

## Project “Lessons from Nature (LfN)”

This report has been prepared in fulfilment of work package two [Foundation – research and planning] as defined on the EU Lifelong Learning [Comenius] Programme application form. The report therefore focuses on the current use of learning outside of the classroom (LOtC) in relation to Education for Sustainable Development (ESD) and on current approaches and resources to ESD that can support the proposed Lessons from Nature (LfN) programme.

The report follows the protocol agreed at the Inception Meeting:

*The process for conducting the baseline research is flexible, however it is expected that face-to-face meetings will be held with the target groups and desk research used where available. The result will be a SWOT analysis of whether our LfN approach is interesting and exciting for our target groups, can it meet the needs of teachers and the education community, can it be successfully implemented and how this will happen effectively.*

### Research methodology:

First step in the baseline research in each country was to adapt the questions baseline research framework developed by CES (Latvia) under WP2 (foundation, research and planning). The following steps for collection of data were initiated.

Data were collected by means of specially organised focus groups, questionnaires or interviews. Survey was also used for gathering additional data. The number of involved participants is valid for the selected methodology.

The participants were asked questions pertaining to three groups: **Education for the future; Outdoor education; Lessons from Nature (LfN) idea**. All questions were grouped according to the target groups. Open questions were used to elicit the participants’ opinions; the most significant answers were recorded. The collected data was analysed with the idea to clarify the situation in each of country.

The report also takes account of the ‘Guidelines for baseline research’ document produced by Children’s Environmental School (Latvia) following the Inception Meeting and the baseline question: *‘How can we make LfN work better?’*

### Summary of existing situation

#### Education for the future

- The majority of students who participated in the research acknowledge that they are concerned about the future. Students gave importance to family and the stability of their family environment, rather than their economic welfare. Parallel to that appreciation of nature as an important factor to student’s happiness some of them can the need for ongoing change and the material possessions. The students want to know about the issues that are to determine their future!
- There was a disagreement about the degree that we are masters of our happiness. While some thought happiness depends on having the **luck** not to destroy everything (our Planet), the majority of the students feel it mostly depends on us alone to be active and not wait for someone else to fix the problems; on our personal efforts. Other

put it like this: “it (happiness) depends on **our will**. That is to be persistent and balanced in our efforts and not to give them up while reaching our goals.

- In some examples, teachers find it difficult to make the connection between natural, social and economic aspects of the environment, and to look for thesis and support them with arguments and with accessible and useful examples, involving in a simple way the students into discussions. Teachers are not sufficiently informed about the challenges of the future in the effects of climate change, the opportunities for renewable energy, sustainable production and consumption of natural resources, food safety and nutrition, coping with poverty, environmental transport and healthy lifestyles.
- Teachers are happy to discuss future with the students and are willing to use such didactic content. For them it is important that the children know and understand how the economy works; to understand the limitations of nature to provide services; the need for clearly defined aims and future directions, and mutual cooperation at various levels.

### Outdoor education

- Teachers have indicated mostly the **use of internet** to research a problem and report on it. Also, **an excursion to cultural & historical sites, bio farms** or a bus trip **in nature**. Also, **participation** in environmental **protection actions** and discovering a certain natural aspect **by drawing**;
- How can you make nature their favourite classroom? The answers to this question can be summarised in two groups. According to one group the **opportunities are limited**. According to the other group the opposite is true but there is **lack of financial means**, as well as **lack of motivation** in the teachers and students- It is clear that **the necessary procedures for the organization of LOtC activities should be changed** in order to stimulate the desire of teachers and students to do so. The some teachers encounter problems with preparing and choosing the location for the lesson, planning so as to fit into the time limits, selecting the activities that would motivate the pupils to learn in a non-formal environment and would help avoid discipline problems, and the existing natural situation.
- One has such practice at least once a month, others once a year, others over the weekend, and some even never did. This leads to the conclusion that every school is a separate case and decides if to use such practices or not. This leads to the conclusion that every school is a separate case and decides if to use such practices or not. **There is no uniform system** for the organization of the outings for students.
- The teachers also well understand the importance of Learning outside the classroom (LOtC) for the physical and physiological equilibrium of their students. The teachers are ready to get involved and use such activities in the learning process that envisage learning from nature and in a non-formal environment.
- In most examples we can sad that the teachers of all subjects try to use the opportunity to engage their pupils in learning out of school. The overall organization of these outings is, nevertheless, an administrative burden.

## Project idea

- Teachers understood **LfN** as **an approach** to environmentally friendly lifestyle, using natural resources efficiently and purposefully, as we learn from nature, as we protect it, as we obey its laws, interrelatedness of everything in nature and its ecosystems. Thus, the most popular answers here resonate with the conception that nature can be a good example of how to organise sustainable economic and social processes.
- Students understood nature as an example, we should follow nature's lead and do what nature does; environmental knowledge or nature functioning; or new and better educational approach;
- In most of situations teachers and influencers understand and like the idea of Lessons from Nature (LfN). They know that examples from nature are a peculiar phenomenon and a model for interdisciplinary and practically oriented learning that can be part of any educational subject. More of teachers are keen to take students out in the nature and have practical lessons with them out of the classroom.
- The overall opinion is that change in the educational system is required in order to stimulate and develop the practices for LOTC activities.
- They expressed different opinions about what LfN content will be interesting to students. They wanted to know more about energy technologies, but they don't know how it functions. Students want to know about innovations in food production inspired by nature. They want to have lessons that create values and help them tackle the surrounding temptations.

## Some key findings, idea and recommendations:

- To be able to use the LfN as a "building material" for the construction of the bridge linking present to future, students must know what is the state of the planet today and all together (humanity wise) to contribute to the desired future.
- Both teachers and pupils give priority to such learning methods and forms that involve learning outside the traditional school environment (field studies, experiments and educational activities in class or in the community). Research data indicate that teachers are ready to organise the learning process not only in the classroom and in the form of traditional lessons, but also in a non-formal learning environment.
- In LfN project will be developed learning frameworks, learning modules, good practice guidance, a share criteria for successful learning, training for teachers and all of these are perceived as being of real value;
- Teachers and students will be happy to have coherent body of knowledge and learning strategies that develop real understanding and skills and have connection with real curriculum and subjects;
- A general analysis of the obtained data permits especially concerns providing teachers with the required methodological help to solve organisational issues, as well as supporting teachers with high quality methodological materials and diverse resources to facilitate the organisation of learning in a non-formal learning environment. One example is the idea of growing mini-ecosystems in classrooms and in school grounds and interactive adaptable physical and computer generated models of (production) systems to promote an understanding the 'concrete' examples;
- Issues that respondents identify as difficulties in organizing the LOTC activities are the: financial constraints, lack of desire and incentive among teachers to take students in such outings, lack of suitable territories (green land) near the school. It is important

that the hours designated for such activities are combined in a “block” (i.e. to allow for some form of restructuring of the material and classes timing so that outings do not “harm” to other classes).

