CODES SELECTED CASES OF SCHOOL-COMMUNITY COLLABORATION FOR SUSTAINABLE DEVELOPMENT

Lifelong Learning Programme

CoDeS
Schools and Communities - Working together on Sustainable Development

Imprint

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Introduction

This book is the result of a three year long collective work undertaken by the European Comenius Network CoDeS (School Community Collaboration for Sustainable Development) funded by the EU. The network constitutes of researchers, teacher educators, school teachers, environmental educators and policy makers involved in their own countries and communities in the development of collaborative processes between schools and communities to foster local sustainable development. This book belongs to a collection of books titled "CoDeS Tools for you". The aim of the books in the collection is to provide a variety of useful resources for those interested in promoting the collaboration between schools and communities for sustainable development.

The first part of the book includes the methodological tools used to promote case identification, reflection and writing among CoDeS network partners. The aim of this chapter is to provide tools and reflecting opportunities for networks interested into engaging in comparative international case study of school and community collaborations. In addition, this part also includes the results of a survey obtained through the comparison of 42 CoDeS cases taken from CoDeS Case Blog.

The survey aims at identifying theoretical and methodological perspectives on social learning and community development in ESD from an international stand point that incorporate a critical and reflective outlook at the traditional literature on case writing in this area. In doing so, this part of the book aims at providing theoretical tools to overcome the prescriptive and theoretical nature of much comparative case writing in ESD.

The second part of the book includes selected case studies on school community collaboration for sustainable development authored by the actors involved in the cases. These chapters are representative of a diversity of countries, geographies, schools, actors, and communities illuminating different key issues on school community collaboration. The cases are the result of authors' process of becoming critical so that the writing emphasizes the processes over the results of the school community collaboration, the multiple perspectives of actors involved over the neutral grand narrative and finally the tensions that underlie the dynamics of school community collaboration in SD today. More CoDeS cases can be found in CoDeS homepage and in the CoDeSCases Blog (www.codescaseblog.wordpress.com).

PART ONE:

Case Study Methodology for ESD School Community Collaborative Networks

CoDeS methodological proposal for case study inquiry in ESD international networks

Mariona Espinet, Departament de Didàctica de la Matemàtica i de les Ciències Experimentals, Universitat Autònoma de Barcelona, Catalonia, Spain

1. Introduction

CoDeS is a network that includes a group of experts in the field of ESD who have direct experience in the development of School Community Collaboration in ESD or SD. They all bring to the network strong backgrounds based on their particular fields of experience such as teacher education, NGO, research, policy making, educational administration and school teaching. In addition they all feel that the background experience is big enough to be given international visibility as well as serve as the baseline for collective reflection. This reflection is important and will facilitate the building of a common framework from which to agree on a set of quality criteria for School Community Collaboration for ESD as well as a set of guidelines for successful practice and policy recommendations.

The purpose of this chapter is to present a detailed and justified description of the case study methodology developed by CoDeS network. This methodology is considered to be an inquiry process undertaken by CoDeS partners that served for identifying, writing, analysing, reflecting and disseminating contextually relevant cases from the point of view of practitioners. The chapter provides a justification of case study methodology in international ESD projects, presents a model of case study inquiry, and disseminates the strategies used within CoDeS network to scaffold partners in the building of CoDeS cases.

2. Case Study methodology as a way to work in ESD

CoDeS is a network supported by ENSI which has a long history of innovative work in EE and ESD and school development. The projects and programmes supported by ENSI have always been the result of the exchanges between different stakeholders and their own institutions at the international level such as universities, schools, local administrations, policy makers, NGOs, and international institutions such as UNESCO and OECD. This context which is diverse in terms of stakeholders, cultural backgrounds and countries, demands methodologies that respect this diversity, acknowledges it and offers it for theoretical advancement and international understanding on education for sustainable development.

To now, case study methodologies have been proven to be the best ones to reach such aims. CoDeS acknowledges the comparative case study work previously done by ENSI (Kyburz-Graber et al., 2007; Espinet et al., 2005) and their supported networks such as SEED (Mogensen, Mayer, 2006) and SUPPORT (Czippan et al., 2010; Gerloff-Gasser et al., 2007) and also by international organizations such as OECD/CERI (2000, 2009) and UNESCO (2004). In most of these works, case study is understood as a research methodology that is particularistic, descriptive and heuristic (Merriam 1998). Case studies can either be developed by the outsiders such as researchers or evaluators, or by the insiders of social situations such as teachers, teacher educators, of local administrators. In addition case studies' methodologies might be oriented by different research paradigms and might use different research techniques.

Many educational scholars aligned with the action research approach to educational change have argued for many years that case study methodologies have contributed to practitioners change by improving their normative and technical reasoning as well as their understanding on the situation they work on. However, some scholars have more recently raised their voice to confront the value of case study methodology within the field of sustainability in general and more specifically in higher education (Corcoran, Walker and Wals, 2004). These authors argue that case study research has felt short in its promise of sustainability change due to the lack of theorizing on the research methodology or an understanding on how this methodology works.

CoDeS case study methodology aligns itself with the general approach to educational change advocated by the action research tradition, although it takes into consideration the criticism set by Corcoran, Walker and Wals (2004) in relation to the transformative potential of case study methodology. These authors identify four tensions or dichotomies that need to be confronted when undertaking case study research:

a) *Internal/External case study tension:* CoDeS case study methodology will be developed to include the internal goals of the network partners as well as provide case studies useful for CoDeS external actors.
b) *Inter/Single case study tension:* CoDeS case study methodology will be developed to be able to undertake a comparative analysis among different cases.
c) *Instrumental/Emancipatory use tension:* CoDeS case study methodology will be developed as a collective process of reflection by using the tools provided by

Comenius networks. Scaffolding network partners' case study inquiry will be the essential core of the case study methodology.
d) *Good/Bad practice tension:* CoDeS case study methodology will not strongly support that their cases are the best cases according to external criteria, but that they constitute the most relevant and exemplary cases that CoDeS partners have at hand.

3. CoDeS proposal for case study inquiry
CoDeS has adopted a set of goals, among others, which are related to the development of case studies on school community collaboration for sustainable development from an international perspective. These goals include on one hand the improvement of school community collaboration for SD in the local situations of CoDeS partners. On the other hand they also include the improvement of school community collaboration for SD of potential outsiders who might be influenced by the dynamics and the products of CoDeS. This dual nature of CoDeS goals call for a case study methodology which influences both CoDeS partners and outsider practitioners in different geographical and political locations.

The specific goals of CoDeS case study inquiry have been the following:

a) Indentify **exemplary cases** of school community collaboration for sustainable development in each partner country;
b) **Collect information, analyse, reflect and write** cases on school community collaboration for sustainable development that can be accessible to outsiders;
c) Develop a set of **quality criteria** for school community collaboration for sustainable development based on the collected cases;
d) Develop a **set of tools** for school community collaboration for sustainable development that can be tested in the network activities and used by outsiders.

Most of the international projects that have aimed at collecting case studies have designed to work with only one type of case studies. The recent project ILE (Innovative Learning environments) (OECD/CERI 2009), however, has developed an interesting methodology based on the distinction between three different levels of case studies.

Taking this idea into consideration, the methodological proposal for CoDeS case study inquiry has been to define two levels of case study as products of the network: the "CoDeS Case Universe", and the "CoDeS 360° reflective Cases". Both types of

cases have been identified, collected, analysed and written in a different way so that they better serve the needs of a wider community and also they better adjust to the differences of partners' participation. Finally these two types of cases have served as background sources for the development of the "Tools for You" a group of CoDeS tools targeted to different practitioners aiming at improving their school community collaboration for SD (Figure 1).

Both types of case studies were developed within the regular activities of the network and were scaffolded so that all partners were able to participate at different times along the development of the multilateral network. What follows is a description of each type of CoDeS case study (CoDeS Case Universe and CoDeS 360 Reflective Case) and the processes designed within the network to build them.
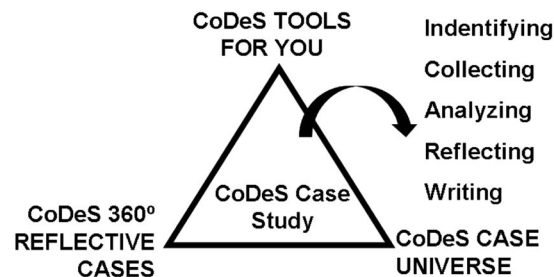
Figure1: CoDeS proposal for case study inquiry

4. Building "CoDeS Case Universe"

CoDeS Case Universe is a collection of **exemplary case studies** which represent the world of best experience of CoDeS partners on school community collaboration in SD. This collaboration might range from a single activity to a project or a programme. The exemplary case studies are close to the partner, can be investigated in more depth by the partner and are valued by the individual partner, the community involved or the country.

The methodology followed to help CoDeS partners build CoDeS Case Universe was implemented during the initial network meetings through specific workshops which focused on scaffolding partners' work, encouraged reflection and led to decisions based on collective negotiation. The same methodology was followed later on within the network activities. The phases of this work included the following:

(a) Phase 1: Identifying cases for CoDeS Case Universe; (b) Phase 2: Collecting information on cases; and (c) Phase 3: Writing and disseminating CoDeS case universe.

Phase 1: Identifying CoDeS Case Universe

The identification of the CoDes Case Universe took place during the initial meetings of the consortium partners. Each CoDeS individual partner was asked to identify at least **2 cases** eligible for the CoDeS Case Universe. The workshops organized during the meetings of this phase, gave the partners the opportunity to discuss with their peers and reflect upon the cases they brought forward and within this process identify potential cases. The identification of the cases was supported by the use of specific tools such as **CoDeS Case Identification Template** (Table 1). This work was communicated to all workshop participants so that a first map of the case universe was available to CoDeS partners.

CoDeS Case Identification Template (To be filled by each partner individually)	
Title of the Collaboration:	
Country:	**SD field:**
Community:	**Community Actors involved:**
Schools:	**Educational Actors involved:**
Two strengths:	
Two weaknesses or constraints:	
Name of the partner and role in the case:	

Table 1: CoDeS Case Identification Template

This first map was used to start a reflection on the meaning of community and collaboration based on the background experience reflected in the first identified cases. The materials created by partners in these first network meetings constituted a first tentative draft from which to start the building of CoDeS Case Universe along the first year of the network.

Phase 2: Collecting information of CoDeS Case Universe
Each individual CoDeS partner was invited to reflect on the type and amount of information that would be necessary to collect in order to write a case for CoDeS Case Universe. During the first network meetings network partners were provided with the **CoDeS Case Survey Template** (Table 2). Partners were invited to engage into group work to collaboratively build the criteria for collecting information on the cases according the following questions:

a) **Description of SD field:** What important information on the SD issue should be provided?
b) **Description of the school:** What important information on the school should be provided and how?
c) **Description of the community:** What important information on the community should be provided and how?
d) **Description of the collaboration:** What important information on the collaboration between the school and the community for SD should be provided and how?
e) **Description of the value of the collaboration:** What important information on the value, the successes, the failures, the constraints, etc. of collaboration between the school and the community should be provided and how?
f) **Description of some tools:** What important information on the tools used to make school community collaboration for SD should be provided and how?
g) **Other headings or questions:** What additional headings or categories would you consider important to be included?

The information collected through this instrument based on partners' personal opinion constituted the basis to start writing their cases and to prepare their presentation for CoDeS conferences.

CoDeS Case Survey Template (To be filled by group work members)
Group Work Members:
1. Title: (What is in your opinion important to say in a title of such type of case?)
2. Description of SD field: (What is in your opinion important to say on the SD issue?
3. Description of the school: (What is in your opinion important to tell about the school and how?)
4. Description of the community: (What is in your opinion important to tell about the community and how?)
5. Description of the collaboration: (What is in your opinion important to tell about the collaboration between the school and the community on SD and how?)
6. Description of the value of the collaboration: (What is in your opinion important to tell about the value, the successes, the failures, the constraints, etc. of collaboration between the school and the community on SD and how?)
7. Description of some tools: (What is in your opinion important to tell about the tools used to make School Community Collaboration for ESD happen and how?)
8. Other headings or questions: (What other headings or categories would you consider important to include ?)

Table 2: CoDeS Case Survey Template

Phase 3: Writing and disseminating CoDeS Case Universe
CoDeS Case Universe written by partners where disseminated through two types of activities: poster presentations during the network conferences and uploading of the case into the **CoDeS Cases Blog** (www.codescases.wordpress.com). The use of blogs in the field of education is constantly growing. The blogs have been heralded as the new guardians of democracy, a revolutionary form of bottom-up news

production, and a new way of constructing identity and community in late modern times (Hookway 2008). The blogs can be used in education to comment other people's blogs, as a personal diary, and as a knowledge exchange platform.

This last use is the most extensive in the field of education (Wee Sing, Foon Hew, 2010). Research studies in the field of business, however, indicate that the use of social software such as blogs and wikis improve the communication competencies of organizations as well as contributes to the breaking down of their traditional organizational hierarchies (Payne, 2008). Given the positive effects in the development of communicative competences among people within organizations and the role blogs can have in building communities we decided to use blogs instead of books to collect the written cases for CoDeS Case Universe.

We considered building a blog to be a useful and flexible platform for the uploading of CoDeS Cases. This social software, the blog, would facilitate the access of the cases to all CoDeS partners as well as outsiders interested in the cases. Most importantly it facilitated the authors' access to their case so that they could modify the content, and expand on the short description of the paper format. In Annex 4 and 5 we have included the list of all CoDeS cases with the authors' contact relevant information and related links. This list is open since CoDeS Case Universe is an ongoing process disseminated through an open platform.

5. Building "CoDeS 360° Reflective Cases"

CoDeS Case Universe constituted the starting point of a reflection that would provide CoDeS partners with a deeper understanding of School Community Collaboration for SD. In depth scrutinisation of a smaller number of specifically selected cases was needed in order to engage into a more focused work and a collective reflection within CoDeS network. CoDeS 360° Reflective Cases constitute a selection of **6-12 cases** identified by the network partners along the network activities. The methodology developed within the CoDeS network to scaffold partner's building of CoDeS 360° reflective cases had the following phases: (a) Phase 4: Identifying cases for CoDeS 360° Reflective Case; (b) Phase 5: Collecting information on CoDeS 360° Reflective Cases; (c) Phase 6: Reflecting and Analyzing CoDeS 360° Reflective Cases; and (d) Phase 7: Writing and Disseminating CoDeS 360° Reflective Cases.

Phase 4: Identifying CoDeS 360° Reflective Cases

CoDeS 360° Reflective Cases were identified as a result of partners' decisions during network meetings. It was considered very important, though, that CoDeS partners offered themselves as authors of reflective cases and felt self motivated and confi-

dent of doing this task. Finally 12 cases were identified and formed part of the CoDeS 360° reflective cases based on the following criteria:

a) CoDeS partner and other case actors show readiness to collective and public scrutiny within CoDeS network activities;
b) CoDeS partner shows willingness to write an academic text on the case;
c) The multiple perspectives of the case actors can be documented;
d) The case is complex enough so that social processes, dilemmas and conflicts can be identified among case actors;
e) The collaboration between the school and the community shows interesting, innovative or relevant characteristics;
f) The SD field is highly relevant at a local as well as global level.

Phase 5: Collecting Information of CoDeS 360° Reflective Cases

The collection of information and documentation of the twelve CoDeS 360° Reflective Cases was oriented through the tool named **CoDeS 360° Reflective Cases Template** (Table 3). The emphasis of the collection of information stressed the diversity and conflict of actors' view points on one hand and on the other the articulation of actors' interrelation to build joint activities for school community collaboration in SD. These 12 reflective cases were the result of a rewriting process of a previous cases included in the CoDeS Case Universe.

The guidelines developed in the template were developed through a compilation of recommendations on how to develop further the case presented in CoDeS Case Blog to become a 360° CoDeS Reflective Case. The cases included in the CoDeS Case Universe were oriented towards a more general audience, were informative in nature, and were written in sections so that they could fit the structure of a blog format. The cases included in the CoDeS 360° Reflective Cases collection needed to be written with a narrative style, be developed in more length, and finally needed to add some more in depth layers of meaning. Several suggestions were provided to case authors on how to transform the blog case into a more reflective one:

- **Views diversity:** Different views of stakeholders should be clearly identified within the case narrative. Provide information and data on those views such as vignettes, transcriptions, drawings, pictures, minivideos, etc..
- **In depth documentation:** Provide documentation such as transcript, tables, pictures that can illustrate and support your points.
- **Process orientation:** Provide descriptions that tell stories that are temporal. This means that the story is process oriented and that includes changes over time.

