energy consumption and waste generation since joining the Eco-Schools programme, Berzpils High school

	Year	Electricity consumption (kwh)	Firewood (m3)		Year	Waste generation (m3)	Expenses (EUR)
Energy	2013	53522	733	Waste	2013	23.10	466,73
	2014	41850	532		2014	52.8	1059
	2015	23972	474		2015	26.6	813,13

Source: Eco-Schools Programme database (2016).

Action plan aims to promote environmentally responsible behaviour with a range of activities that cover both the educational and practical spheres. Its main objective is to achieve measurable results that can be used as a further motivation and celebrated by everyone involved in the process.

A recent poll of Eco-Schools coordinators indicates significant improvement achieved in each of the areas. The largest percentage of teachers indicated a positive development in a specific area like waste, healthy living and energy (94.7%, 92.1% and 89.4% reported improvements in these areas) while in the other areas of work the self-reported results were similarly high – 87.5% in water, 86.7% in transportation and 83.3% in climate change.

As the Action plan should consist of activities aimed at the wider community as well as students, it also encourages communication and involvement of different target groups.

Monitoring and Evaluation consists of a wide range of methods used to monitor the efficiency of the Action plan and the general progress towards the proposed goals. Unfortunately, despite the importance of this step, it is currently one of the most often misunderstood and neglected parts of the programme.

There are also examples of best practice, where schools show understanding of the step and highlight its value. For instance, Gulbene 1st preschool carried out an evaluation of responsible food consumption habits in families at the beginning of the year. At the end of the year, they evaluated the results which showed considerable self-reported changes in their behaviour (Figure 3).

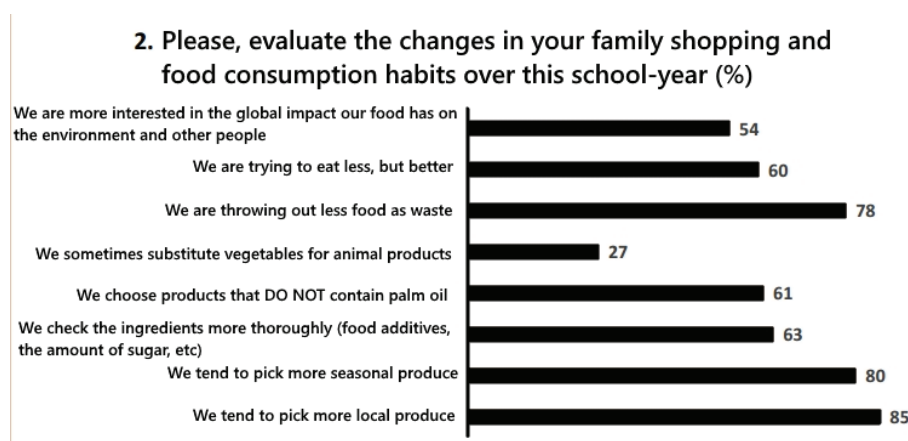


Fig. 3. Changes in consumption habits of Gulbene 1st preschool

Source: Gulbene 1st preschool (2016).

Curriculum Work describes the process in which the Schools integrate the topic environmental protection and sustainable development in the whole range of classes across the curriculum. The current regulation demands that the sustainable development and environmental issues should be included in all programmes of basic education (Regulation of the Cabinet of Ministers No. 468), while promoting active participation in the sustainable development of society is demanded from secondary school curriculums (Regulation of the Cabinet of Ministers No. 281). Similarly, it is expected to achieve pro-environmental attitudes in children from preschools (Regulation of the Cabinet of Ministers No. 533).

The Eco-Schools programme is a method how to achieve it in practice with the integration of environmental education in the curriculum. The programme includes all parts of environmental education: education about the environment, education in or from the environment and education for the environment, concerned with values, attitudes and positive actions (Palmer, 1998).

Additionally, some schools have developed environmental educational programmes within the Eco-Schools programme, i.e., introduced separate optional subjects or even mandatory environmental classes (FEE Latvia, 2016).

Inform and Involve relates to the task of engaging the local community in the Eco-Schools activities, thus motivating participants to bring environmental management outside their schools. Eco-Schools are expected to lead by example and to motivate for changes in the local community. It has been noticed that for the schools new in the programme, this is the hardest step to fulfil, as it is not at all a common practice for schools to engage communities in their activities.

However, the Global Action Days campaign demonstrates that each year, the results of the work with local communities improve. There are clear trends towards more public outreach in both the share and the total number of activities organised by schools during the campaign. The number of schools which prolonged their participation from a single event to many days' campaign of activities grew from 5% to 82% in just three years (Figure 4).