- It is required to develop specific methodology for LOTC activities for each major age group. Then comes the need of available organizational and practical programs, materials and technical equipment, motivations and financial means.
- LfN may be better understood if it is presented this as a **LfN Learning Loop** – the draft used in the UK consultation proved helpful in explaining the LfN concept and might also be helpful a focus for the development of the programme. Supported by effective learning materials these insights and skills enable students to apply systems thinking and ‘close loops’ in re-designing how things are produced. Nature can be used as a measure of effectiveness of proposed solutions and as a mentor for further learning as the enquiry continues around the loop to develop wider and deeper learning.
- Involvement of the whole school in outdoor activities / learning from nature can be facilitated by integrating outdoor lessons in all school subject plans, enhancing school administration’s understanding about the importance of learning in nature, as well as developing regulations about going into nature and stipulating the responsibility of the parties. Successful experience has already been accumulated in this area, which should be spread to others beyond the immediate context.
- Need: to realise that outdoor activities are not only recreational activities, since they improve the quality of students learning and motivate the learning process;
- Involving of schools: use existing networks, new networks; website with suggestions for activities; competitions; forums; come in to schools and talk to heads of departments; opportunities e.g. invitations to attend workshop/field days; support from project team; the production of highly useable resources; collaboration among authorities, educational centres, associations and LfN team to provide a complete offer of resources in a wide educative network.
- Existing barriers: in some countries teachers find it difficult to get out of the stereotypes of traditional teaching, which is largely theoretical. Methodologies for practically orientated teaching meeting the interests and needs of the students aren’t developed and aren’t in use. LOTC activities take place “where and if possible” as optional activities for the students.

## UK Research Report summary

### Methodology of report

A mixture of partner schools/organisations/individuals and 'non-partner schools/organisations/ individuals' that were not known to the author were consulted.

Some respondents submitted written responses; some took part in telephone conversations and some in face-to-face conversations. Schools from which school leaders and teachers that participated in extended conversations were profiled based on web searches to assist in making the 'pitch' relevant and to facilitate exploration of how LfN might work in those particular schools.

Teachers were asked to consult students where possible or to reflect the student perspective. It was recognised that there would be insufficient time for extensive research or for to get a wholly representative of LOtC and ESD and opportunities for LfN. The emphasis was on checking ideas that have formed over a long period and utilising extended conversations to inform the development of this new project rather than focus on the full breadth of LOtC and ESD provision. It was also recognised that lots of responses from people without prior understanding or from people responding to very broad questions would not necessarily have been helpful to LfN development in the UK.

Poorly formed questions without conversations could produce unsatisfactory data. Very busy and difficult to contact teachers, not helped half term holidays and school examinations, made consultation very challenging especially with students.

### Executive summary

This report draws on author experience over 19 years in relation to ESD (environmental education) and LOtC with ongoing commentary and feedback from education leaders, teachers and students, desktop research and pilot LfN projects. It focuses on consultation in June 2011 to address the key question '*How can we make LfN work better?*' involving ~~~~schools and key individuals and organisations.

Time and resource limitations have inevitably restricted research, consultation and the time available for writing has been limited. Nevertheless it is believed that the content will be important in ensuring the success of the LfN programme. Key findings are listed and it is recommended that these form the basis of the further development of the LfN programme.

The proposed programme is clearly distinct from most existing ESD and LOtC provision. It is clear that the proposed LfN programme can make a very significant contribution to (UK) secondary school students if its core is clearly framed and if the programme offers flexibility for access and delivery. LOtC is identified as a very powerful way to inspire the learning.

Material was developed to help explain LfN and help to gather responses from those consulted – see the 'Learning Loop', annex A and annex B. These were refined in the consultation process. Schools and selected individuals and representatives of selected organisations were emailed inviting responses. Limitations of time restricted the number of invitations that were practicable. Schools that visited EFFC in this period were also consulted.

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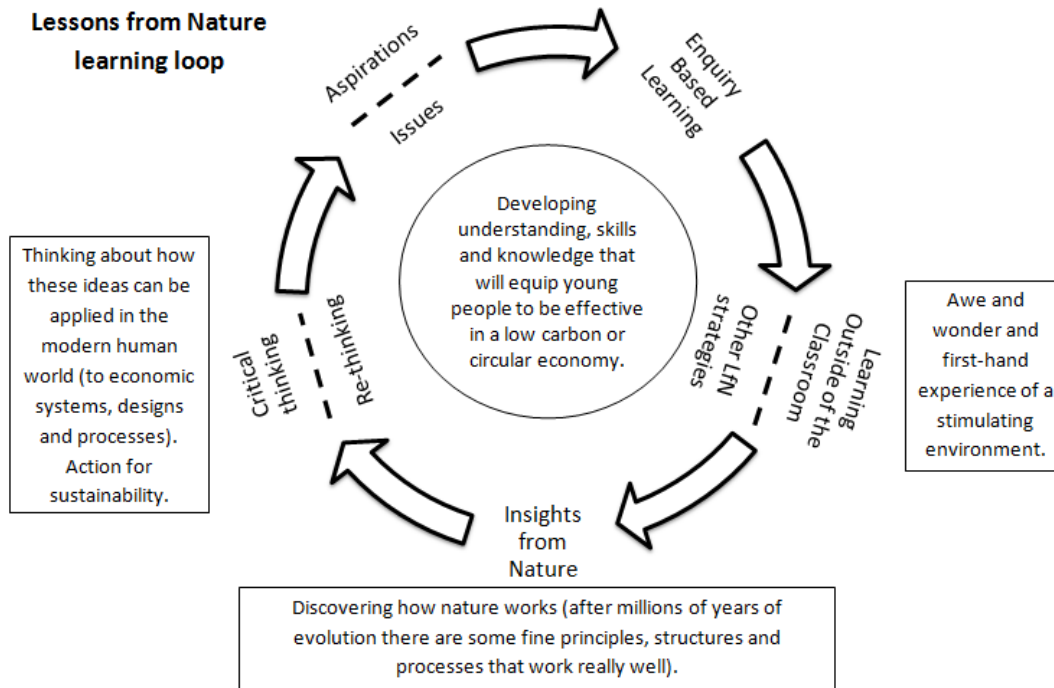
### Recommendations:

1. that the key findings are adopted into the synthesised report to be produced by our Latvian partner organisation Bērnū Vides Skola (Children's Environmental School)
2. that the key findings provide a focus for decisions at Partner Meeting 2 in Sophia 28 June – 1 July 2011 when the LfN project is shaped
3. that the key findings provide a focus for the ongoing development of the LfN programme in the UK
4. that the UK team should explore LfN further collaboration with the organisations and individuals mentioned in this report including EMF and LOtC and should also discuss the programme with FSC strategic partner the GA and also with active ESD organisations including SEED and Global Action Plan

### Key findings

The proposed Lessons from Nature programme:

- is perceived by some as very exciting; it can engender **considerable interest** in the UK if it demonstrates that it is based on a **coherent body of knowledge and learning strategies that develop real understanding and skills**;
- needs **clear framing** - clarity is crucial if the project is to achieve its intended outcomes and have lasting impacts **fills a real gap** - there is an absence of a coherent body of knowledge, skills and understanding to support ESD;
- **could benefit significantly from alignment with Ellen MacArthur Foundation (EMF) strategies** - EMF is at the leading edge contribution to ESD;
- will develop **learning frameworks, learning modules, good practice guidance, a share criteria for successful learning, training for teachers** and all of these are perceived as being of real value;
- **could benefit from utilising firsthand experience of natural ecosystems to inspire learning** – there is increasing evidence that demonstrates the value of this and the associated pedagogies
- may be better understood if it is presented this as a **LfN Learning Loop** – the draft used in the UK consultation proved helpful in explaining the LfN concept and might also be helpful a focus for the development of the programme:



### Key findings continued:

The proposed Lessons from Nature programme:

- could be attractive to students if it makes a real connection to their lives, has **direct relevance** and empowers them to be able to do things (act locally) may need **to deliver one-to-one support to teachers** in order for them to understand how to use LFN materials and ideas to best effect and distinguish this programme from other environmental education projects
- probably **needs a very clear core** whilst also having very flexible ‘entry points’ and delivery options in terms of subject, depth, breadth and time inputs
- **could benefit significantly from a significant web presence**
- could utilise the idea of **growing mini-ecosystems** in classrooms and in school grounds and **interactive adaptable physical and computer generated models of (production) systems** to promote an understanding the ‘concrete’ examples;

Also, *in the UK*, the proposed Lessons from Nature programme:

- **could benefit significantly from alignment with LOTC (marketing) strategies** – the LOTC Badge and the work of this organisation is attracting increasing attention
- **could benefit significantly from alignment with the work of FSC and its network of contacts, partners and other LOTC Learning Providers**
- **will need to be directly linked to assessment and/or curriculum** and may need be suitable for delivery within a single subject area can make an effective contribution to the development and application of **critical thinking** which is of increasing importance to UK school;
- could be **usefully linked to audiences that have valued past LOTC projects**;
- could be **usefully linked to ‘Living Landscapes’ and ‘Natural Connections’ projects.**

## Latvia report summary

### Description of situation in the country:

#### Target group:

Sample of respondents: 88 pupils from different regions of Latvia (Vidzeme, Kurzeme and Riga), int. al. 32 girls, 56 boys; nearly equal representation from urban (42 respondents) and rural (46 respondents) areas; almost equal representation from different age groups, notably grade six (21 participants), grade seven (14 participants) and grade nine (18 participants) with slightly more representatives from grade eight (32 participants).

Research participants are teachers (n=45) specialising in such subject areas as natural sciences, social sciences, humanities or art, as well as directors of educational institutions, senior experts or educational methodologists (n=8). All regions of Latvia are represented (Riga, Latgale, Vidzeme, Kurzeme and Zemgale) as well as both urban (n=30) and rural (n=23) areas. These criteria do not exhibit significant differences. Therefore, the data will be viewed in general.

### Description of the situation in general:

#### Education for the future:

Things that the majority of pupils consider important at present are learning (finishing a school year, graduating from school), family situation and friends, because these are the factors that have the greatest impact on their lives in future and will determine what they will be and what they will be able to do. The pupils have mostly mentioned that they are now concerned about finishing their studies successfully (finishing school or school year, passing tests, etc.); the second most popular choice is the well being of their family and friends, the third most popular is the state of global environment, ecological problems, etc. The pupils readily indicate the things they consider significant for themselves at present yet are reluctant to comment upon their choices, except for the argument that without learning and diploma they will not be able to achieve anything in their lives, and that everything is liable to changes whereas family is and always will be important.

The majority of pupils who participated in the research acknowledge that they are concerned about the future. The greatest number of pupils admits that they are concerned about ecological problems, natural catastrophes, global warming, etc. Significant obstructive factors that might prevent pupils from achieving the desired future are lack of motivation, laziness or other personal factors, human activity or careless attitude towards the environment.

The opinions of teachers and employees were also elicited. All the respondents admit it is important to talk about the future with pupils. The most popular answer suggests that it is an issue of shared responsibility where family, school and the society at large play considerable roles. Nevertheless, there are other answers where this issue is relegated to natural science teachers or placed on the politicians' agenda.