- **Critical orientation:** Provide descriptions that tend to avoid neutral or only success stories. The in depth case presentation should be more critical and should identify tensions and problems in addition to successes.
- **Freedom for the writing of section titles:** Please, feel free to title the sections with attractive titles and avoid following the standard titles included in the guidelines.
- **References to other people's work:** Please, include some references to support your work. It does not need to be long but just appropriate.

Phase 6: Reflecting and Analyzing CoDeS 360° Reflective Cases

CoDeS used the network conferences to create learning environments and to engage into case reflection and analysis. For instance, the CoDeS first conference held in Vienna, Austria in 2012 was an open conference where a diversity of actors which had participated in CoDeS cases and other actors interested in the network theme got together. The conference was organized around different workshops to reflect and analyse one particular CoDeS 360° reflective case.

Two types of workshops were designed to facilitate case reflection and analysis among conference participants: (a) Workshop 1 on "The challenges and lessons of school community collaboration for SD/ESD"; and (b) Workshop 2 on "The role of different stakeholders in initiating and sustaining school community collaboration for SD/ESD".

Workshop 1 on "The challenges and lessons of school community collaboration for SD/ESD"

Workshop 1 was organized around the in depth presentation of one particular case of school community collaboration for SD/ESD so that an *"appreciation of the challenges posed by the school and community collaboration for SD/ESD to different stakeholders and the lessons learned to the moment"* could be collaboratively built. Twelve workshops were run in parallel around on particular CoDeS 360° reflective case.

Each workshop constituted of two parts: Part 1: How can we understand this particular case better? and Part 2: What challenges/learning does school community collaboration for SD/ESD have? In the first part the case authors provided an initial background of the case so that all participants could interact to understand that particular case better. The questions provided to participants to initiate case reflection during the first part of the workshop were the following:

- What does the case say? What other information is needed for a better understanding of the case?
- What are the perspectives of different stakeholders? What other information is needed to understand stakeholders' perspectives?

In the second part of the workshop participants engaged into an interactive activity of experiences exchange which helped them learn about the case and identify the main challenges of school community collaboration for SD/ESD. The questions that guided this reflective interaction during the second part of the workshop were the following:

- What tensions drove changes in this case?
- What challenges were the different stakeholders facing in this particular case?
- What other challenges can we identify from participants' own experiences which were relevant to this case?

Workshop 2 on "The role of different stakeholders in initiating and sustaining school community collaboration for SD/ESD"

Workshop 2 was organized around the reflection on the role of different stakeholders in the development of CoDeS 360° reflective cases. Building SD/ESD communities where schools are central institutions is a complex process that needs the engagement of community actors who work and act in different ways. Changes in the way stakeholders work and act, in the way they relate meaningfully with other actors, and finally in the conditions they participate in the community are necessary. Workshop 2 aimed at focusing on only one relevant stakeholder type such as the university, the schools, the local administration, NGOs, and the community business/producers.

The working process started with a short presentation from the presenter who focused on the main issues of the role of this particular stakeholder in initiating and sustaining school community collaboration for SD/ESD in a particular CoDeS 360° reflective case. A discussion led by the facilitator and the presenter followed the short presentation with the help of the following questions:

- In what ways does this particular stakeholder contribute to the collaboration between school and community for SD/ESD?
- What changes in the way this particular stakeholder works and acts would be needed to better contribute to successful school community collaboration?
- What demands would this particular stakeholder put on other community

key actors to facilitate changes in the way they work and act? (Write a message to another stakeholder group with the specific request).

- What resources would this particular stakeholder need to make those changes, in the way they work and act, possible?

Phase 7: Writing and Disseminating CoDeS 360° Reflective Cases.

CoDeS network facilitated and scaffolded partners' process of writing CoDeS 360° reflective cases. In fact, it offered opportunities to communicate the cases in different network's events and events outside the network itself such as professional national and international conferences on education, environmental education and science education. In the second part of this book ten of the CoDeS 360° reflective cases have been included in its final written form. The purposes of writing and disseminating the reflective cases were both internal and external to the network. The internal purpose focused on providing background information and ideas for the network partners responsible of developing specific tools for school community collaboration included in CoDeS Tools for You. The external purpose dealt with the need to disseminate in depth reflections on cases to other communities and stakeholders interested in school community collaboration for sustainable development.

6. Conclusions

Reflecting in education for sustainable development networks is not an easy activity. It draws from the competencies of the network partners with respect for their ideas, motivation to learn from others, tolerance for ambiguity, patience in the development of joint ideas and visions, flexibility in the application of methods and procedures, and finally value of different cultures as a whole.

Networks funded by EU usually work in a span of time of three years. During this time partners need to develop many tools, ideas and methods for working together. Given the diversity of partners, this is quite a difficult task to accomplish. In the field of networking for sustainable development and education for sustainable development we need tools that facilitate the international work for constructing knowledge, values and actions and enable the bridging of the differences. This chapter emerged as a result of three years' work within the CoDeS Comenius Network and intends to become one of these tools. It provides, among many other methodological approaches, the pathway to case study reflection and learning from school community collaboration for SD. In doing so we would like to acknowledge the value of the sites, places and communities presented in this book, in the collective effort for building a more sustainable future through the collaboration between school and communities worldwide.

CoDeS 360° Reflective Case Writing Template
(To be filled in by authors of the case study)
0. Authors name, institution name & logo, country, e-mail, and web page   Authors information: Please provide all necessary information on the authors so that later contact is easy.
1.Title: **Characteristics:** Find a title that is inspiring, meaningful and not too difficult to translate.   **A challenge:** It is suggested that the title reflects one of the core challenges faced by the case.
2. Abstract: Provide a maximum 100 words abstract that summarizes the case.
3. Focus and aim of the collaboration (You can rewrite this section title):   **Aim of the collaboration:** What is the collaboration aiming at?   **Focus for collaboration:** What is the collaboration about?   **Contribution to SD:** What aspects of SD are addressed? (ecological, social, economical, etc.)   **Contribution to learning in ESD:** What type of learning environment was created?   **Negotiation of the focus:** How has the focus been negotiated? Has it changed? What conflicts are explicit or implicit about the focus of collaboration?
4. Description of the school/s (You can rewrite this section title):   **Type:** Type of educational institution (public/private)   Place: Localization   **Size:** Size of the school(s)/ number of students, teachers, and other actors   **Role:** Role within the collaboration   **Vision:** What is the vision of the school(s) in relation to ESD?   **Profile:** What particular characteristics do(es) the school(s) have?   **Stakeholders:** What stakeholders from the school are involved in the collaboration? What conflicts does each type of school stakeholder experience within the collaboration?
5. Description of the community (You can rewrite this section title):   **Context:** What are the geographical, social, economical and ecological dimensions of this community?   **Profile:** What are the particular characteristics of the community?   **Stakeholders:** Who is involved in the collaboration from the community? What conflicts does each type of community stakeholder experience?

5. Description of the collaboration (You can rewrite this section title):

Instigators: What stakeholders initiated the collaboration? In what ways?
Key actors: What key actors are involved in the collaboration? In what ways?
Vision: What SD and ESD values provide direction to the collaboration?
Methods: What processes, methods and rules have been used for collaboration?
Characteristics of authentic collaboration: In what ways do you think the collaboration is authentic?
Time: How long is/has the collaboration been?
Sustainability: What factors have contributed to the sustainability of the collaboration?
Monitoring and evaluation: What strategies are being used to monitor and evaluate the collaboration?
Funding: What are the financial aspects of the collaboration?
Science learning: How does the collaboration promote science learning?
Change: How has the collaboration changed during its existence? How can you explain the changes of this collaboration?

6. Description of some tools (Optional):

Type: What type of tools has been used throughout the collaboration?
Function: What is the purpose of the tool in the collaboration?
Stakeholders: What specific tools are best suited for each actor in the case?
Value: What difficulties have actors experienced when using the different tools for collaboration?

7. Description of the value of the collaboration (You can rewrite this section title):

Strengths: What are the strengths of the established collaboration?
Barriers: What factors have acted as barriers to a successful collaboration?
Impact: What impact is the collaboration having on the community, the school, other actors, etc?
Learning: What have you learned so far from the collaboration?
Added value: What is the added value of the collaboration?

8. Key words:

Key words: Find five key words that best describe your case

9. References:

Please, insert a list of references cited in the text following the APA style.

Table 3: CoDeS 360° Reflective Case Template

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CoDeS Case Survey: A comparative analysis of CoDeS cases on school community collaboration for sustainable development

Mariona Espinet and Melani Márquez, Departament de Didàctica de la Matemàtica i de les Ciències Experimentals, Universitat Autònoma de Barcelona, Catalonia, Spain

1. Introduction

CoDeS is an EU-funded network formed by a group of European experts in Education for Sustainable Development (ESD). The global aim of the network is to share and disseminate experiences and knowledge on the collaboration of schools and communities for ESD or Sustainable Development (SD). The people forming part of the network are from the field of teacher training, NGOs, local authorities, schools and research. One of CoDeS network's aims is to compile and analyse a variety of case studies of the collaboration of schools and communities for ESD or SD at an international level in order to create a space for reflection and to learn from them.

According to the CoDeS case study inquiry methodology developed in chapter 1 of this book, CoDeS created a learning environment where all network partners were able to engage into case study inquiry. In doing so they were encouraged through the network activities to identify relevant cases, collect information to document the cases, engage into analysis and reflection on the cases with network partners as well as outsiders, and write cases for dissemination in different formats such as posters at CoDeS conferences, book chapters on CoDeS Tools for You, blogs in CoDeS Cases Blog, and communication in professional national and international conferences.

The CoDeS case survey included in this chapter is a comparative analysis of the 40 cases collected by CoDeS partners and external colleagues who participated in CoDeS activities between 2012 and 2014. The sample includes 28 cases which are examples of CoDeS case universe as well as 12 CoDeS 360° reflective cases (Annex 1 and 2). The cases were written in different formats such as posters, blogs or papers and the comparative analysis took into consideration the following dimensions of the collaboration: approach and SD focus of the collaboration, schools and communities involved in the collaboration, type of collaboration and finally the value of the school community collaboration. The analysis undertaken was both quantitative

and qualitative with the aim of drawing a global picture of the most relevant characteristics of CoDeS cases in relation to the collaboration between schools and communities for sustainable development.

2. Objectives
The objectives of the comparative analysis of CoDeS cases are the following:

- To perform an analysis of all the CoDeS case studies in accordance with the guidelines set out in the document "Guidelines for Conference Preparation addressed to CoDeS partners. CoDeS Conference, May 1-3, 2012, Kardinal König Haus, 1130 Vienna".
- To identify key characteristics of the case studies so that similarities and differences can be drawn taking into account the specifics of the situated cases on school community collaboration for SD such as:
    - The geographical location of the cases
    - The approach, focus and objectives of the collaborative case
    - The type of school involved in the collaboration
    - The type of communities involved in the collaboration
    - The characteristics of the collaboration
    - The value of the school community collaboration for sustainable development
- To draw preliminary conclusions about important aspects for the success of the collaboration of schools and communities for ESD or SD that could prove useful to other network partners when it comes to developing products and processes.

3. Methodology for the comparative analysis of CoDeS cases
This section describes the methodology used to undertake the comparative analysis of the 40 CoDeS cases. The methodology was constituted by five phases (Figure 1). What follows is a description of data analysed, the criteria applied and the analysis tools used to undertake the comparative analysis.
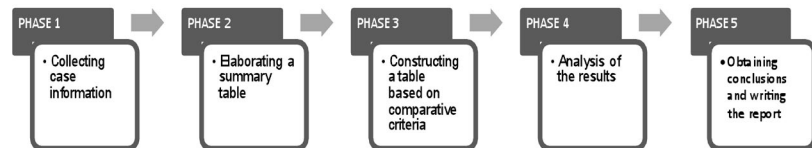
Figure 2. Phases of the methodology used for the Comparative Analysis

In order to begin the analysis work, the generated data were collected from posters, articles, blogs and reports. This enabled a summary table to be produced, containing a selection of all the relevant data by case study type ("CoDeS Case Universe" or "CoDeS 360° Reflective Case") and by guidelines set out: author, country, approach, community type, school type, collaboration type, value, tools and keywords (Figure 3). Two additional tables were produced from this summary table: one listing all the case studies by country (see Annex 1), and another listing all the case studies by case number (see Annex 2).

Figure3. Example of a summary table for Phase 2

After organising all the data, several quantitative tables were produced for each aspect analysed, namely approach, school, community and collaboration. In some cases, relative percentage (%) was calculated in order to identify the importance of each aspect in comparison to all aspects as a whole.

The questions that guided the analysis and have been used to organize the results are the following:

a) **Geographical diversity:** What was the geographical location of the case studies?
b) **Openness of collaboration focus:** What were the approach, focus and objectives of the collaboration developed in the case studies?
c) **Schools diversity:** What schools participated in the case studies?
d) **Diversity of communities:** What type of communities were involved in the collaboration?
e) **Collaboration characteristics:** What were the main characteristics of the collaboration?
f) **Collaboration value:** What was the value of the school community collaboration?

The following section contains all the results from which data were obtained and on which the analysis was performed. The most significant conclusions drawn from the entire report are shown in the final section.

4. Results

4.1. What was the geographical location of the case studies?

The 40 case studies included in this comparative analysis were undertaken in 18 different countries (Table 1). The majority of case studies, 37, were undertaken in Europe (8 in Italy, 6 in Catalonia, 5 in Austria, 3 in Greece, 2 in Finland, 2 in Hungary, 2 in Norway, 2 in the United Kingdom, 1 in Belgium, 1 in Cyprus, 1 in Germany, 1 in the Netherlands, 1 in Romania, 1 in Slovenia and 1 in Switzerland) and 3 in other parts of the world (1 in Brazil, 1 in Malaysia, and 1 in South Korea).

Country	Italy	Catalonia	Austria	Greece	Finland	Hungary	Norway	United Kingdom	Belgium	Cyprus	Germany	Netherlands	Romania	Slovenia	Switzerland	Brazil	Malaysia	South Korea	Total
No.	8	6	5	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	40

Table 4. Number of CoDeS selected cases by country

The case studies were classified as European and non-European. The European ones were further classified by area: Northern Europe, Central Europe and Southern Europe. The case sample of this comparative case analysis shows a balance between north and south Europe since almost half of the case studies came from Southern Europe whereas more than half of the case studies were undertaken in Central and Northern Europe (Figure 3). We found that 18 of the case studies were undertaken in Southern Europe, 11 in Central Europe, 8 in Northern Europe and just 3 outside Europe (Table 2). It can then be concluded that CoDeS case studies show a balance between the inclusion of Northern and Southern European perspectives and open the universe to other non European countries.

Percentage of CoDeS case studies
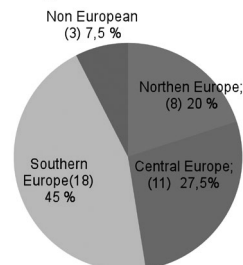
Figure 4. Percentage of CoDeS selected case studies by geographical location (%) N=40

4.2. What were the approach, focus and objectives of the collaboration developed in the case studies?

This question was based on the initial interest to know the specific collaboration focus reflected in CoDeS selected case studies. However, this was not a simple thing to do since once we compared the focus we realized that there was a rich variety of intentions made explicit at different levels. In order to capture the richness we decided to differentiate between the collaboration approach, the focus of the collaboration and the specific objectives set by the case study. In order to obtain the quantitative data, the frequencies of the approach and the focus were calculated to provide an idea of which ones were the most common. The objectives were considered to be closely linked to each case study's approach.

Regarding the types of approach, differences were found among the case studies as shown in Figure 4: some addressed and focused more on SD aspects (economic, social and environmental), while others had a more general approach. According to the analysis performed, case studies with environmental (50%) or general approaches (27.5%) prevailed. However, we also found that certain studies focused more on social aspects (17.5%) and, to a lesser extent, solely on economic aspects (5%).

Collaboration Approaches (%)
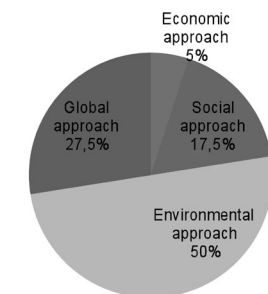
Figure 5. Collaboration SD approaches of CoDeS selected case studies (%) N=40

An analysis was then performed for the environmental, economic, social and general approaches of each case study's focus and objectives. It should be noted that an attempt was made to classify the case studies by focus and objectives, and some examples are given to indicate those that were considered.