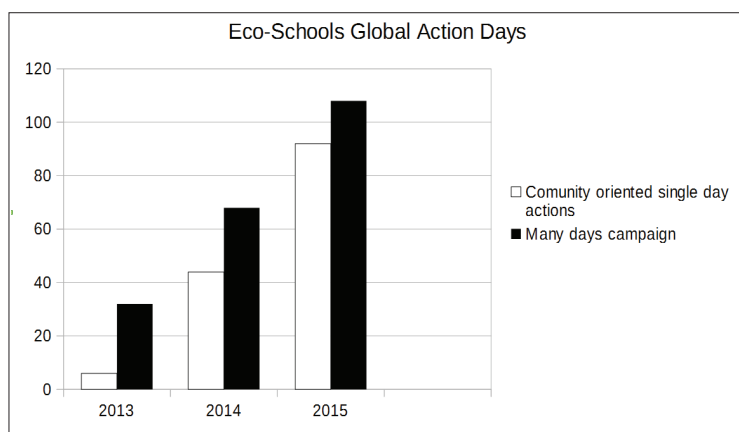


Fig. 4. The number of specific Eco-School activities in the Global Action Days campaign

Source: Eco-Schools Programme database (2016).

Also, involvement methods become more various and innovative. For example, Limbazu 3rd Secondary School organised a week-long campaign, involving the whole school and the community. They developed a game, organised a flash mob and a sustainable mobility day in collaboration with Katvari Boarding school. They also set up a poster exhibition, launched an educational and practical campaign about responsible food consumption and climate change (FEE Latvia, 2016).

Eco-Code is a collection of actions that pupils and teachers are encouraged to follow seeking to self-develop. It is promoted on the message boards and elsewhere in schools.

3. Discussion

Based on studies conducted and general vs. selective analysis done, there should be elaborated various types of information and development proposals for mutual discussion. The mentioned results provide insights into what difficulties might arise when implementing the programme in Latvia and how to make this model effective in promoting sustainable development at school and in the local community. In order to use the existing potential of the Eco-Schools programme in Latvia and promote further development of the programme, the following improvements are necessary at the level of the main stakeholders, which are responsible for environmental education, environmental protection and sustainable development. There have been distinguished recommendations for improvement at the national, at the municipality and educational institution level, and at the level of the institution coordinating the Eco-Schools programme.

At the national level. National institutions, such as Ministry of Education and Science, Ministry of Environmental Protection and Regional Development, could help to use the Eco-Schools programme potential in Latvia to develop environmental management systems in schools and also promote municipal environmental development.

This study suggests a number of important changes which need to be made: integration of the Eco-Schools programme in the national regulations and development of a support system for target audiences involved in the programme; development of partnerships between different sectors of national institutions involved in the implementation of the programme; improvement of the environmental management quality system in national educational institutions and development of a regional network for coordinators of environmental education; strengthening of the Eco-Schools programme financial capacity.

At the municipality and educational institution level. These findings suggest several courses of action for municipalities and schools: development of localised support and motivation systems for schools that are taking part in the Eco-Schools programme. Diverse motivational tools must be established to encourage environmental management both at schools and in the local area, for example, by ensuring that resources saved by schools in the waste, energy, water, transport categories could be used to realise environmental events and to develop further Eco-School initiatives. Moreover, there should be partnership between the municipal government and educational institutions when solving community relevant issues. Also, there should be organised environmental protection activities involving the community and creating the environmental policy. Cooperation in realising joint environmental management projects is necessary, e.g., collaboration during the Eco-Schools Global Action Days. It is a necessity to expand collaboration between schools and the municipality government in promoting local environmental management and mutual cooperation of target groups. For example, there might be founded a municipality Eco-Committee, which would act as a mediator between the school, the community and the municipality government. Collaboration between the municipality and the institution that coordinates the Eco-Schools programme is vital as it helps to carry out joint events and initiatives, such as organising of the Eco-Schools forums. These forums create the environmentally friendly image of the municipality and develop initiatives regarding environmental protection and environmental education in the local community; they also provide added opportunities and motivation for schools. It is essential, in a joint effort with the municipal government and the relevant institutions (Ministry of Education and Science, National Centre for Education of the Republic of Latvia), to design and integrate programmes of environmental education. Then, it vital to foster youth participation in the development of environmental policy, as the youth must have an opportunity to contribute to the planning and realisation of environmental policy. For instance, they could develop suggestions for the municipality government together with the Eco-Committee, or take part in the Eco-Schools Global Action Days ambassador contest, during which there is a chance to meet politicians and discuss pressing environmental issues.