Teachers provide numerous examples about the way this is practically implemented during school lessons as well as during extracurricular activities and hobby groups. The teachers emphasise that it should indeed be practiced with the children: *sometimes we, teachers, are afraid that children will not be able to understand serious and global issues, but in fact children are endowed with more vivid imagination than adults.*



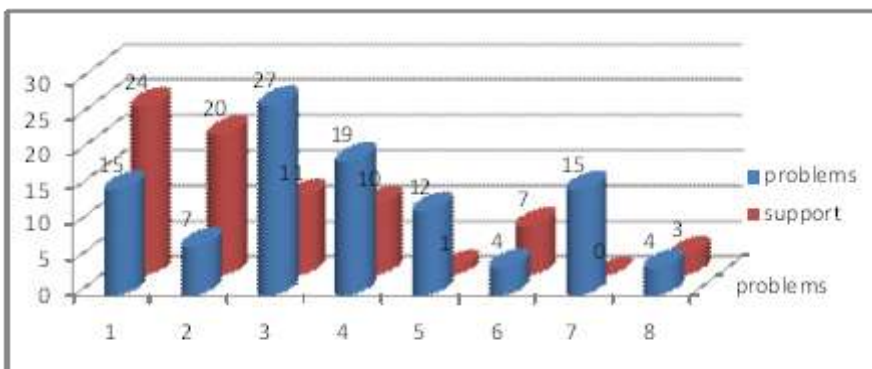
## Learning in nature

Pupils were asked about the frequency of their being in nature. The majority report that they are in nature every day or at least several times a week. Asked about the things they would enjoy learning in nature, the pupils would mostly appreciate the opportunity to learn natural science subjects this way (n=39), one popular answer is pupils believe that the majority of school curriculum can be learnt outdoors. When stating their priorities (1-most willingly, 9-least willingly) about learning in and out of class, the most popular kind of learning opted for by the pupils is guided tours to museums, zoos, etc. and conducting experiments and field studies in nature. The second choice is watching videos or conducting individual studies while performing educational activities in class or the community. The least popular method is working with books.

Teachers' were asked a question *Do you use outdoor activities in the learning process? Why?* The majority of the respondents gave an affirmative answer. The main reasons for using outdoor activities that emerged from the teachers' answers are *opportunity to test in practice what has been learnt, opportunity to understand various processes, curricular requirements, pupils' wishes, changing environment, etc.*

Asked about the frequency of their going outdoors, the most popular answer was having outdoor lessons 2-3 times a year. Other answers referred to specifications of the curriculum, weather conditions and season, because outdoor activities are less frequent in winter than in autumn and spring. Certainly the specifics of the subject play a considerable role here. Only a few of the respondents admitted to never going outdoors with their pupils.

Table 1 summarises and compares the answers to the following questions: *Please name major problems that are related to the organisation of outdoor lessons* and *What support do teachers need to conduct outdoor lessons?*



1. equipment, resources
2. methodological support
3. organisational factor
4. human factor
5. safety
6. no problems
7. weather conditions
8. other answer

Figure 1. Problems and required support for organisation of outdoor lessons

Data summary reveals that the main problems perceived by the respondents are organisational issues. The teachers encounter problems with preparing and choosing the location for the lesson, planning so as to fit into the time limits, selecting the activities that would motivate the pupils to learn in a non-formal environment and would help avoid discipline problems, as well as flexibility required to adapt to the weather conditions and the existing natural situation. The rest of the answers roughly equally highlight such problems as the human factor (teachers' excessive workload and lack of motivation), changing weather conditions and children's safety (n=12).

Teachers mostly need appropriate equipment and human or financial resources. In big classes (up to 25-30 pupils), to ensure a high quality learning process in a non-formal environment, teachers require the help of a teacher's assistant and funds for financing farther trips, covering entrance fees, etc. Presently this is not a great problem, but quite a few teachers (n=19) would appreciate appropriate learning resources, high quality learning materials, visual aids and ideas, which should all be coordinated with the curriculum and state standards. Despite the extensive European funding for improving the material basis of natural science and mathematics subjects, a lot of teachers report that they need additional resources and equipment (both specific implements and simple aids).

We also aimed to ascertain what the respondents think about the effects of outdoor lessons on the learning process. Although not all of the respondents admit to using outdoor lessons, the majority acknowledge that they have a positive effect on the learning process; only one respondent opined that it does not affect the learning process while four were unable to answer this question. Among the chief results gained from outdoor lessons the teachers mention the learning process becoming more interesting and diverse (n=10), the pupils becoming more active and better understanding the natural processes (n=9). At the same time, the respondents admitted that using outdoor lessons necessitates them to give additional thought to good organisation of the process and invest more effort and time in planning (n=9). They also believe that out of doors the pupils' attention is distracted and they still have to pass tests at the end.

### Project idea

When asked how they understand the meaning of the phrase *lessons from nature*, the most popular answers given by the pupils are the following: nature as an example, we should follow nature's lead and do what nature does (n=26), people need to learn to protect nature (n=25). The second most popular option (n=22) was opportunity to learn in nature about its processes with a view to better understanding them.

A summary of teachers', school directors' and methodology specialists' answers reveals that the most popular response is opportunity to better understand the interrelatedness of everything in nature and its ecosystems. Opportunity to learn in natural environment and study different objects scored almost the same number of responses (n=15).

The third most popular suggestion was the idea that we should try to emulate natural processes in human-created systems and objects. The concepts of responsibility and caring attitude emerged only in a few cases. Thus, the most popular answers here resonate with the conception that nature can be a good example of how to organise sustainable economic and social processes.

### Conclusions about the situation in general:

- A general analysis of the obtained data permits to conclude that all the respondents who participated in focus groups and the survey acknowledge that it is possible to learn from nature not only by means of observation and analysis of its processes and regularities, but also by seeking innovative solutions and ways to implement identical processes in the everyday life of the society. These discussions remain open, but in all cases the significance of non-formal learning environment was highlighted.
- Despite the present economic situation in Latvia, the pupils' answers to questions concerning their future are not dominated by money and concrete things, but by global and general human values. A clean and healthy environment, the need to reduce our ecologic effects on the environment and a happy future are issues that are considered highly significant both now and in future. Teachers and employers also maintain that it is crucial to talk to pupils about future because they are future decision makers and those who should learn to assume responsibility in great and small matters alike.
- The teachers are ready to get involved and use such activities in the learning process that envisage learning from nature and in a non-formal environment. For teachers to be able to use learning from nature more fully in the learning process, the identified problems should be taken into account. It especially concerns providing teachers with the required methodological help to solve organisational issues, as well as supporting teachers with high quality methodological materials and diverse resources to facilitate the organisation of learning in a non-formal learning environment.
- Employers are willing to support the project idea by circulating information, popularising project activities, involving and motivating their employees as much as possible and sharing the acquired experience with other institutions.
- Involvement of the whole school in outdoor activities / learning from nature can be facilitated by integrating outdoor lessons in all school subject plans, enhancing school administration's understanding about the importance of learning in nature, as well as developing regulations about going into nature and stipulating the responsibility of the parties. Successful experience has already been accumulated in this area, which should be spread to others beyond the immediate context.