- What were the focus and objectives of the cases having a SD Economic approach to the collaboration?

Only 5% of the case studies took an economic approach for their school community collaboration. In this instance, two case studies fell within a single classification by focus, which we called "promotion of local products": An initiative of ESD on grain between myth and sustainability (Italy), the main objective of which was to create networks between the school and the town council to sell products, and TECHNO-LIPSI LIPSI: Promoting products - Promoting local food products School and community create together their future in a small Greek island (Greece), the idea of which was to place importance on traditional local products.

ECONOMIC APPROACH Focused on improving the local economy, providing incentives for local products, etc. (5%, N = 2)			
Focus	Percentages and Number of cases	Objectives	Examples
Promotion of local products	5% (N=2)	Create networks between the school and the city to market products	A initiative of ESD on grain between myth and sustainability (Itàlia)
		Giving importance to the local traditional products	TECHNO-LIPSI LIPSI: Promoting products - Promoting local food products School and community create together their future in a small Greek island (Grècia)

Table 5: Focus and Objectives of CoDeS case studies addressing an SD Economic Approach to school community collaboration

- What were the focus and objectives of the cases having a SD Social Approach to the collaboration?

Some 17% of the case studies took a social approach (7 case studies) for their school community collaboration (Table 4). In this instance, the case studies fell within one of several classifications by focus (each with different objectives): democracy and participation, rural population drift, social inclusion, participation in land use planning and cultural heritage.

SOCIAL APPROACH Focused on democracy and participation, rural population drift, social inclusion, participation in land use planning, cultural heritage, etc. (17,5%, N = 7)			
Focus	Percentages & Number of cases	Objectives	Examples
Democracy and participation	5% (N=2)	Strengthen relationships between the school council, build relationships and encourage participation.	Meeting of the class representatives in the towhall of Dornbirn (Austria)
			Strengthening relationships in the community TP to recognize, confront and solve environmental conflicts related to the oil and gas industry (Brazil)
Rural population drift	2,5% (N=1)	Create a network and work identity and openness to the conscience of Europe	Small municipalities, small schools, working together for a sustainable future (Italy)
Social inclusion	5% (N=2)	Encourage a culture of co-existence under the inclusive values	The Wiener Neudorf Inclusion Project: Collaboration between educational institutions and municipality for sustainable development (Austria)
		Learn jointly between seniors residence and school students	The history of the small grumble „Der kleine Muck" (Switzerland)
Participation in land use planning	2,5% (N=1)	Ensure the views of young people in local planning	Children's tracks-collaboration between schools and local authorities for sustainable land use planning (Norway)
Cultural heritage	2,5% (N=1)	Create a network of cooperation for the recovery of cultural heritage	How houses can build bridges: perspectives of school-community collaboration for SD on creating inclusive and empowering learning areas (Hungary)

Table 6: Focus and Objectives of CoDeS case studies addressing a SD Social Approach to school community collaboration

- What were the focus and objectives of the cases having a SD Environmental Approach to the collaboration?

As expected, 50% of the case studies took an environmental approach (20 case studies). Depending on the topic covered, the case studies fell within one of several classifications by focus: agroecology, biodiversity, conservation, energy consumption and climate change, water management, waste management and weather (See Table 5).

ENVIRONMENTAL APPROACH Focused on agroecology, biodiversity, conservation, climate change and energy consumption, water management, waste management, and weather (50%, N = 20)			
Focus	**Percentages & Number of cases**	**Objectives**	**Examples**
Agroecology	12,5% (N=5)	Create a network of agricultural areas schools	School Agroecology as a motor for community and land transformations: The collaboration between local administration and university to promote ES school networks (Catalonia, Spain)
		Encourage educational work to incentive a organic farming	Tending the school vegetable garden and promoting it locally (Slovenia)
		Transforming the school yard in pleasant surroundings	The green school yard (Romania)
		Promote community participation (teachers, students, families and neighbors) in school projects	Promoting community involvement through the participation between local administration and university to promote ES school networks (Catalonia, Spain)
Biodiversity	7,5% (N=3)	Learn to recognize the native vegetation	Biodiversity farming (Italy)
		Report of the evolution of the flora and values	Flora: Revealing our natural capital (Greece)
		Learn to use biodiversity sustainable	Learning from the local and global collaboration of a leading edge rural environmental school for EE (Finland)
Conservation	5% (N=2)	Sensitize students to realize the importance of environmental protection and PN	National Park and School Collaboration: A long term partnership in an Austrian alpine region (Austria)
			School Forest, Center of the Local Community: Focusing on Seongnam Hyeeun School having partnerships with a school, a civic group and local government (South Korea)
Energy consumption and Climate Change	15% (N=6)	Rehabilitate schools to improve energy efficiency	School-community collaboration for the engagement of pupils, teachers and governors in the science, engineering and technology of "carbon neutral" schools (United Kingdom)
		Encourage the use of alternative transportation. Affect in consumer habits	Bike It (United Kingdom)
		Promote renewable energy	Generation Dialog & Plus Solar Initiative (Austria)
Water management	5% (N=2)	Work on action research and the importance of environmental and social water management	Spring to spring. We learn from water (Catalonia, Spain)
Waste management	2,5%(N=1)	Recover organic waste as a resource and biofertilitzant to prevent waste from ending up in landfill.	School-university collaboration in waste to resource management acknowledgement (Malaysia)
Meteorology	2,5%(N=1)	Developing a game to encourage young people to pray in an active social challenges related to weather events	Extreme Weather (Norway)

Table 7: Focus and Objectives of CoDeS case studies addressing a SD Environmental Approach to school community collaboration

• What were the focus and objectives of the cases having an ESD General Approach to the collaboration?

Finally, a relatively high 27.5% of the case studies took a general approach. The focus of these cases was related to the implementation of Education for Sustainable Development in the school curriculum and in collaboration with the community (See Table 6).

ESD GLOBAL APPROACH: Focused on treating ESD in the curriculum, specific ESD methodologies (27.5%, N = 11)			
Focus	**Percentages & Number of cases**	**Objectives**	**Examples**
ESD	27,5% (N=11)	Establish a network of collaboration to introduce themes SD	Paving ESD through School-Community Action Programmes: Experiences, findings and perspectives (Cyprus)
		DS introduced an educational programme	Environmental science in the dormitory (Slovenia)
		Building bridges between different stakeholders and develop a service-learning environment	Turull Forest Environmental Classroom, an equipment that promotes networking in the territory in a neighborhood of Barcelona (Catalonia, Spain)

Table 8: Focus and Objectives of CoDeS case studies addressing an ESD general approach to school community collaboration

Finally, the graph included in Figure 5 summarizes the SD approaches and their related focuses of the CoDeS selected cases.
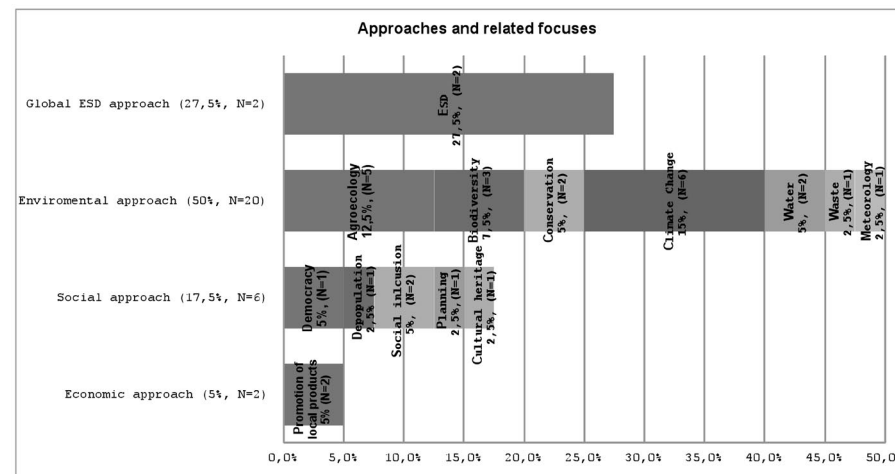
Figure 6. A summary of the SD approaches and related focuses of CoDeS selected case studies (% N=40)

This analysis showed that there was a particular interest in ESD global projects (27.5% of the case studies), such as „Paving ESD through School-Community Action Programmes: Experiences, findings and perspectives" (Cyprus), „Environmental science in the dormitory" (Slovenia) and „Turull Forest Environmental Classroom, an equipment that promotes networking in the territory in a neighbourhood of Barcelona" (Catalonia).

Also worthy of note is the number of case studies that dealt with more environmentally related aspects of sustainable development, focusing on energy consumption and climate change (15% of the case studies), which applied tools such as energy audits in schools, building refurbishment, etc. Two such examples are the case studies: „School-community collaboration for the engagement of pupils, teachers and governors in the science, engineering and technology of "carbon neutral" schools" (United Kingdom) and „Teenergy schools: European funds national expertise, local participation" (Italy). Agroecology (12.5%) also stood out as a recurring topic, with the development of school food gardens and composting, and the creation of biofertilizers, as in the Malaysian case study „School-university collaboration in waste-to-resource management". And finally, water management (5%), which was addressed from the perspective of both its value as a natural resource in the case study „School-community collaboration for ESD in a nursery school: an action research project" (Greece), and its more culturally related value in the project „From Spring to spring. We learn from water" (Catalonia).

Regarding projects that addressed more socially related topics, the types of focus that prevailed were social inclusion (5%) and then, in a very equally distributed way, rural population drift (2.5%), cultural heritage (2.5%), participation in land use planning (2.5%) and democracy and participation (2.5%).

4.3 What schools participated in the CoDeS selected cases?

The type of schools acting as an institution within the school community collaboration included nursery schools, primary schools, nursery and primary schools, secondary schools, vocational schools, all levels schools, and school networks. The difference between all levels schools and the school network is that the first is only one school holding all educational levels, whereas the school network constitutes of an association of different schools. Table 7 shows the percentages of cases that were having a particular type of school as the main actors.

Type of schools	Percentatges & Number of cases
Infant School	5% (N=2)
Primary School	10% (N=4)
Infant and Primary School	10% (N=4)
Secondary School	27,5% (N=11)
All level School	2,5% (N=1)
Vocational School	2,5% (N=1)
School Networks	42,5% (N=17)

Table 9: Types of schools participating in CoDeS selected cases on school community collaboration

Generally speaking, many of the case studies were undertaken by more complex structures such as school networks (43%), the idea of which was to share experiences, to reach as many stakeholders as possible, to create a network of schools involved, etc. Good examples of this are the schools forming part of the School Agenda 21 at a municipal level, such as the Sant Cugat del Vallès School Agenda 21 and the Vienna School Agenda 21, which was involved in the project Generation Dialog „Plus Solar Initiative". There was also a high number of case studies working specifically with secondary (28%), primary (10%) or nursery schools (5%), while very few were undertaken in vocational schools (3%) or worked with all levels from a specific school (4%).

4.4. What communities were involved in the CoDeS selected cases?

In order to describe the communities, the geographical spaces in which the case studies were undertaken, were defined according to the level whether it was a country, a province, a region or a municipality (Figure 6 and Table 8). The data indicate that the medium and big size cities constituted the majority of geographical locations of the communities involved in approximately 50% of the CoDeS selected cases. In addition municipalities ranging from rural villages to big cities were also the most representative type of community involved in the collaboration reaching up to 67,5% of all communities involved.
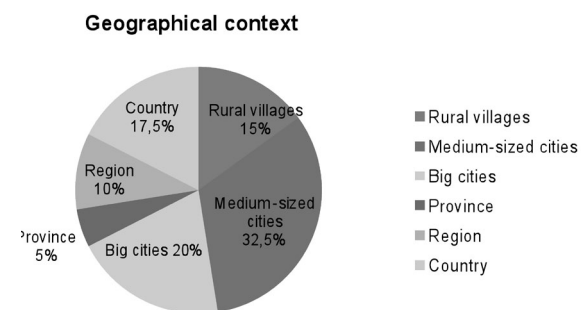
Figure 7: Geographical location of CoDeS selected cases communities (% N=40)

Level of geographical location	Type of community	Percentatges & Number of cases
Municipality	Rural villages	15% (N=6)
	Middle size cities	32,5%(N=13)
	Big cities	20% (N=8)
	Total	**67,5% (N=27)**
Province level	Province	5% (N=2)
Region	Region	10% (N=4)
Country	Country	17,5% (N=7)

Table 10: Types of communities involved in CoDeS selected cases

The communities participating in CoDeS selected cases could be described according to their environmental, economic and social characteristics in the following way:

- Small villages suffering from rural population drift problems, where there are social and economic differences between rural and urban areas. Some examples are the rural area of Hungary and the municipality of Winklern, Austria, which has 1,000 inhabitants and an economy based on agriculture, although tourism is gaining in importance because of the National Park located there. Other examples are the small villages with 600 inhabitants in Po Valley, Italy, where tourism is also gaining in importance because of economic development, while some villages are even promoting SD projects (such as Ostana).
- Medium towns/cities (50,000-80,000 inhabitants) such as Sant Cugat del Vallès, Catalonia, or Pallini, Greece, which have grown very rapidly in recent years through massive development (buildings, housing and infrastructures). In the case of Sant Cugat del Vallès, for example, agriculture has declined and the economy is now based on the service sector. In the case of Pallini, there have been problems with the sewerage supply and basic services. Or others such as Stange, Norway, which has 19,000 inhabitants and is basically agricultural; it is one of the best agricultural lands in Norway, so the economy is based on agricultural and forestry industries. It has also grown a lot in recent years, and good planning is required.
- Large towns/cities such as Espoo, Finland, which has a good standard of living and where competitive environmentally-friendly international firms have set up their facilities. It is a pioneering city in terms of climate change control and innovation, new technologies, etc. Or others such as Seongnam, South Korea, which has grown as a result of decentralisation from Seoul (the capital city); it is a commuter city with small industries and residential areas where there are problems of social inequality between the rich and the poor.

4.5. What characteristics did the collaboration between schools and communities have?

The collaboration between school and communities in CoDeS selected cases was described using the following characteristics: the actors and instigators involved in the collaboration, the methods used to create collaboration, the factors leading to sustainability over time, and the evaluation and monitoring tools.

- *Actors and instigators*

Regarding the key actors involved in the collaboration, the following were identified: schools, town or city councils, NGOs, universities, private firms, local inhabitants, national governments and provincial governments. Each of these actors assumed a role and part of the commitment within their respective collaborations. In general,

universities played an advisory and consultancy role, providing research and creating methodological tools. The function of town or city councils, as local institutions with local representation, was to provide support for project implementation and funding. Local bodies and NGOs provided services and in many cases volunteer staff too. Finally, private bodies collaborated in many cases by providing financial support and by promoting the project, etc.

According to the data shown in Table 9, schools (headteachers, teachers, pupils, families, environmental (agroenvironmental) educators, maintenance staff) were present in 100% of the cases alongside other major actors such as town or city councils (in 57.5% of the cases), NGOs (in 40%), and universities (in 27.5%). Other community actors participated in the collaboration jointly with schools to a lesser extent including private firms dealing in horticulture, construction, office furniture, design, renewable energies, solar panels (in 17.5%), local inhabitants (in 12.5%), national governments (in 7.5%) and provincial governments (in 7.5%).

The CoDeS selected cases show a wider variety of actors participating in the collaboration. However, not all actors were instigators of the collaboration. Table 9 and Figure 7 show the percentage of cases in which the indicated actors were the instigators of the collaboration.