At the level of the institution coordinating the Eco-Schools programme. Finally, there are a number of important changes which need to be made at the level of the institution that coordinates the Eco-Schools programme. These changes are as follows: integration of additional framework topics into the Eco-Schools programme; improvement and advancement of criteria for the Eco-Schools evaluation; desi-

gning criteria for evaluation of the topical framework; integration of criteria for appraisal of environmental communication in the guidelines on the evaluation of initiation of the programme elements at school; improvement of the scoring system when evaluating the programme elements; gathering of the cooperation examples between schools and target groups and provision of recommendations for developing partnerships and appealing to potential partners; improvement of the environmental evaluation process and environmental education; designing of a professional course for teachers on implementation of the environmental management principles set by the Eco-Schools programme and by productive work with the basic Eco-Schools topics; improvement of the Eco-Schools seven elements' programme and its methodology, which would allow to achieve the learning goals set for each Eco-Schools topic and enable practical results.

More information and continuation of the research and evaluation of the environmental management development in local community, using educational institutions as a tool would help to establish a greater degree of accuracy on this matter.

Conclusions

The existing data and observed practices affirm the benefits and promising potential of the Eco-Schools programme environmental management model in Latvia as a strong support for formal educational establishments environmental education and protection initiatives, and in the same time, for local development. Although few problems exist in implementation of the programme methodology in real life, the results of this research support the idea that it has already brought positive improvements in the environmental governance at the municipal level. However, further development depends on improvements made at the level of the main stakeholders. Thus, there is a definite need for national institutions, responsible for environmental education, environmental protection and sustainable development, to integrate the Eco-Schools programme into the national regulations and develop a support system for target audiences involved in the programme. Also, municipalities and educational institutions should better appreciate the importance of their participation in solving community issues and improve development of localised support and motivation systems for Eco-Schools. Finally, at the level of the national coordination institution, greater efforts are needed to ensure development of the Eco-Schools programme support, methodological and assessment system. The key word for all stakeholders is collaboration and participation.

In conclusion, the Eco-Schools programme in Latvia engages schools in efficient environmental management through reduced impacts on the environment. The programme encourages environmental protection in the work of municipalities, opening communication channels between schools, municipalities and local community. Furthermore, the local community can be used to engage all these actors locally in environmentally responsible behaviour.

Acknowledgements

R&D data were collected, elaborated and the paper prepared within the framework of the Latvian National research program project on Environmental diversity and sustainable governance (SUSTINNO, 2014–2017) in partnership with the Eco-Schools programme.

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SAVIVALDYBIŲ APLINKOSAUGOS PLĒTRA: APLINKOSAUGOS VADYBOS SISTEMŲ KŪRIMAS VIETOS ŠVIETIME

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Santrauka

Švietimo įstaigos daro tam tikrą poveikį aplinkai. Žmonės, žinantys, kaip rūšiuoti atliekas, taupyti vandenį ar kitus išteklius, yra naudingi visuomenei. Poveikį aplinkai galima suskirstyti į atliekų, vandens, energetikos, transporto ir kitus sektorius. Todėl labai svarbu, kad visose savivaldybėse švietimo įstaigos kurtų veiksmingas aplinkosaugos sistemas. Ekologinių mokyklų programos yra vienos išsamiausių ir populiariau-

sių aplinkosauginio švietimo ir valdymo modelių pasaulyje. Ši programa skatina aplinką tausojantį elgesį, kuriame dalyvauja ne tik konkrečių mokyklų nariai, bet ir vietos bendruomenės. Šio tyrimo tikslas – įvertinti ekologinių mokyklų programos aplinkosaugos vadybos modelį Latvijoje. Be to, autorius įvertino šalies galimybes kurti aplinkosaugos vadybos sistemas mokyklose, tobulinti aplinkosauginį švietimą ir formuoti aplinkosaugos požiūrius bei vertybes. Atliekant tyrimą taikyti kokybiniai ir kiekybiniai tyrimo metodai: dokumentų analizė bei apklausa. Tyrimas padėjo įvertinti ekologinių mokyklų programos patirtį, autorius parengė rekomendacijas dėl ekologinių mokyklų programos, kaip aplinkosaugos vadybos priemonės, Latvijoje politikos. Be to, įvertintas ekologinių mokyklų programos vaidmuo skatinant darnų vystymąsi. Dėl to nustatyti programos privalumai ir trūkumai, siekiant planuoti tolesnę plėtrą ir skatinti veiksmingą aplinkosaugos vadybą švietimo įstaigose bei vietos bendruomenėse.

Taigi „Ekologinių mokyklų“ programa Latvijoje skatina mokyklas veiksmingai valdyti aplinką mažinant jai neigiamą poveikį. Programa skatina aplinkos apsaugą savivaldybių darbe, atverdamą komunikacijos tarp mokyklų, savivaldybių ir vietos bendruomenės kanalus. Be to, vietinė bendruomenė gali būti naudojama siekiant įtraukti visus šiuos dalyvius į aplinkai atsakingą elgesį.

PAGRINDINIAI ŽODŽIAI: *darni plėtra, savivaldos aplinkos valdymas, aplinkos komunikacija, ekologinės mokyklos, vietos dalyvavimas.*

JEL KODAI: Q, Q5, Q56, Q58