## Spain report summary

### Description of situation in the country:

#### *Target group:*

Student's survey was conducted during April and May 2011. The student's sample was made up by 13 students, which belonged to secondary education. Sample was quite balance concerning sex ratio (54% were men, 46% women).

A total of 9 teachers were interviewed, 2 belonging to primary education and 7 to secondary education. Among secondary education teachers, 3 were Physical Education teachers, while the rest of the teachers were from different specialities (Biology and Geology, Philosophy, Physic and Chemistry, and Technology). Teachers show a wide range in the teaching experience, being the average 11.8 years, but encompassing from 32 to less than 1 year of experience.

A total of 11 influencers answered, 6 belonging to local institutions, 3 to regional and 2 to national institutions. The 55% were men, while the 45% were women. Regarding to experience in teaching field, 5 persons had more than 10 years of experience up to 40 years, whereas 6 have less than 8 experiences.

### Conclusions

#### Education for the future

- Students gave importance to family and the stability of their family environment, rather than their economic welfare, due to the two first factors really power their happiness. In general, students are concerned about future, due to the bad economic perspectives and the future uncertainty.
- However, some of them thought that their personal goals can be achieved throughout academic successful. Consequently, the majority considered the scholar failure as the first constrain to reach the desired future.
- It is remarkable that teachers talked to students about the importance of studies when teachers considered studies as one non relevant aspect in their happiness. Teachers said that factors that fuelled their happiness did not match with those that make students happy, although there was some agreement in the importance of family. In general, the understanding of the nature limits in ecosystem service delivery was seen as essential to improve the capacity of students to face the future.
- It is remarkable that an education for the future can deliver the chance to choice, as we would know how to link the liability of the activities performed today with their future consequences. Thus, we can obtain concerned and participative citizens that can construct a green and better society.

#### Outdoor education

- In general, students would like to have a larger contribution of practical learning and outdoor lessons in their education. They enjoy outdoor education, because they can learn practical knowledge and feeling better. In addition, they show a positive attitude when they conduct such activities as students consider outdoor education significantly contributes to improve their learning.
- Practical experiments, thematic journeys and visiting specialised centres are the favourite choices to perform the outdoor education. Students visit infrequently nature.

They visit nature with their scholar centres and by themselves with the same frequency.

- Teachers gave importance to activities performed into nature. Activities should be well scheduled, defined, organised and performed to achieve a successful outdoor education. It has to be clear that they should not be designed only for recreational purposes.
- Outdoor education can be improved by using a multidisciplinary approach. Organisation aspects may constrain the development of the outdoor education. The schedule, colleague participation and family's collaboration may be relevant to obtain a successful outdoor education.
- All the influencers considered that is very important to carry out a project such as Lessons from Nature at educational centres in this moment. The project would deliver education for the future, obtaining the necessary skills to find alternatives for an uncertain future. It is a collective responsibility (parents, schools, society, and the media) to teach for the future. Outdoor education is introduced as an alternative way to reach this aim and get student engagement.
- Strategies, needs and constrains to implement LfN were commented and discussed for teachers, educational centres and LfN team, together with the way to reduce or solve these problems.
- Given that the project has already obtained funds and resources for the intermediate-long term, provide teachers training, establish a facility network to visit and a working plan to be carried out, together with the information feedback among agents that promotes a good practice atmosphere, it is essential to obtain a relevant decision-makers engagement.
- One more key recommendation is to include project's results formally into the Official curricula for future teachers' training and to make wide dissemination of all project's materials within the whole educational community not only in Spain but in the other EU countries and more, if possible.

### Lessons from Nature idea

- Students felt that LfN idea is interesting and useful to help them to reach the desired future. Their interest lies in their environmental concern or in the improvement that this approach can produce in their learning process.
- It is indispensable to teach on sustainability to prepare society in managing an uncertain future. Teaching and learning directly into the nature seems to be one of the best ways to reach the LfN purposes.
- LfN idea was well considered by teachers. They highlighted the relevance of teaching on sustainability into the nature as the best strategy to develop LfN approach.

### Recommendations and suggestions:

**How can student be motivated with nature?** There is a wide range of strategies, in which nature is often used as educational resource as a power tool, using guided learning and different approaches or disciplines. It is also necessary to concern students about environmental care. The most common strategies were: visiting natural protected areas; environment week: performing activities as "cycling from home to the school", "recycling workshops"; cycling or trekking on natural routes dealing multidisciplinary contents, which can be assessed.



The two main aspects in learning from nature were noted, first, its functioning relies on resource cycles and, second, the ecosystem services delivered to humans.

To organise outdoor activities, didactic aspects as learning, interest or challenge potential of the activity together with other practical things as proximity, difficulty, costs and temporal schedule (must be comprised within the school time-table). Present situation of civil liability is other relevant aspect in organising such activities. The most frequent outdoor activity is to visit the school green area, followed by conducting experiments, using Internet to perform researches, organise thematic journeys and visiting museums or natural reserves. In contrast, visiting shopping centres to elaborate surveys was the less popular way.

Outdoor activities were performed with a low frequency (one each 2 to 6 months). In some rare cases, activities were conducted within a monthly frequency or less. Activities were often conducted within school hours, and they seldom last more than one day, requiring accommodation. Student interest, the improvement of the student learning process and reality perception, together with the development of environmental concern were the main reasons to perform such activities. Both humanistic and science teachers undertook outdoor education with the same frequency (0 to 33%). A half of the performed activities were obligatory, being the rest optional.