COLLABORATION Presence of actors and instigators participating in the collaboration			
Type of Actor	Percentatges & Number of cases in which Actors participated	Percentatges & Number of cases in which Actors where Instigators	Percentatges over the total number of actors who became instigators
Schools	100% (N=40)	47,5% (N=17)	47,5% (N=17)
City Council	57,5% (N=23)	15%(N=6)	26% (N=6)
NGO	40% (N=16)	7,5%(N=3)	18,7%(N=3)
University	27,5% (N=11)	15%(N=8)	54,54%(N=8)
Business	20% (N=8)	0% (N=0)	0% (N=0)
Citizens	17,5% (N=7)	0% (N=0)	0% (N=0)
National Government	12,5%(N=5)	10%(N=4)	50%(N=4)
Regional Government	7,5%(N=3)	5% (N=2)	40%(N=2)

Table 11: Actors and Instigators who participated in the collaboration of CoDeS selected cases

Regarding the instigators, it was found that those who mostly promoted the collaborative projects were schools (47.5%), followed by town or city councils (15%) and universities (15%), and then by national governments (10%), NGOs (7.5%) and provincial governments (5%). It was also relevant to analyse each key actor's percentage of involvement. In this instance, we would highlight universities, which took part as key actors in 27.5% of the projects, 54.54% of which they instigated. Then, in descending order, we would highlight national governments as key actors in 12.5% of the projects, 50% of which they instigated, provincial governments (7.5% and 40%, respectively), town or city councils (57.7% and 26.08%, respectively) and NGOs (40% and 18.7%, respectively). It should be noted that neither firms nor local inhabitants were found to be the instigators of any case study on school community collaboration for SD.

Instigators and actors
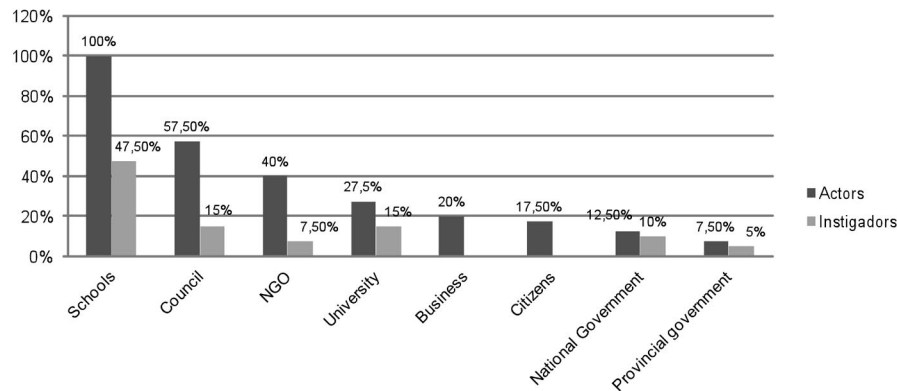
Figure 8 : Actors and instigadors involved in the CoDeS selected cases

- *Collaboration methods*
  Another factor analysed was collaboration methods, though in this instance qualitatively. This refers to the actions that were considered important for ensuring that the relationships among the various actors were more successful. From all the case studies the most common factors were found to be:
- Creating good communication among the actors involved in order to encourage participation and enthusiasm, and to create an inclusive environment for all interest groups. In the instance, some examples of the tools used are workshops, school committees, information campaigns, regular meetings and training workshops.

- Fostering joint responsibility and flat structures for decision-making in order to respect all of the participants' views, paces and contexts.
- Strengthening the idea that the collaboration of schools and communities helps to enhance the community and, therefore, the standard of living through joint effort.
- Creating understanding or agreements between the actors, e.g., between a town or city council and a university or a school association.

- *Sustainability of collaboration over time*
  The main factors identified in the different case studies as having helped to increase participation in the process and sustain it over time were:
- The dedication and motivation of school staff in general and teachers in particular.
- The creation of networks of actors involved to sustain relationships and alliances.
- The project's inclusion in the school programme leading into it is incorporated into the objectives that the school has to attain.
- The participation of external actors in the school and the fact that a "win-win" situation is created for everyone involved.
- Working with primary schools to ensure that there is project continuity in the primary-to-secondary transition phase. An example of this is the Bike it project.
- A commitment to sustainability and the idea that it is crucial to work on education for sustainability.

- *Evaluation and monitoring*
  Some strategies or tools used to evaluate the projects were the following:
- External collaborations to evaluate completed educational programmes using various research tools.
- Collaborations with universities, which performed the role of educational programme evaluators in most cases (either on completion of a programme or continuously).
- Some of the most commonly used tools were survey-based evaluation, regular meetings and working committees.

4.6. Value of the collaboration
The final factor analysed was the value added by the CoDeS case studies. In this instance, their strengths, barriers and impacts were summarised. The most notable ones are described below:

- *Strengths:*
  The strengths were those factors that helped to make the project a success, such as:
- The formation of networks that create synergies, connect people from different generations and geographical spaces, etc., enable experiences to be exchanged and a community of learning and participation to be set up.
- The creation of a network that enables collaboration among different actors with divergent views yet common challenges and objectives.
- Fostering a type of community-based learning that may help to have an impact on the local setting and to address environmental and SD problems.
- The shift towards a new structure in schools, with greater transparency and direct contact, where the teachers, pupils and parents are able to take part in planning, implementing and evaluating the projects.
- Fostering new values with a new culture in schools: a culture of solidarity, commitment, trust, shared responsibility, etc.
- The expansion effect that creating a network may have. In some of the case studies mentioned, the collaboration began with few organisations, but more actors joined the network over the course of time, thus augmenting synergies.
- Collaboration with a town or city council. The advantage of being able to work jointly with a town or city council was referred to as a factor of success in terms of project consolidation.
- Strengthening ties between formal and non-formal education.
- The fact that a project may have an impact on the local setting and be able to address environmental and SD problems.

- *Barriers:*
  The barriers were those situations that in some way placed limitations on the project and potentially affected its success, such as:
- A lack of funding to undertake a project may affect its implementation. It should be noted that most of the case studies did not have sources of funding and were therefore undertaken in an altruistic, voluntary manner. However, some did receive some type of public grant from local or provincial governments and even from universities.
- The complexity of organising meetings, of the collaboration process itself, and of communication.
- The teaching staff's dedication to a project, which in most cases is voluntary. This means doing unpaid overtime, which may affect motivation and participation.
- The parents' participation may be affected and even decline, especially if the activities are undertaken in the morning, owing to the fact that they have to attend to their work-related duties. This may also be an issue if the families are foreign and have language and communication difficulties.
- The children's dedication may also be limited if the activities are not included in the work plan, meaning extra work outside the formal timetable.
- Short implementation times for projects may also be a limitation.
- The uncertainty surrounding some educators' contracts of employment leads to labour instability and, therefore, instability in their participation.
- In some cases, there may be technical problems, such as those relating to water supplies for school food gardens, garden maintenance, etc.

- *Impacts*
  This aspect was defined as the impact that the project had on the community. It was summarised as follows:
- The creation of other educational projects for sustainability in the community, based on the initial projects.
- Raising the pupils' awareness of and instilling respect for the environment and nature.
- Fostering participation and cohesion among citizens and other agents forming part of the community.

5. Conclusions

Overall, it could be said that the CoDeS network has managed to put actors from Europe and other parts of the world in touch, thus enabling them to share experiences and information about the ESD and SD projects being undertaken. This has provided the opportunity to showcase and underscore the value of all the projects, which are working towards common goals and having an impact on the community at local, provincial and national levels. This enables experiences to be exchanged and a series of projects to be obtained, some of which may become models for future replication or provide ideas for implementation in other contexts

The data collected and summarised in this comparative analysis of fourty CoDeS selected cases provide a general overview of the case studies presented based on the information available in written form. Some of the main results from this comparison which are worth highlighting are the following:
- The first thing to note is the idea of **heterogeneity of schools and actors** found in the case studies regarding the typology and size of the networks, and the actors involved. However, schools are the common denominator in 100% of the case studies, 47.5% of which they instigated. The collaboration of town or city councils

(57.5%) and NGOs (40%) should also be emphasised.

- It was also found that the majority of cases chose an **SD environmental approach** (50%) to the collaboration between schools and communities, and that the most prominent focuses within this approach were connected with climate change and energy consumption (15%), agroecology (12.5%) and ESD (27.5%). However, other cases showed openness towards the adoption of other SD approaches more coherent with the multidisciplinarity of sustainability.

- **The medium to big size municipalities** have constituted the communities mostly involved in the collaboration with schools. These municipalities probably represent an optimal context for the collaboration since they might contribute with a stronger social and cultural capital. Small communities such as rural villages are also in strong need of support in the collaboration, so that social, environmental and economical sustainability can be ensured. CoDeS has developed one specific „Tools for You", on school community collaboration for sustainable development dealing specifically with small communities. This study complements the case survey included in this chapter by going deeper into the characteristics of school community collaboration in isolated communities.

- Some **strengths and barriers** affecting project implementation and collaboration were identified, as were certain impacts that the projects have had on the community. Some of the strengths identified were the creation of the network itself, community-based learning, the shift towards structures for project implementation, fostering new values, the expansion effect that creating a network may have, collaboration with a town or city council, and ties between formal and non-formal education. Regarding the barriers, the main limiting factors were found to be funding, the teaching staff's dedication to activities that fall outside their working times, the network's maintenance and the parents', children's and other actors' motivation and participation. Finally, some impacts were the creation of new projects, raising the pupils' awareness of the environment and fostering the citizens' participation in the community.

The CoDeS „Tools for You" include a collection of materials which were created on the background of CoDeS partners' contributions at different levels. All of these tools collect the experience, reflections and knowledge gained by partners at the individual as well as the collective level. This chapter represents one contribution by pulling out the most salient comparative elements from CoDeS selected cases written by partners' and external collaborators. The chapters included in this book will provide deeper narratives of school community collaboration for SD written by CoDeS partners as well as collaborators.

PART TWO:

Selected CoDeS cases on school community collaboration for Sustainable Development

National Park and School Collaboration: A long term partnership in an Austrian alpine region

Mira Dulle, Franz Rauch, Austria

Abstract

Within the Comenius multilateral network CoDeS that focuses on school community collaboration addressing sustainability, the on-going collaboration between the National Park H*ohe Tauern* (NP) in Austria's central Alps and the Middle School in the NP village Winklern acts as a good practice example for a sustainable and long-term partnership. The presented case study includes multi-stakeholder perspectives of teachers, pupils, inhabitants/parents, rangers and hut keepers who co-operate for the achievement of mutual aims for fostering environmental learning and responsibility as well as raising the acceptance of the NP within the community.

The idea "National Park School"

The public middle school (ages 12 to 16) "Nationalparkhauptschule Winklern" (National Park School Winklern), is located in the small village Winklern in the Mölltal region of Carinthia/Southern Austria and works together with the national park *Hohe Tauern* (NP) for the past ten years. Winklern is one of the seven communities of the NP and is called "the gate to the National Park". Pupils from six communities[1] attend the National Park School. Being the only secondary school within a radius of 16 km, the National Park School plays an important role in retaining children in the region. The school currently has 309 students (15 classes) and the teaching staff consists of 36 members.

As of 2002, Austrian schools are expected to develop a school development plan with a certain curriculum focus. Due to already existing contacts and occasional projects with the NP and the geographical proximity to the NP the school's principal decided to strengthen the collaboration between the school and the NP and turn the focus of the curriculum in the direction of nature and environment. A steering group, consisting of interested teachers, the principal and the NP staff, was built in order to negotiate the aims and expectations of the collaboration and within a 2-days workshop defined a concept of the collaboration. In order to ensure the

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1   Winklern, Großkirchheim, Heiligen Blut, Mörtschach, Rangersdorf, Stall

objectivity and impartiality of the discussion and negotiation process, the discussion was led by an external moderator, an internationally renowned biologist and expert in the area of environment and nature protection. The discussion was held in a cabin in the NP. The location was deliberately chosen as a neutral location for the involved institutions which would avoid constraints. During the meeting ideas and concrete objectives were discussed as well as their feasibility. Different conceptions concerning the collaboration were clarified. By developing a concept, partners mutually set the cornerstones and got the possibility to include their ideas and wishes. As a result a collaboration contract was established and signed by all partners in April 2002. The contract acted as a mutual agreement clarifying the overall aims of the collaboration and responsibilities of the stakeholders for a time period of five years. When this interval elapsed the contract should be evaluated and renewed. The temporary validity of the contract ensured the quality of the collaboration: after the first phase the collaboration was evaluated by a team of the Alpen-Adria-University Klagenfurt (Rauch, Dulle, Zois 2010) and renewed.

Since the signature of the collaboration contract the school took the official name: "National Park School" and included tasks relating to the NP at the center of their educational work (e.g. the outdoor programme "Nature-Sports-Fun"). The vision of the NP School is written down in its goals:

1. Students understand that the NP plays a central role in the well-balanced, sustainable development of the region ecologically, socially, and economically.
2. Students learn to value the natural and cultural heritage and are prepared to accept responsibility for the region's future welfare (Tengg 2007).

With this as a basis, the school continues with the following measures: cross-curricular integration of a range of topics (i.e. plants, animals, humans and living spaces in the NP, the future of the NP, etc.) as well as the outdoor programme "Nature-Sports-Fun" (Tengg 2007). The learning environment created by this approach covers the knowledge of teachers and NP-rangers on the one hand and the practical, action oriented approach during the outdoor programme, an out of school learning environment, on the other hand. Pupils also learn about the relationships and tensions in the region, that emerge from the NP priorities for protecting nature and NP being a habitat where people live, and develop economic activities such as farming and tourism. The inclusion of social dimensions in learning science shows pupils the relevance of science education in everyday life and in their own region. The combination of theoretical and practical teaching methods seems to be helpful in developing attitudes and developing the skills needed for a sustainable lifestyle.

Furthermore the pupils are seen as multipliers in spreading their knowledge and enthusiasm in their homes and families.

A mutual project: The outdoor programme "Nature-Sports-Fun"
One of the main foci of the collaboration between the NP and the school is the outdoor programme "Nature-Sports-Fun". Within this programme, pupils, in addition to their regular lessons, take part in four three-day courses in cabins in the national park, as well as six day-long excursions over the course of four years. During these courses pupils are guided and taught by NP rangers. Shifting from the school's "teaching environment" to the nature's "learning environment" pupils can experience the fascinating nature of the NP region with all their senses. Furthermore they record their experiences, impressions and findings in journals. With this programme students improve and expand on topics learnt in class, recognize the possibilities offered by alpine living spaces, strengthen their own ideas concerning nature, develop a respectful approach to the region's resources and become regional "ambassadors" for the NP.

Results of the evaluation commissioned by the NP in 2010 (Rauch, Dulle, Zois 2010) show that the programme "Nature-Sports-Fun" essentially reached its goals of making nature more accessible to children through experience-oriented learning and of encouraging responsible, sustainable action. Due to the programmes intensive experiences and the personal contact with the NP personnel, the vast majority of students realize the importance of environmental protection as well as the significance of the NP for the region.

> "They absorb the words like a sponge. They hang on the ranger's every word. Some show extreme interest. They don't feel it's school but another form of learning. It is fun." (Teacher)
> "Of course their behavior changes a little bit, because on the day of departure they are a little more thoughtful than on the first day." (Hut keeper)

An additional learning facet which became apparent in the results of the students' self-assessments is the respectful approach to natural and cultural resources in the region. School partnerships could intensify exchanges and contact with schools in other regions, broadening students' understanding and interest. Some teachers are of the opinion that the programme "Nature-Sports-Fun" is considerably extensive and students, therefore, have little time to participate in other projects which are also part of the school's special focus areas. The results of the identity assessments

of the students as well as the parents paint the following picture: over 90% of the students identify with the region and are proud of it (80%).

The tension between the region's sustainable management and economy:
The National Park *Hohe Tauern* Carinthia
Established in 1981, the national park *Hohe Tauern* (NP) covers parts of the three provinces of Carinthia, Salzburg and Tirol. The whole area is 1.856 km²; the part of Carinthia is approximately one fourth of this size. Due its state crossing location both governments, federal and state governments, are in charge of the NP. Furthermore, the NP is situated almost exclusively on privately-owned land – a situation which is, for a nature reserve of its size, unique throughout the world. Thus, the development of the National Park has always taken place on the basis of cooperative partnerships: Landowners, agriculture communities and federal forestry offices get compensation in the amount EUR 650,000 per year. Due to this cooperative approach the NP was granted international recognition in accordance with the criteria of the world nature conservation organisation (IUCN) in 2001.

The landscape of the region, with its characteristic rocks, high mountains and glaciers, as well as wide mountain pastures and meadows, was not only shaped by natural processes, but also by centuries of agricultural activities taking place in the area. For 5 000 years, man has been living in the valleys of the NP. Wide mountain pasture landscapes were formed by hands of farmers and domestic animals. Thus, one special feature of the NP is its conservation philosophy: It does not only include the protection of natural landscape, but also the cultivated landscape like mountain pastures and hay meadows, which are rich in different species.

Due to its rural location the two pillars of the region's economy are the agricultural sector and tourism. The NP is a considerable economic factor in the region. It advertises the region, attracts visitors and is good for tourism. The teachers, rangers and hut keepers as well as the students and parents predominately agreed that the NP is the most important economic factor in the region.

"If one takes a look at local advertisements, there is hardly anything without the National Park ... I can't imagine how it would be without it. The National Park has become an economic draft horse for us up here... Because so many people depend on it economically, from direct marketing to hotel businesses." (Teacher)

While the NP rangers place special emphasis on general appreciation for nature, teachers and hut keepers consider tangible nature conservation and maintaining regional culture and cultural landscapes as top priority. All of the interview partners, moreover, mentioned research, education, sensitization, financial support, publicity and marketing for the region, as further functions of the NP.

"And eventually all of them come to us. It doesn't matter if it's a farmer's initiative, Glocknerfarmers or the Glocknerlamb. After some years of muddling along, if they don't succeed, they come to us, because it's said: They have efficient structures and there is money. If someone has got money, it's the park and that's where they go." (Ranger)
"Well, I, as a hut keeper profit from hikers, up here, there are beautiful hiking-tours, when they stop for a bite to eat, of course, it is a value added. Because the region is marketed with consistent things and promoted with consistent slogans, I think this has its advantages ... The name itself counts a lot too. Because it's a well-known name and if many people went the same way, I think there would be a lot to it." (Hut keeper)

Another important finding of the research was students' and even more the parents' positive attitude to the NP. This result is the effect of many years of NP efforts, to raise its acceptance within the local community through information activities, funding and infrastructure. When the NP was established 30 years ago, the population was concerned that this could mean restrictions for the cultivation of the cultural landscape. In exchange for the sustainable management of the agricultural landscapes the NP had to guarantee the farmers' certainty in terms of income and continuity of their functions (temporary lease agreements). Nevertheless some farmers, landowners and hunters could not overcome their initial skepticism.

"People didn't know anything about the National Park! Nothing! Thus, it was seen as an obstacle. They thought a fence will be set up and they would not be allowed to do anything." (Teacher)

Prejudices, like the assumption that the NP means more restrictions than advantages, are expected to melt away in the next generations. Thus the NP aims at strengthening school-collaborations to develop a sustainable attitude and acceptance among the younger generation.

In spite the positive stance, almost everyone asked also felt that the NP alone couldn't prevent young people from leaving the Mölltal region, as it could not create enough jobs and the region offers neither opportunities for further education nor the capacity for more industry. The Mölltal region, with Winklern and its surrounding communities, can be regarded as a remote area where the emigration of the young generation is considered as an important issue. This area has approximately 8.000 inhabitants and 50% of them are commuters who work outside the communities during the week and come home only on weekends. Through the specialisation of the NP School it was expected to make the school more attractive and stop the loss of secondary school-pupils who prefer to attend secondary grammar schools (Gymnasium) in larger towns. This strategy works, but anyway, after finishing secondary school young people still have to leave the region if they want to attend further education.

From occasional projects to a collaboration contract: A long-term collaboration

The collaboration between the school and the NP has slowly developed since the establishment of the NP and was strengthened by the collaboration-contract in 2002. In addition to nature preservation, research and tourism, the NP also has an educational mission. Therefore the expansion of the collaboration ten years ago was a good opportunity for the NP to get in touch with the young generation and promote values like nature conservation and regional identity. The collaboration's focus has slowly moved from small, creative, playful projects that aimed at showing public presence of the NP, to longitudinal projects with the aim of raising awareness of sustainability among the younger generation (see fig.1). The heart of the collaboration is the outdoor programme "Nature-Sports-Fun" that includes, beside the school members, the majority of the inhabitants of the NP communities: The NP-staff and rangers support the school during excursions; the hut keepers offer pupils residence and meals in the NP's cabins; other local inhabitants, like farmers, landowners and hunters (many of them are parents of the pupils) are involved occasionally in short term projects (see fig.2). It is a win-win situation for all partners. Barriers could be seen in the uncertainty of future investments in nature conservation which would influence the financial situation of the NP. Evaluation data shows that the collaboration is perceived as a friendly relationship based on mutuality, professionalism and flexibility by both partners.

"This partnership is based on reciprocity. We are always ready to support them, even beyond the programme and vice versa." (Ranger)

"Two partners have found each other … and both needed something: The NP was looking for further development and the school needed a focus and programme. That was fate." (Teacher)

Fig.8: The collaboration process
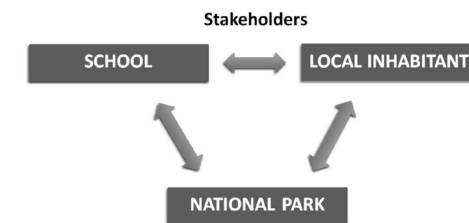
Fig.9: Stakeholders

Evaluating the collaboration: The method

In 2010 the collaoration was evaluated (Rauch, Dulle, Zois 2010) by means of quantitative and qualitative research. The survey questionnaires and interview guidelines were developed based on a material analysis of texts on NP Hohe Tauern and NP School (Neubauer, Mackinger 2005, Pinter et al. 2004, Pinter 2009, Tengg 2007, www.hohetauern.at). Student and parental opinions were gathered using two different questionnaires. The questionnaires were administered by post to 144 graduates and their parents. 59 graduates (return rate 40%) and 58 parents (return rate 41%) returned them. Data was analysed by the statistic package SPSS by means of descriptive statistics (Friedrichs 1990) (frequency, percentages, means and standard deviations). The open-ended questions in the questionnaire were classified in categories. The interviews collected the opinions and impressions of teachers, rangers and hut keepers. Nineteen of the 39 teachers from NPHS Winklern and

four park rangers took part in semi-structured group interviews of 4-5 participants. Three of the hut keepers of the cabins were the students lodged in the course of the programme were also interviewed through the telephone. These interviews were transcribed and analysed (Mayring 2002). The evaluation acts as an interim evaluation in monitoring the achievement of objectives. The results aid further cooperation between the school and the NP.

Conclusions and Implications

This CoDeS case shows that the combination of in- and extra school learning environments supports the development of pupils' competences and the ability of applying the science learned in their everyday lives. The programme "Nature-Sports-Fun" reached its goals of making nature more accessible to children through experience-oriented learning and encouraging responsible, sustainable action. Parents suggested offering more intensively projects with hands-on work. The successful cooperation between the National Park School and National Park Hohe Tauernshould, by all means, continue. Many graduates recognise the importance of the NP for a sustainable, ecological, social and economical development in their region (Rauch, Dulle, Zois 2010). The main added value of this exemplar case is the inclusion of the majority of the inhabitants of the NP-communities and the common aim of the sustainable development of the region, bridging the conflicting areas of interest: nature preservation as well as tourism and farming.

To deepen the insight in the collaboration process, this case was further analysed, discussed and compared within the multilateral network CoDeS.

Further information on this CoDeS case is available under:
http://codeswinklern.wordpress.com/.

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School – community collaboration for ESD in a nursery school: an action research project

Elli Naoum, nursery teacher and PhD candidate, Greece; Eugenia Flogaitis, University of Athens, Greece; Georgia Liarakou, University of the Aegean, Greece

Abstract

Under the Comenius multilateral network CoDeS a school community collaboration of parental involvement project was carried out in a nursery school in Greece with the vision of a sustainable school. Teachers and a facilitator collaborated with each other, with students and their parents and with the municipality, using an Action Research framework, in order to improve the water management in their school. The project involved more community members from a primary school, another nursery school and a local newspaper. Research results showed that the small size of the school, the personal enthusiasm and dedication of the teachers, the parents' voluntary contribution and active participation in their children's education and the positive response from members of the community and the municipal authorities were the main factors which contributed to the sustainability of this process.

Key words: Parental participation, Action Research, Communication, Activities/action, Water management

The idea of the collaboration

The goal of the development of the collaboration between school and community is to connect important contexts for strengthening children's learning and development. Especially, family-school relationships have been described as a "safety net" to promote children's learning and school experience (Christenson, 2000, p.7; Epstein et al., 2009). Parental involvement is not a new idea to contemplate. Many professionals in the field of education are in agreement that parental involvement is valuable. They indicate that the involvement of parents in the educational processes is crucial to stimulate social, emotional and intellectual development in children, to raise student's achievement and help student's parents to become more familiar with classroom and school activities (Swap, 1993; Henderson, Berla, 1994; Epstein, 1995; Ferrara, 2009).

In our study we look at the collaboration between school and student's parents as an integral part of school reform to sustainability. We consider parental involvement as an essential and necessary element in school improvement efforts (Hidalgo et al., 2004; Fullan, 2007). We see parents and educators as having different but equally important roles in children's education, and acknowledge that close communication is necessary for them to succeed in their roles (Chavkin, Williams, 1987; Carlisle et al., 2005). Parents are anxious about their child's education especially at the early years when they come across for the first time with the educational system. The nursery teachers and the facilitator of the study attempted to create partnerships with the families before children enter school. Thus, the educators gathered information about the young children and about the needs and the wants of those parents and fostered student's adjustment to the educational processes. Moreover, the school promoted a welcoming, communicative environment and provided opportunities for the parents' active involvement. Therefore, it reinforced knowledge and skills that were valuable for the students and their parents. The parents also became more supportive of the teacher as professional and enriched the educational process by participating as tutors, classroom assistants, activities leaders and etc. (Gonzalez-DeHass, Willems, 2005; Epstein, Salinas, 2004).

The school was, on one hand, very enthusiastic about the project and its vision of Education for Sustainable Development (ESD). They aimed to achieve the learning goals of the school curriculum and ESD (educational development), to strengthen the role and position of the school in society, (organizational development) and to contribute to sustainable development in society. On the other hand the teachers were anxious at student's parents responding for collaboration.

The School
The initiator was a public nursery school located in Pallini, a suburb of east Attica. The school was located away from the center of Pallini on a hill with no buildings around it. Thus, the municipality had hired a bus in order to pick up the students from their homes. Only a few parents were responsible for the transportation of their children and they were the only ones who met the teaching staff on a daily basis.

The school had 45 students, 31 of them were five and six years old divided into two classes and 14 students were four years old, all in one class of the youngest children. All classes worked from 8.00 in the morning until 12.30 in the afternoon, following the typical timetable of public nursery schools in Greece. The teaching staff consisted of three nursery teachers, one of which also acted as school principal. The teachers were concerned about the development of collaboration between school and family. They didn't have any theoretical background about the parental involvement approach and they had not developed any collaboration with the community before this project.

Moreover an external nursery teacher, the PhD candidate, worked with the teachers as a facilitator and external research associate. She undertook a facilitating and consulting role and collaborated with the educators not as an ‚expert' with prepared research queries and tools, but rather as an associate, consultant and coordinator (Altrichter et al., 2001; Atweh et al., 1998).

The Community
The community participating in this collaboration consisted of a municipality of 54,390 residents in a 30,720 square meter area. Ten years ago the area was a rural village and its economy was based on agricultural products such as grapes and olives, etc. Nowadays, lots of houses, buildings and blocks of apartments have been built in the area since the construction of the biggest airport in the country, Eleftherios Venizelos, in 2003. Despite the rapid economic development, the community still has to resolve significant problems with local infrastructure, especially with the sewage system. However, residents continue to communicate with each other and feel that they are members of an active neighborhood.

As community members, students' parents were firstly involved in the school collaboration. At the beginning of the school year, almost half of the students' parents responded to the educators' invitation to participate in their children's education and to collaborate with the school. They were informed about ESD and shared the vision of a sustainable school. As the educational project was developed more parents became involved, and, at the end of the school year, all of them participated and worked with the school.

The collaboration was expanded to the municipality where the students informed the mayor and the vice mayor about the ESD project. Therefore, a plumber, two civil engineers and two building workers from the municipality worked with the children and their teachers to improve the water management of the school building.

Teachers and students also worked with students and teachers from the nearby primary school (first and forth grades) and students and teachers from another

nursery school in the local community. External collaborations aimed to inform and sensitize the wider community.

In the end of the project the educators' team cooperated with a journalist and informed the community about the ESD project by publishing an article in a local newspaper. Lastly, an NGO and the Athens Water Supply and Sewerage Company (EYDAP) supported the project by providing material and organizing activities.

The four cycles of action of the collaboration
An Action Research (AR) was adopted by the educators as a research method which allowed open, interactive and equal communication, with the involvement of all participants in the educational process (McNiff, 1998; Carr, Kemmis, 1988; Somekh and Thaler, 1997). Adopting the Action Research model by Stephen Kemmis (1980) the school community collaboration of parental involvement was developed on a spiral of four cycles of action. Each cycle was organized on four repeated phases: planning, acting, observing and reflection, re-planning and so on. Therefore, the AR spiral process was approached as follows: the development of the collaboration among the educators (first cycle of action), the development of the collaboration among teachers, students and their parents following by a parental involvement approach (second cycle of action), the development of the collaboration among teachers, students and their parents and the municipality (third cycle of action) and the development of the collaboration among teachers, students and their parents and a primary school, another nursery school and a local newspaper (fourth cycle of action).

Teachers and the facilitator collaborated with each other during the first cycle of action and decided to share the vision of the sustainable school with the students and their parents. They also shared their concerns about introducing parental involvement to the educational processes.

- I am very excited with the idea of working with the parents within the vision of ESD and I have already some ideas concerning the increasing of the communication between school and family (teacher C, meeting 4/9/2009).- ...I am used to having my classroom door "closed". I am afraid that the parents would "break into" my personal space; but I am willing to try to change my view and look at the benefits of such a partnership (teacher A , 15/9/2009).

At the second cycle of action, the educators and the facilitator invited student's parents to an evening meeting and shared with them the vision of a sustainable school. Parents responded to the teachers' invitation and took part in an evening workshop where they interacted with each other, worked in teams and chose two ESD projects to work on, together with their children. At the same time, teachers organized a similar workshop with the students at school during which they decided to focus on water management for the ESD project of the school.

Parents were regularly informed about the project's progress through weekly written communication and communicated with their children at home, suggesting actions, visits and contacts with other relevant actors or institutions outside school. Teachers took the students and their parents' suggestions into consideration and included them in the planning of the ESD project. Parents also provided printed and electronic informational material which teachers and students used to create an area in classes called "The Water Museum" which served as an information bank during the development of the project.

Teachers and children worked on the water management during the whole school year and many school activities were extended at home. For example, they checked the water faucets in the school bathrooms as well as the school-yard taps for any leaks and then encouraged students' parents to do the same at home. Students drew posters with slogans for saving drinkable water and proposing ways of saving it and their parents helped them to distribute the posters among family friends, relatives, etc. They also collaborated with a NGO and the Athens Water Supply and Sewerage Company (EYDAP) which provided material and organized activities and happenings both at school and elsewhere. Students presented the results of their activities at home in a plenary session of each class every week. Moreover, three times during the school year, parents participated in art and craft work-groups with the children and school teachers in classes. Some professionals amongst the parents offered their knowledge and helped by doing activities with the students at school such as water experiments, art and craft, and sports.

- I loved looking for material about the water issue on the internet with my parents at home (child, /10/2009) - I felt a warm and loving atmosphere. Excellent work with the water theme (parent, parents' book for writing their comments, /10/09)

Furthermore, during the third cycle, teachers and a group of students and parents met the mayor and the vice mayor responsible for educational matters. They were

informed by the students about the ESD project and they expressed their desire to collaborate with the school. Thus, the vice major and two civil engineers visited the school and discussed the problems with the teachers and students and their ideas for improving the water management of the school building. The engineers made a plan for the school's irrigation system and the construction of a rain-water tank. With the financing of the municipality, a plumber and two building workers managed to improve the school's water management.

> - *I was impressed by the ability of the young children to express their views during your visit to the town hall. I have decided to collaborate with your school; therefore in the near future the vice mayor and two engineers will visit your school..." (Letter from the Pallinis mayor, /10)*

Teachers and students also communicated and collaborated with teachers and their students of the first and forth grade of a primary school during the last cycle. They visited the school and informed the primary students and their teachers about the lack of drinking water and asked for their help in distributing their posters of the results of the project to their parents, family friends and relatives. They also organized events in the primary school-yard for the rest of the school community.

When teachers and students visited another nursery school in the community, they interacted with the nursery students and their teachers by taking part in activities regarding water management such as: drama, art and craft and attended a black theatre organized by the teachers, with the title: "Ten little Crabs". Teachers of the visited nursery joined the spirit of the school community collaboration and worked with the students' parents by offering a picnic to all the students in the schoolyard. Students of the visited school also participated in informing and sensitizing the local community.