In general, school managers and head teachers promoted outdoor education. Their support was rarely explicit, but they did not constrain this kind of activities, showing a positive attitude and flexibility. To promote these activities, it is necessary to obtain more support from educational authorities mainly, but also from school principals, colleagues and families. Activities should be well scheduled, defined, organised and performed to achieve a successful outdoor education. It has to be clear that they should not be designed only for recreational purposes, as this occurs from time to time starting an unwilling approach from parents and other colleagues.

#### **Needs to improve outdoor education:**

- To realise (to know, to accept and to apply) that outdoor activities are not only recreational activities, since they improve the quality of students learning and motivate the learning process.
- Availability of the suitable materials and official support to perform the activity (e.g., transport; institutional backup, etc.).
- Suitable network of sites to make organised visits and to perform activities with expertises, which can show a more detailed perspective.
- To design activities that agrees with the learning aims. To know educational strategies to develop outdoor education.
- To obtain support and flexibility from Educational centres to perform such activities.

#### **LfN team:**

- Students that were not motivated and informed enough about LfN goals and implementation process. Students that are completely unlinked from nature and they are interested only in the sensationalistic aspects of the environment conservation, whose responses may be skewed.
- Possible low reliability about a new learning approach in a new educational scenario. Liability for accidents or injuries during outdoor activities.

- Current conflicts between teachers and regional educative Authorities, which can constrain the teacher collaboration (this is a growing problem across all Spain, not only in Murcia Region).
- To get groups being interested in this program and want to keep on working at long term. Engagement of the whole educative community.
- Companies aiming to obtain a large economical profit without considering any other social or environmental aspects.
- Decision-maker interest and support from institutions and governments. If project obtain such compromise from authorities, project constrains will be significantly reduced, as human resources and other infrastructures are available.
- Availability of scholar centres to work and to offer resources. Not being a formal (official) educational initiative

#### **How can we fix or minimise constrains:**

- Meeting with teachers to let them know about the project and train them. Proposing specialised and standardised activities. To fix the problem about teacher liability on outdoor activities.
- Report information about the project to teacher cloisters and scholar community. To make all produced materials available for the whole educational community. Giving information about our experience in the Project “Red Aulas de Naturaleza” (regional educational project linked with Natural Protected Areas).
- To give well prepared human resources to help in such lessons in scholar centres.
- Implementation strategy relies on the decision makers will. It is just to develop the program, to obtain budget and to start working at mid-long term, training teachers and building a facility network to carry out the educational outdoors activities.
- Collaboration among authorities, educational centres, associations and LfN team to provide a complete offer of resources in a wide educative network.
- To include LfN as part of the Official Curriculum for teacher’s training.

#### **How influencer’s can you help us to implement LfN idea :**

- Giving support to educators and teachers that will attend the program. Providing bibliography, information, media, etc.
- In the promotion, giving a global picture of the reality, teaching in critical thinking.
- Free activities in nature for scholar centres (without considering transport) and availability of environmental education that conduct activities and projects related with nature. Experiences in the outdoor education field, together with the specific environmental knowledge.
- Reaching educative community and diffusing the educative materials and building a good atmosphere among teachers to allow them to elaborate and publish a “good practice guide”.

## Romania report summary

### Description of situation in the country:

#### Target group:

The student's survey was made in May 2011 with 18 students from upper secondary school. 50% are from the Teacher Training School – Pedagogical profile, 44, 44% social science, 1 from theoretical profile. 83% girls, 17% boys.

The methodology of research was various: it was used the focus groups discussion with 4 teachers, questionnaires for 5 teachers of formal and for 1 teacher of nonformal learning institutions. All of them were women, 40% of them elementary school teachers, 60% secondary school teachers. The subjects they teach: 3 biology teachers, 2 technologies, 1 Pedagogy teacher, 4 elementary school teachers. 40% are from rural area, 60% from urban area. 90 % teachers are from formal education and 10% from nonformal education.

There were interviewed five influencer's: 2 from local institution, 2 regional institutions, 1 national level (40% male and 60% female).

### Education for the future

For 77,77 % of students the most important are the happiness, health, family, 50% mentioned the cleaner environment, better future, certain future, large possibilities, freedom, quality of the air and environment. 94% of them are concerned about the future, in different ways: uncertainty, higher rate of the jobless in Romania, degradation of the environment. They would like to learn by doing practical, research, to travel, visiting interesting places, to get experiences (33,33%), to know people, to work in groups.

Teachers talk about the future with students at all level of primary, secondary schools, all of them consider it being very important. One of the most important topic is food and nutrition, but it was mentioned global issues as climate change and consequences, energy, deforestation as local problem ( too)-and the floods, connections among them, etc.

Influencer's sad that **future education** is important, teachers are responsible for it. There are other factors too: society, family has an important role as well. Need collaboration with local community, parents, and researchers. It cannot be forgotten the economical aspects. Is necessary to build a more efficient society what recognize the needs but at the same time do care about the planet.

### Outdoor education

All of the interviewed students like to be in nature and like the outdoor activities, and would like to attend more; their opinion is that is easier to learn, to achieve knowledge's, skills by doing. 77,77% of them spend all their free time in nature with the family or friends, the remaining go out only in spring or in holiday. In outdoor activities they are active, participative, enjoy the interesting fieldtrips. The orders of the learning scenarios are different, in accordance to their main interest, profile, personality.

Has various aspects, teachers has to be aware that this doesn't mean recreational activities only, the teaching-learning process has to be present as well. Country/regional School Inspectorate: the new Law of Education will be more flexible: for each discipline 25% of the allocated time is up to the teacher how will use it. The Curricula will not be so crowded; there will be more possibilities for teachers to introduce other themes.

They recognize that practical activities are more efficient, so is necessary to create possibilities for outdoor activities and to provide other facilities. In the new Law of Education is foreseen a 75% reduction of the tickets for schoolchildren to the museums, visitor centres and other public educational institutions.

### **Problems identified:**

Outdoor activities in Romania are not very common. In urban area only a few schools have school garden, conducting interviews or actions in local community are used very seldom, these are really new methods. Using the internet to research an issue and then prepare a report is hard for the students from rural area.

Organizing guided bus trips, excursions to the educational centres, or 1 day trips is complicated, is too much the bureaucracy: permission is needed from the County School Inspectorate. The request for this permission has to be submitted with 30 days before the start of the trip. The classes can apply basically in the week end, is too hard to change the whole school schedule during the week. This is different for the classes from primary school, who can go out of the school for 1 day/semester.

However each of the asked teachers consider important the outdoor activities, 70% of them go out in the nature monthly, 20% in each semester, 10% when they can. The outdoor activities are various: 60% organizing guided bus trips, 50 % visiting museums and nature reserves, or studying local wildlife, 40% using school garden as learning resource, 50% doing practical experiments/researches. All teachers from the elementary schools used to do practical experiments. They are aware (all the teachers) how important is for the students to be in nature, but is harder for the teachers.

### **LfN idea**

is described by the students like: is essential, interesting, good idea, important, “ yes, if we take it seriously, we have to take it as a good example”, “nature protect himself and always shows us how it can be done”.

Teachers find it as: Learning in the nature, observing the phenomena’s, living systems: to observe the plants, animals in their natural environment: “We must learn from the models of nature”, from experiences. The circular economy will be more efficient, we have to be aware about the consequences of the consumer’s society.

An important approach is to solve the crucial problems. The human kind learnt from nature during the history, is important to return to it. Is responsible for the future, has to recognize and to be flexible to /for the changes.

### **Needs, support (resource etc.);**

- Financial, moral support is needed for the schools to organize outdoors activities.
- Didactical materials (microscopes, identification guides, models, work-books etc.) are missing.
- The curriculum is very crowded, there is no enough time to go through it, experiences, researches need more time.
- Some teachers consider that there are no problems, limits; all is depending on the teacher how the programs, the activities organise.

## Conclusions about situation in general;

- In Romania publications, different tools are missing in the formal education institutions and the opinion of teacher is that is necessary for field trips.
- The teachers consider that is important to organize outdoor activities, to be in nature. In this way students learn more efficient. This kind of activities have to be planed, well prepared, the students as well. These need more time, energy from the teachers.
- The national curricula is overcrowded, is general and obligatory in the whole country. It would be need for more flexibility, to have time to introduce the local, regional special aspects, issues. The teachers discuss with the students about future, put them in different situation and guide them to think about alternatives to resolve the problems, to find out solutions.
- The nonformal education institutions are very young till, they have no wide experience about the educational activities, the tools are missing as well, the human resources have to get used with this kind of activities. However it can be a good educational opportunity for the future education. They should have a very important role, to be an alternative, to be complementary to existing system. Educational centres could be real learning arenas about/for/from nature.
- Good practices can be popularized: celebration of specific days, visiting protected areas, national parks, Green ways trips, etc.
- The students like to be in nature, for some of them is the only opportunity to be in real “scenes”.
- The influencers have the willingness to catalyze and to facilitate the processes and some solutions could come from the new Law of Education, so we can be optimistic.



## Bulgaria report summary

### Description of situation in the country:

#### *Target group:*

The baseline survey was conducted in Sofia, Bulgaria.

The teachers' questionnaires were completed and collected back from **18 teachers** from different schools. These were teachers of geography, man and nature, biology, physics, chemistry, Spanish, Bulgarian language and literature, physical education and art. Only teachers of Spanish and Bulgarian language and literature have indicated that LfN isn't suitable for their formal classes. All other state that LfN can be integrated into their subjects and to become part of the classes as LOtC activity.

**Four Focus Groups'** meetings with students were initiated. They were attended by a total of **50 students** (25 aged 11-12 and 25 aged 15-16).

Additional to that the questionnaire for students "Where do you like to study most" was filled in by a total of **95 students** (including the above 50), while the questionnaire "What is your favourite activity out of the classroom" was filled in by another **10 students**.

**One questionnaire** was collected from an influencer.

### METHODOLOGY

First step in the baseline research in Bulgaria was to adapt the questions baseline research framework developed by CES (Latvia) under WP2 (foundation, research and planning). The following channels for collection of information were initiated.

- Questionnaires were distributed to teachers and influencers. They filled the answers and the questionnaires were then collected back. The first page of questionnaires was a presentation of LfN.
- Interviews were conducted with teachers during conferences and personal meetings with the purpose of feeling the pulse of the educational community in connection to the LfN project.
- Focus Groups with organized with students (11-16 years old). The sessions were also open for teachers and some added additional information provoked by the answers of the students. The sessions were based on the 'now' & 'future' activity, where students are asked to define the world today, the world in 10, 20 years and to think what is needed to build the bridge from the present to their desired future baring in mind the environmental state of our planet.

All questions were grouped according to the target groups. The collected data was analysed with the idea to clarify the situation in Bulgaria, rather than testing for specific activities / educational content. The latter is, nevertheless, indicated in the analysis.

### SUMMARY

**Teachers** in Bulgaria understand and like the idea of Lessons from Nature (LfN). They know that examples from nature are a peculiar phenomenon and a model for interdisciplinary and practically oriented learning that can be part of any educational subject. All in all, teachers are keen to take students out in the nature and have practical lessons with them out of the classroom.

The teachers also well understand the importance of Learning outside the classroom (LOtC) for the physical and physiological equilibrium of their students. The overall

organization of these outings is, nevertheless, an administrative burden. What is more the lack of financial means and motivation within the teachers and students was also addressed. Furthermore, there isn't a uniform plan for organization of LOtC in the Bulgarian educational system. LOtC activities are compulsory requirement only for the primary schools leading to the conclusion that it is upon the school management if LOtC activities would be at all organized.

The overall opinion is that change in the educational system is required in order to stimulate and develop the practices for LOtC activities.

Bulgarian teachers also show devotion to their students and claim they their personal happiness depends on the success of their students. They are happy to discuss future with the students and are willing to use such didactic content. What is more, they see students are not prepared for an uncertain future. For them it is important that the children know and understand how the economy works; to understand the limitations of nature to provide services; to participate actively in class; to have good idea of what will be the future.

**Students** want to have a happy life and their happiness depend on normal things e.g. love, family, friends, peace, etc. Some also mention the availability of resources which shows that the environmental decline is not unknown to the students. Parallel to that appreciation of nature as an important factor to their happiness comes the need for ongoing change and the material possessions. They like technology and biodiversity but it is hard to tell if technology is a solution for or has destructive effect on the environment.