> -*Thank you for inspiring our class to work out the water issue during the "flexible time". My students were impressed by the abilities and the knowledge that the nursery children had shown" (primary teacher, /10) - It was a lovely day and I felt that all of us gained from your visit to our school. I hope we will start collaborating more often and exchanging ideas and different teaching approaches" (nursery teachers, from the neighbouring nursery school /10)*

The collaboration was developed during the 2009-2010 school year, when the research of the PhD candidate teacher was taking place. Since then, the nursery school has continued to collaborate with the parents and the municipality with a different ESD project planned for every school year.

Analysis of research results showed that the main factors which contributed to the sustainability of this process were: a) the small size of the school, b) the personal enthusiasm and dedication of the teachers, c) the parents' voluntary contribution and active participation in their children's education and d) the positive response from members of the community and the municipal authorities e) the AR framework.

The strategies that the partners developed for the monitoring and evaluation of collaboration during the ESD project were teachers and coordinator diaries, facilitator observation, educators' weekly meetings, written communication amongst teachers, students and their parents, parents' book for writing their comments and impressions and students meetings and achievements.

The project had no financial support. Parents provided the school with electronic and other materials and the municipality funded the school building's water improvements.

The collaborative practice was authentic and its process encouraged the development of a climate of confidence and an atmosphere of joint responsibility, as well as a reciprocal respect which was developed both at school and the students' homes. Teachers, students and their parents had the chance to become involved in an ESD project which built authentic relationships.

"Smart" Tools
Educators, students and their parents participated in organized activities and workshops at school and at the children's homes in order to examine the water environmental issue and the water management at school. The written communication was a tool that facilitated the collaboration among them. They also took part in a field study trip to Marathon Lake and organized a ‚Water Festival' in the school-yard, working with the NGO on an open day to stimulate members of the wider community.

Value and limitations of the collaboration
Relationships were formed among partners, and a community of practice among educators was established which promoted the value of preschool education, contributed to the professional development of nursery teachers and facilitated the growth of cooperative learning.

- It was a wonderful year and I am very happy that I had the chance to work with an action research method. I felt that my work became more scientific (teacher C, meeting 20/6/2010) - I took great pleasure in assisting Ms ... with her class. She has an incredible ability to reach all her children (parent, parents' book for writing their comments, /10/09)

The main change of the collaboration focused on the creation of a new culture in school. Teachers, students and their parents equally participated in the planning, implementation and evaluation of the project. They realized the power of collaboration, provided support to each other, and used values that fostered their common vision for sustainable development in the wider community.

I realized that if we open the school doors, the community would positively respond to the collaboration and the children would gain another kind of knowledge" (teacher A, meeting 20/6/2010) - You stimulated us to get informed about the sustainability and the sustainable school (parent, parents' book for writing their comments, /10/09).

The obstacles that were raised during the collaboration concerned the unpaid extra working hours of the teachers and the inability of some parents to participate in the morning activities at school due to their professional responsibilities.

The school was ‚transformed‘ into a living social and community school. The case study acted as a spark for the school to start collaborating with the community, to appreciate the benefits of this alliance and to decide to be an open and collaborative school.

The teachers although they were anxious about the collaboration with the students' parents, at the end of the project, they realized that they are a source of knowledge, generous and loving regarding school life (facilitator, diary 21/06/10)

To deepen the insight in the collaboration process, this case was further analysed, discussed and compared within the multilateral network CoDeS. Further information on this case is available on CoDeS Case Blog under: http://codespallini.wordpress.com

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School forest as a Meeting Place of Diverse Interests of Multi-Stakeholders in School Community Collaborations

Sun-Kyung Lee, Cheongju National University of Education, Korea; Mi-hyun Won, Forest for Life, Korea; Yong-suk Jung, Forest for Life, Korea

Abstract

Through the School forest initiative in Korea, more than 700 School forests have been developed in schools since 1999, not only greening the area but also providing places of learning for students as well. This initiative has involved outside stakeholders such as Forest for Life (NGO), enterprises, local communities, Korea Forest Service, and local authorities as well as school members including teachers and students. Multi-stakeholders have a shared common goals in creating School forests, as well as different interests and expectations in details. The present case study on Seongnam Hyeeun School, a special school for mentally challenged students, explores how the diverse stakeholders' expectations and interests met, conflicted and resolved in the process of School forest development.

What is 'School forest'

What is School forest? Literally it means forest in the school ground, and in other words, it stands for educational space 'school' and ecological space 'forest'. As similar initiatives, such as 'Learnscape (Learnscapes Planning and Design, 2014)' or 'Learning through Landscape (LTL, 2014)' in other countries, the School forest initiative in Korea aims to create forests in schools with many trees, shrubs, grasses, and flowers in school campus where students spend most of their time playing and learning in a healthy natural environment (Forest for Life, 2012).

The School forest Initiative started in 1999 by a civic group, Forest for Life, which is a professional non-governmental organization (NGO) established in 1998, focusing on forest-related initiatives including school forest, urban forest, forest management, forest in social welfare organization, traditional forest, forest exploration, forest and culture, conservation of rural and village forests, and forestry policy. School forest initiative began with 10 experts mostly in forestry and landscape architecture and one full-time staff member in 1999. Now, hundreds of experts in the area of forestry,

landscape architecture and education across the country along with other stakeholders have joined the organization. The main purpose of School forest initiative was to create more green space in urban areas especially in schools at the beginning, but has evolved to become a more educational movement. Based on 4P – participation, partnerships, process and practical use for education, this initiative includes various stakeholders such as experts' group in School forest committee, teachers, students, parents, local communities, enterprises, the Korea Forest Service, etc. (Forest for Life, 2012)

Seongnam, Hyeeun School and School forest

Seongnam Hyeeun School was selected as one of 10 model schools for School forest by Forest for Life (hereinafter, 'FFL') in 2001. It was founded in 1982 as the first public special school for mentally challenged students in Kyeonggi province[2]. The school offers kindergarten, elementary school, middle school, high school education, with 221 students in 37 classes and 108 members of the teaching staff in 2012. Unlike most special schools which are far away from the center of the city, it is located in the center of a residential area in the city.

Seongnam Hyeeun School is located at Dandae-dong, Sujeong-gu, Seongnam city in Gyeonggi province. The total area of Gyeonggi province is 10,186km[2] and that of Seongnam city is 141.70km[2]. Seongnam is a satellite city first developed to distribute the population of Seoul. It is a 20 minutes drive from Seoul metropolitan city and it constiutes what is called a "Bed Town" as most of the people living there commute daily to Seoul to work. The region was nothing but the upcountry consisting of some parts of Gwangju, Dolma-myeon, Daewang-myeon and Naksaeng-myeon before the urban development, which was characterized by uneven ground compared to other naturally-occurring cities. Seongnam city consists of Bundang-gu, a high-end village that has high-rise apartments and relatively large companies, and Sujeong-gu and Jongwon-gu, which contain small shops and factories. The gulf betwen Bundang-gu and Sujeong-gu is enormous across Seongnam due to the building of expensive apartment complexes in Bundang-gu area. Sujeong-gu, the area surrounding Hyeeun school, is a part of relatively poor region, which is based on community based economic activities with small industries and small houses. Due to the gap between the rich and the poor within the same region the networks in the region were not active.

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2   This case study is based on the case book of Seongnam Hyeeun School on School forest initiative (Forest for Life, 2006).

The establishement of Hyeeun school was not welcomed by local community members, as Hyeeun school was a special school meant for mentally challenged students and people was prejudiced on this 'special' school. Also, local people did not like to have the school in their community as they thought they would lose spaces for community members to share for community based activities or other purposes. However, the school was built in 1982 and unfortunately there was not enough natural space in the school.

According to the mission of Hyeeun School (Seongnam Hyeeun School, 2012), it values helping students with challenges to improve their social adaptability and stand on their own feet in a healthy way within the social system, and giving the right to students to enjoy their education and everyday lives in a good environment by actively participating in the local community without any prejudice. As the basic value orientation of school was mostly associated with School forest initiative supported by FFL and it was also situated in a comparatively poor natural environment than any other regions in the city, the school applied for being a model school in creating School forests.

Fig. 10 The concept of School forest   *Fig. 11 Casebook of Seongnam Hyeeun School forest*
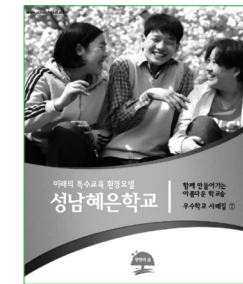
Forestschool Initiative of Seongnam Hyeeun School aimed to create forests in schools and providing an educational environment suitable for students. The main goal of the collaboration was to improve the learning environment for mentally challenged students for the enhancement and recovery of their physical capabilities and self-confidence by taking part in eco-friendly games and other direct experiences in/with School forest. It also intended to improve the understanding of students with mental challenges in special schools by encouraging diverse entities to participate actively in the process of creating School forest, and 'to break down the walls of prejudice' on special schools or students with challeges (Forest for Life, 2006).

Teachers in Hyeeun School were enthusiatic to create School forest in their school and had participated in most of the processes that led the school to what it is today. They had meetings with FFL professional volunteers in the planning stage and conducted a survey on the tree species to be planted as well as the places required for parents and local residents. Also, teachers analysed the existing curriculum and revised it with the help of educational professionals to be utilized in the educational practices for students after School forest development. They have continued to look for the links between education and the local community using the School forest.

In the process of School forest development, local residents became more interested in the creation of School forest, a green space in the region, as it was located in a poor environment. Parents and students from Seoul, Bundang and other areas were participating in the initiatives actively as main agents of change for the school and the community.

In this case, Hyeeun School exemplified a distinct role as a focal point in building networks by connecting diverse stakeholders. As the School forest initiative created diverse time, space and means for various stakeholders to be involved, several local people were able to participate in the process in the form of donations, item sponsorship or as volunteer workforce for the initiative. It is considered that, participation and interest „ could be a significant impact on the sustainability of the School forest initiative of Hyeeun School.

Description of Collaboration:
Since 1999, Forest for Life (hereinafter, 'FFL') has been implementing the School forest Initiative. In its initial stages, FFL organized the School forest Committee consisting of experts in landscape architecture and education, officials of Korea Forest Service, and enterprises to make diverse efforts for creating School forests and disseminating the positive values of them.

The proliferation of values and meaning of the School forest Initiative required schools to actively work together from the phases of selection and planning. The School forest Committee needed to choose schools that could ensure sufficient collaboration in the process of making School forests and thereby devised key criteria for selection. In 2001, the Committee chose Seongnam Hyeeun School through a public selection system as one of the schools that successfully met the selection criteria. The Committee considered not only the active attitude towards the initiative shown by the principal and teachers of Seongnam Hyeeun School but also the

fact that direct experience-based activities through School forests are expected to have more positive effects on students of the special school in the enhancement of physical and emotional functions of its students than those of other schools.

A more stable operation system was able to be set up, helped by the strong willingness of schools to create School forests, FFL's endeavours to acknowledge and disseminate the values of School forests, and active participation by an enterprise, Yuhan Kimberly, that fully understood the real value of the School forest Initiative and decided to financially support the initiative as part of its CSR (corporate social responsibility) activities.

Following the completion of the public selection process and discussing necessary matters with FFL and the School forest Committee from the early planning stage, the agreements for the School forest Initiative were concluded with the principals, teachers, and parents organizing committees. The collaboration was initiated by principals and the chairman of the School forest Committee, but schools and FFL enabled diverse stakeholders to engage and cooperate with each committee. The School forest operation committee organized school-based meetings more than once a month and collected and coordinated the needs of school members. When implementing the process, in-school agreements, rather than an individual opinion from the principal or a responsible teacher, were encouraged and promoted, based on which, a final decision was made through regular discussions with FFL. The Korea Forest Service, the Seongnam City Government, and other community groups took part in the process of creating School forests (see Fig. 12).

The collaboration system was able to be sustained because each entity shared values in the promotion of sustainable relationship, as well as rules for agreement processes. The shared value is that the disabled students regarded as socially vulnerable should not be discriminated in any environment and that mentally challenged students should be encouraged to independently participate in the initiative not as beneficiaries but as self-reliant entities.

This is considered to be a very significant case where the principle of equity in ESD was successfully executed, and also shows how collaboration among diverse stakeholders in and out of school was implemented and facilitated.
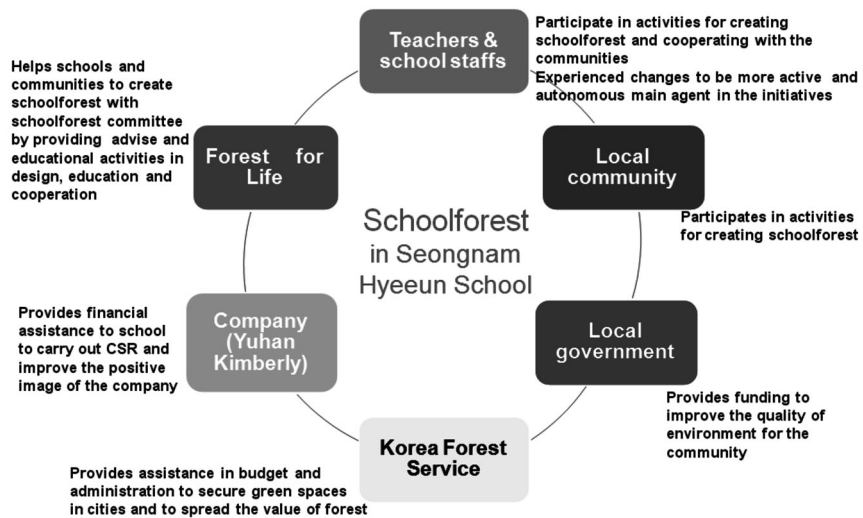
Fig. 12 Description of collaboration in School forest Initiative of Seongam Hyeeun School

Evaluating the collaboration: The tools

Seongnam Hyeeun School and Forest for Life (hereinafter, 'FFL') formed a partnership by signing a letter of agreement and implemented agreement-based activities in the process of creating School forests. According to the 5-year agreement (2001 ~ 2005), about KRW 10 million (about 7000 Euros) worth of financial assistance from Yuhan Kimberly is provided to the school every year.

The School forest Initiative was not limited to the relationship with FFL and Seongnam Hyeeun School and was expanded to publicize the School forest as a meaningful space for Seongnam City as a whole.

FFL gathered a number of expert volunteers from various areas and conducted research on the value of School forests in order to help school members have more interest in the forests, as well as participating in discussions and offering financial support. Furthermore, schools didn't limit the scope of the project to School forests created through FFL's financial assistance and expanded it to a bigger framework in which local governments, educational offices, and companies can take part. Such an idea was reflected in the school forest plan.

Through collaboration, schools and FFL strived to enable physically and mentally challenged students to improve not only in their physical and emotional functions

but also their social capabilities that are required for rehabilitation through the positive roles of school forests; to eliminate prejudice in communities against special schools by using beauty in landscape that forests can create and to make school forests friendlier places where community residents would want to stay. Teachers, parents as well as local residents participated in surveys and interviews and their ideas and opinions were used for promoting the use of forests for educational purposes, considering that schools are located in communities. Even after the 5-year agreement expires, FFL and Seongnam Hyeeun School has maintained cooperative ties and the school has been supported to form partnerships with diverse institutes other than FFL.

Conclusions and Implications

The School forest Initiative has a big enough advantage to be presented as a model of 'convergence.' This scheme expanded an educational space from a classroom to a school forest. 'Education' and 'Forest (Space)' are in different dimensions, but successfully combined they can create a positive value. This was achieved through collaboration between schools (educational institutes) and FFL, an NGO that specializes in forest management. The initiative served as an opportunity for school members, community agencies, and residents to cooperate based on active participation, which can be deemed to be a great achievement in terms of collaboration. 'Sustainability' in collaboration between schools and communities is a tough question that should be considered not only during the duration of the agreement but also the ensuing period. In this case study, the school identified and proposed measures to cooperate with diverse agencies including a local government, the Korea Forest Service, and an educational office in order to operate and use a school forest in a sustainable way and for educational purposes, respectively, and created events in which local firms and community residents can participate. It provided opportunities for participants to recognize such tasks not as duties of other community members, but as their own responsibilities, and thereby resolved sustainability-related difficulties.

Collaboration partners naturally affect each other. The School forest enhanced the beauty of the community in terms of landscape and made community residents feel comfortable emotionally, improve their attitudes and increase their interest in Seongnam Hyeeun School. The school itself studied ways to continuously maintain the School forest. The whole-school approach based on the School forest united the community into one and enabled community members to communicate with each other.

The collaboration system can be established basically based on partnerships among organizations that participate in the initial stage of the initiative. As partnerships or networks expand, new synergies can be generated from additional incorporations of strengths by diverse stakeholders, which can add more values than expected in the beginning. In the later stage of this case, small School forest festivals were organized and enjoyed by community-based small retail shops, public personnel in the local government, school members, and local residents. The income of these festivals was used for maintaining School forests, which coped with the issue of School forest management, even for a short time. Im-Deok Lee, a teacher in Seongnam Hyeeun School was commenting on this perspective:

> *"Creating School forest was a beginning of the changes, but I don't know where the end is". (teacher)*

However, what should be noted in connection with this case are the different interests and expectations of multi-stakeholders. In the case of Seongnam Hyeeun School, stakeholders shared the goal of making the School forest a reality. However, they had diverse interests in and expectations for the School forest Initiative that reflect the mission of each stakeholder as seen in the Fig. 3. First, Forest for Life, which was the main agent to make this happen, helped schools and communities to create School forest through School forest committee by advisory and educational activities in design, education and cooperation. An enterprise named Yuhan Kimberly provided financial assistance to school to carry out CSR and improve the image of the company as a firm for forest creation, rather than tree-cutting. The Korea Forest Service wanted to secure green spaces in cities and to spread the value of forests, so it provided assistance in budget and administration to increase forest in schools. Seongnam City, the local government, also provided funding to improve the quality of enviroment for the community and local community participated in activities for creating School forest. And teachers and school staffs participated in activities for creating School forest and cooperating with the communities. The interesting thing in this case is that these teachers and school staff had to undergo changes to become more active and autonomous main agents in the process of the initiative. Therefore, in case multi-stakeholders are involved, their different interests and expectations should be identified and respected – unless they hinder the achievement of the common goal.

To deepen the insight in the collaboration process, this case was further analysed, discussed and compared within the multilateral network CoDeS. Further information on this case is available in CoDeS Case Blog under: http://codeshyeeun.wordpress.com/.

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School-community collaboration for the engagement of pupils, teachers and governors in the science, engineering and technology of „carbon neutral" schools

Margaret Fleming, Mark Lemon, Fiona Charnley, United Kingdom

Abstract

The United Nations Conference on the Environment and Development (UNCED) in 1992, the United Kingdom Government's Climate Change Strategy in 2007 and the Sustainable Development Action Plan 'Brighter Futures – Greener Lives' issued by the UK Department for Children, Schools and Families (DCSF, 2008) all argued for a population that is educated to understand sustainable development. Alongside this the UK Building Schools for the Future (BSF) programme was initiated in 2006, although terminated in 2010, with the aim to rebuild and or refurbish all secondary schools in England. At its heart was a requirement to engage with pupils as part of the development of a vision for their new school. In light of this, funding was sought by the Institute for Engineering and Sustainable Development for a project which would engage the 'school community' in the science, engineering and technology of a low-energy school. Pupils, teachers and governors would then be in a better position to actively take part in the BSF process and the design of their new 'low carbon' schools. They would also be more able to do this within the context of a holistic approach to sustainable development and the education for it. The following case is a brief report of this project.
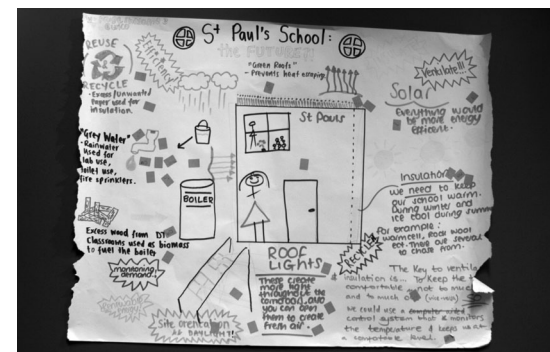

Figure 13: Students explored the different features of a sustainable school

Background and focus of the collaboration:

There is often a misconception that carbon emissions are largely related to waste and as a consequence recycling projects are a popular way of addressing sustainability, particularly in schools. However, as figure 14 shows, waste accounts for less than 1% of a school's total carbon footprint whereas the actual buildings and procurement processes (including food) account for a significantly large 83%. This supported the decision of the project to focus on the sustainable development and operation of school buildings (Sustainable Development Commission, 2008).
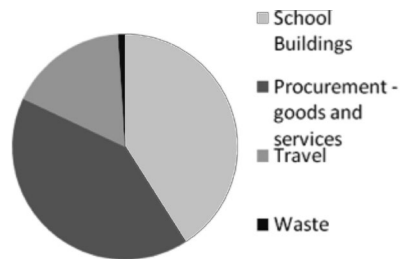

Figure 14: School carbon footprint (data from Sustainable Development Commission 2008)

Given these findings, along with the opportunity that rebuilding provided, the engagement process centred on the design and development of new and refurbished school buildings and highlighted five key design principles. These were:

1. Monitoring and Reducing Energy Demand and Consumption: highlighting methods of energy reduction throughout the school,
2. Site Orientation and Natural Day lighting: consideration of the school site and how the school can be positioned to maximise the use of natural daylight and solar gain,
3. Ventilation and Heat Flow: the introduction of methods for naturally ventilating school buildings and encouraging the positive use of air flow,
4. Insulation and Air-tightness: highlighting different approaches and materials used to insulate school buildings,
5. Renewable Technologies: the consideration of renewable energy and technologies that are available for installation and use within a school.

With these principles in mind the substantive project aim of contributing to the 'co-design' of a school was seen to align with the opportunity to bring together a diverse range of groups from within the academic community, in particular between school stakeholders and higher education. The pursuit of these aims was

complemented by the subsequent learning about the technology, science and practice underpinning low carbon buildings, and the five specific sustainable design features outlined above; their design and the realisation that this knowledge was not unidirectional but moved between collaborating groups with varied insights, expertise, knowledge and requirements.

Project Stakeholders: The 22 engaged schools were all state comprehensives with age ranges 11-18 /11-16; there was direct engagement with 600 pupils and indirect engagement with an estimated 8000. The schools were all required to complete a Sustainable Development ‚vision' statement within their Building Schools for the Future action plans and the extent to which this impacted on the participants of the workshops varied considerably. However the particular focus of the work within this context was to get the students to look at the science and engineering of a ‚low energy school'. For this to have an authentic ESD context, best practice teaching and learning activities in terms of experiential learning and setting the project into a global context were sourced.

The project community was in effect the collaboration i.e. between teachers and pupils in the project BSF schools, between the school representatives and the University and between the school designers and users. It could therefore be interpreted as the stakeholders in a process with a specific aim – the creation of a sustainable school. This involved the contribution of the school users but necessitated engagement with the university to operate as science ambassadors and to raise the level of sustainability literacy so that it could be incorporated into discussions with the designers. The approach was modelled on the UK STEMNET scheme. PhD researchers and lecturers from the university 'underwent' training in the 'workings' of a secondary school and possible ways to communicate with students of that age. The project 'community' could therefore also be interpreted as the 'shared learning' between the participant groups; while this was fundamentally different between specific groups (e.g. designers and users; university and school), collectively each relationship contributed to the pursuit of the core aim.

Project collaboration: University staff and PhD students from the Institute of Energy and Sustainable Development at DMU were trained to effectively communicate the work of the unit in low carbon buildings to young people. They were taken on two visits to new schools (Castle Rock and Forrest Way School in Coalville) and an architect from Wilmott Dixon, who was heavily involved in the design of the schools, gave the tour and outlined the thinking behind the design. These visits

informed University personnel about the 'life' of a modern secondary school and the corresponding design requirements that each school had. An additional session focused on providing staff with methods and techniques for communicating research relating to sustainable development to young people.

In order for the project to be recognised as ESD, rather than a series of building design engagement activities, it focused on learning that was integrative, critical and transformative. As with any co-design process the learning was also multi-directional i.e. not restricted to the transfer of information but to the sharing of experiences, opinions and desires between collaborators. It was also cross-disciplinary i.e. relating the technical and social sciences, and transdisciplinary i.e. cross cutting pedagogic and building functions and drawing upon generic skills to do so e.g. seeing the school as a whole system.

Collaboration with, and pupil engagement in, the generation of a vision for their school was central to the Schools for the Future programme and provided a focal point for this project. It is also consistent with the central position of sustainability in the UK Sustainable Development Strategy and OFSTED's recognition that active and meaningful engagement in decision making often co-exist in schools that have sustainability at their core. Potential collaboration is therefore apparent between tiers and layers of government as well as within a relatively small and localised project.

Resources for the project were developed in partnership with the Centre for Alternative Technology in Wales to enable pupils to fully understand the complex science and engineering issues surrounding the design of sustainable schools. A package of engagement activities was also developed out of these resources as one-off days out of the classroom; teachers were also given material and guidance to continue the work back at school. The engagement events utilised within the project were carried out in four phases. These were loosely based around the *Enquiring Minds Programme* which is an approach developed by Future Lab to learning and a response to the challenge schools face in the task of preparing children for a future characterised by rapid social, technological and cultural change. Each phase involved a number of experts from IESD who had been trained to facilitate the engagement activities with pupils and teachers; this provided pupils with the unique opportunity to engage face to face with professionals throughout. Prior to all engagement events thorough risk assessments were carried out by the schools involved and the relevant facilitators.

Phase 1: Introducing the Principles of Climate Change and Sustainable Development
This was a one day workshop with the aim to introduce pupils to the topics of climate change and sustainable development through the provision of information about what schools need to do to reduce their carbon footprint. The ideas associated with sustainable development can seem complex and daunting and so this phase focused on motivating the pupils by identifying facts that they already know or had heard of in a context with which they are aware.

Baseline survey: Pupils were initially asked to fill in a baseline survey to ascertain their level of current knowledge of general and building related concepts such as sustainable development, climate change, ventilation, insulation etc. They were repeatedly reassured that it doesn't matter if they did not know the answers and were encouraged to seek guidance if unsure of the meaning of any words. It was important, however, that teachers and experts did not give the answers away.

1. *A-Z Activity:* Pupils were given a written alphabet and asked to put a word by each letter which related to the theme 'Designing a Low-Carbon School'.
2. *Data race / Quick on the Draw:* Pupils were split into groups and set off on a 'race' to find out key bits of information to answer questions on the theme of climate change.
3. *Market Place Activity:* Pupils were divided into groups of five representing each of the sustainable design principles. Each group was provided with a range of resources and given the task of interpreting the knowledge and communicating it to the rest of the class through a poster (Figure 13).

Phase 2: Practical activities:
To make learning relevant to the young people engagement events utilised real-life contexts as much as possible.

1. *Inspirational Visits:* Pupils from each school were taken on a tour of an existing low-energy BSF school; these were intended to enable pupils to visualise energy efficiency more effectively. Prior to the tours the pupils were reminded of the five sustainable design principles and encouraged to bear these in mind and ask questions about them. Photo stories were also produced of the visits.
2. *Thermal Imaging:* Working with thermal cameras and images proved a useful method for communicating complex ideas relating to insulation, thermal gain and loss, air-tightness and material types (Figure 15).

Figure 15: Students used thermal imaging to highlight complex ideas

Phase 3: Creating a wish list for your low-energy school

Once pupils were confident in discussing and utilising some of the complex ideas associated with sustainable development a second workshop focused on substantiating this new knowledge and information within the context of designing the new school. Pupils chose how they would like to communicate the knowledge they had gained back to their peers and teachers. Dissemination activities included: Power point, podcasts, newsletters, video sketches, songs and raps, posters.

Phase 4: Presenting and Communicating

A key part of the project was to ensure that the knowledge and understanding, gained through participating in the engagement activities, was disseminated back at school and integrated, where possible, into lessons. Where practical pupils were able, and valued the opportunity, they had the posibility to engage directly with the professionals who were responsible for delivering their new school and their own vision.

> "Having listened to the excellent presentations given by each of the student groups I was astounded by their grasp of both their understanding of the subject and their passion for the integration of renewable technologies in their new school. It was obvious that a great deal of high quality research has been carried out by all participants which resulted not only in excellent presentation work on a variety of technologies but furthermore a challenging question and answer session. It is encouraging to see that pupils of such a young age can not only engage in a mature debate but who are likely to develop into our next generation of high quality engineers." (Architect, Hulley, Kirkwood)

Description of the value of the collaboration:

The previous quotation provides one example of the value of the numerous engagement events that stimulated interest in collaboration and co-design for low-energy

school design. This engagement inspired young people to consider energy efficiency and research in low-energy buildings as a potential career; many also said that they now understood far more about the science and engineering relating to sustainable buildings and the role of the architect.

After the engagement activities the percentage of pupils that said that they knew 'a lot' about issues relating to sustainable development also increased from 19% to 74% (Figure 4). Pupils who that said they knew 'nothing' about the topics reduced from an average of 15% to just 1%, and pupils who said they were interested in science and engineering and would consider it as a future career rose from 57% to 71%. Teachers also found that the engagement activities had helped substantially with their own teaching of ESD in science classes:

> All of the kids got a lot out of the activities and the people involved have provided a valuable basis for them to create informed decisions. Thank you for all of your expertise; I wouldn't have known where to start! (Teacher, English Martyrs School, Leicester)

Research suggests that ESD is most successful when taught within a real-life context, such as an existing government initiative, making learning more meaningful and relevant. The experience of the project supported this and found that the building process is an exciting and inspiring context through which to teach ESD; it also provides a relevant metaphor for the collaborative focus of CODES:

> [I enjoyed] being part of it, we are here to help the rebuilding of our school community and I feel very emotional about that, in a good way – just think, in the near future we will be the reason we have that particular school (considering it's good). (Eloise, 13)

Reports have suggested that the schools which are most successful in developing a commitment to sustainability throughout the school are those that have an active school council or designated 'eco-group'. Similarly when undertaking engagement activities it has been observed that existing groups of pupils, such as the school council or even a particular science class, have been more successful in disseminating information throughout the school. This is because they frequently have the opportunity to liaise as a group and can therefore continue the work back at school. The concept of community and collaboration is seen as a dynamic one that is often defined by a purpose or focus – this project suggests that the school community

may well alter and expand in response to a co-design process and an understanding of the sustainability principles behind low carbon building. It is important to recognise that teachers often found the process helpful from a pedagogic position and building designers (e.g. architects), managers and evaluators (IESD), representing each stage of the buildings' progress, all benefited from engagement with the project.

Further information on this case is available in CoDeS Case Blog under: http://codeshyeeun.wordpress.com/.

What, if anything, do you know about the following terms? (PRE)

What, if anything, do you know about the following terms? (POST)
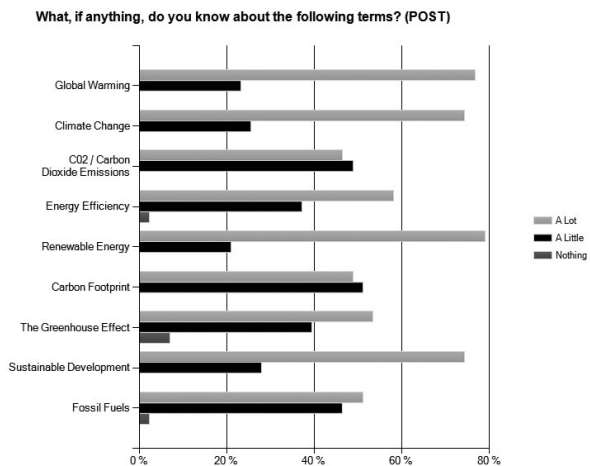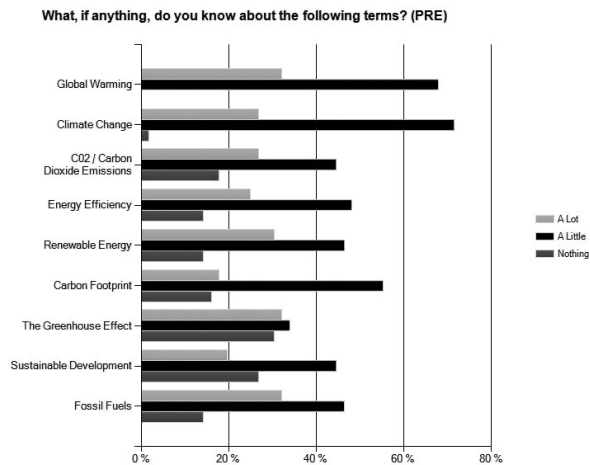
Figure 16: Perceived awareness of sustainability issues – before and after the project

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Small municipalities and small schools, working together for a sustainable future

Leda Zocchi, Istituto Comprensivo di Sanfront-Paesana, Italy
Vanessa Pallucchi, Legambiente NGO, Roma

Abstract

The experience reported by the Italian "Istituto Comprensivo di Sanfront-Paesana" is an example of the roles that a school can play when it is situated in small municipalities and isolated communities. Isolation is not so much a geographical but a cultural feature, and the engagement of schools in local cultural and social development could make the difference. As reported in the Case Study, crucial factors are the engagement of the whole school and not only of individual teachers, the collaboration with local authorities, and – to overcome the feeling of isolation - the contacts with the national ESD community, through NGO as the National Association Legambiente, and with the European learning community, participating in Comenius or similar Europeanprojects. The metaphor of a spider with many nets illustrates the main directions of school engagement: open the borders, prevent youth uneasiness and reinforce local identity. For all these working lines collaboration is the key feature.