Another discussion was initiated around the question how much of what the future would be depends on us alone. A good part of the students felt this lies within themselves and a need to have an educational content that empowers them became a subject of discussion. The students want to know about the issues that are to determine their future!

On several occasions students addressed the issue with us being united and walking in the "right direction". Humanity has to have shared values otherwise nothing can be done. In particular, one student added: "the environmentally aware behaviour must be everywhere, by everyone"! As another obstacle to their desired future that pointed at the State (i.e. the politicians).

The question of how they see LfN as an approach to their desired future was difficult for the students to answer. All together they weren't sharing the same image for the future. One group was positive about it, while another was suggesting the (natural) world would be in a worse state compared to today. They expressed different opinions about what LfN content will be interesting to them. They wanted to know more about energy technologies, since they now hear about the latest inventions, e.g. airplane on solar energy, but they don't know how it functions. Students want to know about innovations in food production inspired by nature. They want to have lessons that create values and help them tackle the surrounding temptations.

**Influencers** say the education for the future should develop competencies in students for developing strategies, skills for long-term planning, critical thinking and responsible behaviour. In that sense it should be a compulsory part of the educational process. Unfortunately, there isn't a structure in the educational system where LOtC activities are imbedded as part of the national educational content requirements. And this is a task for the Ministry of Education.

It is the school management that decides to include them in the educational process or not. Securing the finances for such activities is also always difficult and therefore another obstacle to implement them.



A doubt was also expressed about the capacity of teachers, in general, to create and organize classes engaging with the up-to-date topics like climate change and the overall environmental decline and to include them in LOTC activities. To wrap up, the administrative burden for teachers to take students on trips, mentioned by the teachers, was also addressed.

## Netherland report summary

### Description of situation in the country:

#### Target group:

Interviews are with 8 teachers and 15 more students. The 4 teachers have been interviewed separately and the 4 have been interviewed as a group. The time available was 45 min per interview. They teach the subjects Biology, Geography, Citizenship en Art. The interviews focussed more on conditions etc. which they would like to see fulfilled in the Lessons from Nature. Its focussing more on the use than on the concept itself.

Students from two schools have been interviewed. Five students are from secondary school. They are 14 years old. The students have been interviewed in one group. Twelve students have been interviewed in two groups of six. These students are 16-17 years old. The time available for each group was one hour.

### Conclusions summary:

- Some of teachers find the concepts of Lessons from Nature interesting and think they will be able to integrate the LfN idea in their lessons. Teachers wonder if students may be interested in the subject. The teachers do agree that the subject itself is important and should receive some attention at school.
- In general all eight teachers state the following as demands: connection to the curriculum is vital; how to validate; how to evaluate; no complex organisational issues; no complex outdoor activities; combine different subjects; motivating and challenging for students; it had to be close to their own world, next door examples; give students a lot of freedom, only give a small design and let students develop the rest;
- The teachers find it important that students do not overuse their resources and help where they can with simple things. This includes simple things like correcting students when they throw waste on the ground, not to use five paper towels to dry your hands or putting glass in the correct bin. The common message of the teachers is Realization; think about what you are doing and why you are doing it. Talking with students about these subjects helps them to start thinking about this.
- Providing more information does not mean you will change students' behaviour but it might be possible that they remember part of what they have learned later on in their life.
- All teachers mention the yearly Environmental Education week in which all first year students are going on a cycling trip and do all sorts of small research like catching animals in the river and looking at earth profiles. The research is evaluated in a big drawing or painting.
- Outdoor education depends on the subject whether teachers go outside at this school. Students go outside 1-2 twice a year with the subjects Biology, Geography and Arts. Some classes are difficult to get under control and teachers feel less confident to take these students outside. All teachers think that it is very important that there has to be a specific goal to do an assignment outside. That is not always the case and teachers see that the impact of the lesson is not very great, besides that students like to be outside.
- In general choices for further education still are not very concrete. Some students have hardly considered yet, if an education will lead to a job combined with what the chances are on the labor market. Though specific jobs are mentioned, in general choices are made on "is this job fun" and can you earn enough money with it. It's interesting to learn that

only five out of seventeen students have set a concrete path for their near future. Most of them in fact still are trying to find out what they really would like to do.

- All students agree that their mobile and/or computer is the most important way to stay in touch with their peer group. It's interesting to learn that students have no idea about production of phones, components and how they may be influenced by advertising.
- During those lessons a fieldtrip (1/2 day) is planned once per year during the first two years of the school program. These trips are not valued very highly because of the tight program. The concept of sustainability is familiar, but asked if they could explain what a circular economy might mean, the concept appears less well-known. All students are prepared to do something for the environment or sustainability. The actions mentioned are recycling, cutting down on energy use etc.
- The students are concerned but they do not want to make big adjustments their life style, they don't want a windmill near their house or a transmission tower. They do want to pay extra money on cans (10 cents for instance, just like beer bottles).
- Some of students have a relationship with nature; they walk in nature, in the woods. Also mentioned are running, flying a kite, walking the dog, biking. They remark that nature is very close, but that there are always a lot of people walking there. The other students have no specific outings into nature. None of the students are involved actively or passively in organisations or activities on nature conservation.

### Some problems:

- The timetable is not flexible and 75 minutes is only a short period of time.
- Possibilities in project weeks, but the problem is that it is during the winter period.
- Contact with teachers of other subjects and difficulties to organize;
- Teachers do not have time to prepare new projects
- To leave the school premises you have to ask permission first. We need a more stimulating environment at the school premises. Adding a place where you can build campfires for instance.

### Ideas:

- Give 1 assignment during a project week and try to integrate as much subjects as possible. For instance: design your own house and garden. Combination of Arts, History, Biology, Physics, Maths and Economy.
- Try to change to mindset of students. For instance a project about waste at your school. Create posters with slogans like Do you know how long it takes before your chewing gum decays? One of the teachers is making compost in pet bottles with students (also a good example of Nature in the classroom).
- The lessons need to be complete for teachers; they do not have a lot of time to make adjustments themselves.
- Let students make contact with students from other countries (by email, they do not have webcams at school).
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\*In the Dutch school system students have a limited choice of subjects to choose from when to go to year 4. You can choose 4 directions: Nature and health, Nature and Science, Economy and Society and Culture and Society.