Key words: Small schools, isolated communities, local cultural development, youth uneasiness, collaboration on local and national level.

Introduction

This contribution focuses on the role that a school, placed in a mountain community affected by depopulation, can play. Small schools should be seen as fundamental 'instruments' to maintain small towns alive, but in order to survive they need to build a strong 'alliance' with their local communities.

The following experiences are the results of the schools' (Istituto Comprensivo) development and the involvement of other institutions and partners that have continuously supported the ESD during these years. The schools in remote, isolated, mountain communities meet several challenges that arise from their geographical isolation, the depopulation and need to concile the protection of an endangered local culture and language with the integration of immigrants with different

backgrounds maintaining at the same time the local and foreign identities of its inhabitants.

Several projects were organised in order to tackle these challenges. During the process there was a temptation to take any proposed opportunity, often in a non-planned and non-coordinated way. There was also the risk of not overcoming passive implementation and not developing a real overall planning of our school. Another risk was simply making ESD another formal project of the school development plan, completely detached from the daily routines of teachers and students. Within the process we also identified local institutions and we proposed collaboration to the municipalities in order to consider the school like a common good and to find out the way to appreciate the territory and its resources first of all towards the young citizens. In order to successfully meet these aims and challenges we firmly believe that it is important to undertake actions and interventions for the training and better preparation of the teachers and find ways of actively involving students.

Small municipalities
Since the end of World War II the population within the Italian Alps valleys has constantly decreased, the lowest level recorded in the late '90s. The community of the Upper Po valley is formed by 7 municipalities, 3 of which are small mountain towns with less than 600 inhabitants each. Sanfront is the biggest town in the valley with almost 3.000 inhabitants followed by Paesana, located further up (see the map, figure 17).

Figure 17. The map of the Upper Po Valley

The three towns in the upper valley are those who have most suffered depopulation. Trade, services and tourism-related activities have gradually replaced agriculture

as main economic sectors in our territory even if there are not the conditions for significant development. Ostana, one of these three small towns, chose to invest in a vision of sustainable development where environmental protection is integrated with cultural promotion. The use and development of the local minority language - Occitanian - has been meant as an instrument to maintain a strong identity and has been placed at the centre of all municipality projects. The Ostana municipality, one of the beautiful Italian villages, has aimed to appreciating the Alpine architecture and it is now experiencing a new form of landowners association for a collective management of fallow land; it has supported an eco-friendly tourism development and opened a hostel and a farm guesthouse. Thanks to an European funding it is restoring a hamlet at 1450 mt high; it is taking on the new challenge of the mountain agriculture and consequently encouraging people to "come back to the mountains". The rebirth of Ostana is an important sign that the whole population of the valley is understanding the project.

The other minor towns Oncino and Crissolo have no long term projects. Crissolo has been a small ski resort, but the climate change has made it difficult to continue to develop these activities. In Paesana a textile factory went on for many years, but it is closed now. A mineral water company and numerous farms – including educational farms – are the main job opportunities. Sanfront is very similar to Paesana, with a major industry that produces doors and wooden doors and windows, and a small manufacturing industry, which employs women. Nonetheless, the overall local economy is in recession. What is missing is a common project aiming to the development of the entire valley. Differences in visions among the local authorities and the dispersion of initiatives hinder durable and sustainable development. In such small communities, without cinemas or theatres, the schools and the two small libraries are the only cultural resources in the area.

Since 1995 there has been a significant flow of immigration in the area especially from European countries such as Albania, Romania, Poland and from non-European countries like Morocco and China. A considerable amount of returning migrants from France and Argentina has also been experienced. Problems of identity, especially among the immigrant children of second generation, are growing, especially because families are often unsure which language to use with them. We face different kinds of weak identities who risk to be melted in an unsatisfactory "standard Italian" model. This new identity has denied the Occitanian and Piedmonts roots of locals for generations. A solution to the identity problem has to be found since an increasing number of children are being born in immigrant families: cultural models

need to find a way to coexistence. The efforts of the schools go towards the recognition of positive values within all the cultures living in the area and the revitalization of the Occitanian roots and traditions, which are the most endangered.

Small schools
The Educational **Institution Istituto Comprensivo di Sanfront-Paesana** (previous name 'don Milani') is made up of nine different schools that have the same principal and the same school board and are all located within the natural park area of the river Po. The school buildings are situated along a 45 km long valley. Three of the schools are pre-primary schools, four are primary schools, and two are lower secondary school – about 670 pupils.

Figure 18. The Istituto Comprensivo building in Paesana

The Italian State has recognized these schools as 'mountain schools', a special status that allows for a reduced amount of pupils to form an educational institution (the minimum student number in the 'city schools' is currently 800 pupils, but sometimes this number raises up to 1.000 pupils). "Mountain schools" play an important role because they guarantee the maintenance of high level services for people who live up in the mountains. They are sometimes organised as multi-age classes but what is of great value in these schools is the possibility for children to experience a very special and stimulating educational setting linked to the community and raising awareness and concern for the territory.

Since 2006 the school has chosen Education for Sustainable Development as the focus for its educational plan, sharing a vision of ESD as an integrated framework for every learning and training experience. The school relies on enthusiast permanent teachers both in pre-primary and primary schools. Teachers in the lower secondary schools are also concerned but, unfortunately, most of them are temporary teachers of the school. A lot of them live away from the valley, sometimes more than 50 km.

The provisional nature of their appointment together with the school budget cuts have a strong impact on the school planning which is limited to one year planning. Nevertheless, the school has launched several long term Comenius projects (one of these on multi-linguism) and over the years has implemented various other projects promoted by the municipalities in the area – i.e. 'Youth Municipality Council' and the 'Alps Caravan'.

There are many opportunities to develop traditional environmental educational activities in the area, and the Institute chose to accept the challenge to face and confront, with its initiatives and its curricular offer, the isolation of the valley, the effects of the loss of population, the fear towards the 'others' (immigrants or just strangers in the valley), and to propose in collaboration with the municipalities the raising of a European awareness.

The collaboration between the schools and the local communities has followed two complementary directions: in the first one, the school started a network of relationships with private and public institutions in order to financially and culturally sustain its own projects. Projects in the last six years have consisted of activities aiming to a) protect the Park territory and other areas in Piedmont; b) develop Occitanian as a minority language in Italy; c) develop science education and laboratorial methodologies; d) develop early learning of European main languages such as French and English. All these activities have contributed to involve families and to foster a larger knowledge of the community's environment and traditions. Families were significantly involved in welcoming and hosting foreign pupils and teachers.

In the second direction, the school, welcoming the proposals coming from different actors in the community, has become a major knot in a local network. The fact that all the children in the valley attend the Istituto Comprensivo "don Milani" made the collaboration easier: This has been the case for the Youngsters Municipality Council (Consiglio Comunale dei Ragazzi) of the Paesana Municipality. The project aimed to develop the youngsters' awareness and abilities to self-organize their free time with sports, music and other activities. The meetings of the board are held at school during school hours; elections also take place in school and sport activities do usually take place in the school gym hall.

The school's ESD vision
The educational proposal of the school has been modified in the course of the time. We changed from a theoretical approach and a general scientifically oriented

view of ecological matters to a combination of interventions that identify, first of all, ESD as a multilevel matter. In our proposal there aren't favorite sectors or topics, but what is important is to link practical daily actions in the school routine, avoiding more visible "big projects" that don't affect children's daily behavior. For this reason, not only individual teachers but part of the teaching staff was involved in the project. Another significant aspect of the experience is to find the right field of direct experience in order to look carefully at the surroundings, understand the relations, ask questions and propose interventions. Finally, considering that ESD is also education for making choices and taking on responsibilities, interventions sought to promote personal growth and find new spaces where children can express themselves.

The involvement of families in the project came later: teachers needed a continuing training in order to understand how to include the ESD in the curriculum of different subjects and initially different partners were involved. A big challenge was to succeed in establishing long term projects that would allow a long run view involving teachers and students for several years on one hand and a fresh start every September on the other. We also tried to create a flexible but resolute model so as to start from the scratch every year, but to have a clear continuation of the school development planning.

Working together with a NGO
Initiatives launched by Legambiente NGO were integrated in the school projects. For several years the teachers and the pupils participated in national campaigns as "Clean the world" or "Small municipalities Great schools". This type of initiatives, have a low cost and for this reason they are easy to include in the school budget; besides they guarantee the continuity because they are re-proposed every year and create expectation.

Figure 19: Clean the forest nearby the school site

Every year the activity "Let's clean up the world" is taken on by the 9 and 10 year old classes. The children themselves choose the place to be cleaned and it is usually a place they really care about such as the park where they go in the afternoon or the open space of the Ostana municipality, so they can even see examples of traditional architecture, the use of photovoltaic system in the town or solar panels on the roof of the municipal building.

The activity "Small municipalities Great schools" has been lead in one of the smallest schools of the institute (26 pupils that year; today 32) and the result was the painting of the recycling bins, making objects out of waste material and a final yummy party with traditional music, with the teachers', pupils', parents' and friends' participation. All this experience made the school be alive in August and saw the presence of the community: a direct way to understand the importance of getting involved in ESD not only for the children but also for the adults.

Sometimes schools on their own are not able to propose significant initiatives but feel connected to other schools that are in similar conditions. The proposals of Legambiente try to overcome the isolation of the schools and their marginalisation due to their size and summarize an action, a problem or a perspective of work with a captivating communicative slogan.
All projects and pupils works are presented on the schools website www.istituto-comprensivodisanfrontepaesana.it.

Many nets one spider: working together with local communities
For over six years now the institution has been acting as a connecting point – sometimes the central one - or as a spider, between local institutional networks, non profit organizations, parents and other NGOs such as Legambiente etc. with the aim to value and maintain the cultural identity of the valley while opening to Europe and the whole world.

The Po valley is a closed valley with no access to France. This has led to the isolation of the people and a sort of retreat that can be a key factor for forming ones Identity – I know who I am because I know the whole community - but also can create introversion, insecurity and suspicion towards the foreign immigrants that come to live and work in the valley as well as within their professional and personal relationships outside the valley.

Figure 20. The Po valley and the Monviso mountain

The lack of confidence in oneself, the static attitude and low ambition was the subject of a psychological research "How are you today?" that highlighted a certain emotional frailty amongst the 8-14 year-old age group. School welcomed therefore the proposals coming from different actors in the community and it has become a major knot in the local network. The project aimed to develop the youth awareness and abilities to self-organize their free time with sports, music and other activities. As written before, the fact that all the children in the valley attend the Istituto Comprensivo made the collaboration easier, as for the Youth Municipality Council (Consiglio Comunale dei Ragazzi) of the Paesana Municipality. Another product of the council's work, was the issue of an online school magazine (http://giornalinodipaesana.weebly.com/).

One of the disadvantages of the Youth Municipality Council however was that the age range was rather limited and the young participants were only 9-14 years old. By the time they understood better the potentialities and the course of action, they finished school and start attending secondary schools. Nevertheless the process offered significant self-management training for the growth of young people.

The following sections focus on three of the school's activities: the first is a Comenius multilateral project 2009-2011 together with French, Spanish, Portuguese and Romanian schools; the second is the Youth Municipality Council we just mentioned; the third is the schools-net which was created for a project on less used languages and developed into a project on "plurilinguism" (also including languages of immigrants).

A net to open our borders
The title of the Comenius project was 'Regards croisés des jeunes européens sur le développement durable". The project, which lasted two years, was a research about

local plants and cultivation, wild animals, the conservation of flora and fauna and the traditional culture of the area. The students realized a power point presentation about the characteristics of the territory, the fauna, a complete menu with typical products, e-mail and skype relationships to sing songs and describe traditional festivals.

Visits exchanged with other European schools aimed to give our teachers, pupils, and (in a less direct way) parents the opportunity to experience educational systems in other countries. The first problem we faced was how to stimulate curiosity and interest towards other ways of living beyond the limits of the restricted local horizon. Hosting pupils and teachers from other countries, sharing free time and school activities, laughing and eating all together, helped to understand that we all have something in common. We received great help from families and from municipalities in the organization of meetings and the accommodation of the foreign students. In the past three school years we have hosted students from 10 different European schools and we have taken 57 pupils and 9 teachers in trips abroad. This project had an emphasis on the features of the local (endemic) fauna and flora, the traditional cuisine, the local products (zero-mile production), healthy foods, etc. The activities included both the years of primary and lower secondary school and worked around the themes of health, well being and sustainability at school. Many small but very concrete actions have been proposed and implemented to build a more sustainable school: fruits and vegetables distribution in the classes once a week, differentiated waste collection, organic composting for the school garden and vegetable garden, use of bikes for mobility into town (in connection with Legambiente) and more.

The programme offered young people and their parents the opportunity to better understand Europe, and become conscious of the topics and problems we share with the other European countries. Unfortunately, European funds supporting this type of projects are being restrained. The reduction of the funding in the last two years prevented the school from taking advantage of this valuable opportunity for overcoming the marginalization and isolation imposed by its geographical location. The school tried to compensate with other projects (e.g. E-twinning), but the experience of going into another school and in another country, in the home of other pupils has quite another significance.

A net to prevent the youth uneasiness
The Youth Municipality Council project was launched in Paesana more than six years ago. A professional educator supported the activity of the Council and worked

for an inter-municipal project offering activities to prevent youth uneasiness as a consequence of the community isolation. This project brought about an extensive coordination between the different villages, with the creation of a meeting space which had the school at the centre and where the students were involved in organizing football matches, walks into the nature, music events, meetings with French students, juggling courses, etc.

The cooperation with the alpine guides association 'Alpiteca O-zone' allowed us to offer our pupils sports relevant to the context they live in, that is the mountain: rock-climbing, mountain bike, short excursions, snowshoeing, skiing etc. These actions strengthened the pupils' awareness of their being "mountain people".

The activity of the Youth Municipality Council helped teachers and local sponsors to take into account different perspectives about the needs of young people in our area. Thanks to the educator, requests from the youth came straight to us, with no further need for discussions. We could thus devote our efforts to help them self-organizing their activities: only the more motivating proposals were considered and developed. The group improved its capacity to organize events and at the same time became more aware of its strengths and weaknesses.
We hope that these activities will facilitate cooperation between the different towns, or at least between the youth, so that in years to come this collaboration may help to overcome the isolation of the villages of the valley.

A development of this project was the collaboration with the local Mountain bike association. This association volunteered to join the Youth Municipality Council activities and provide lessons about road safety and bike maintenance. They also had some outdoor activities along the river Po with our pupils. This is another example of how the objectives of the association (to get new members and expand their activities) can match the objectives of the school (to reinforce sports in the School development plan). The choice is to make proposals for various outdoor activities that children can do in any season in the mountain around their place.

A net to reinforce our identity
The school has taken part in various national projects with an emphasis on minority languages. We worked with eight schools from different Italian regions and learned about CLIL methodology (Content and Language Integrated Learning). The opportunity to meet teachers from other regions using less traditional language teaching approaches, to compare activities and methodologies and share our experiences

was very stimulating. At present our pre-primary school teachers are preparing lessons for the Occitanian language teaching; we aim to organize a podcast radio telling about the activities that the pupils do, play some radio drama, etc. We have the support of various Occitanian associations and this helps to enhance the links with the Occitanian community (which is larger than the Po Valley).

This activity will help people become more aware of the importance of their local language. Indeed Occitanian as a language has a very low 'social status', and the sense of identity in the valley is weak because people are convinced that they 'have less' than people from the city. Seeing people from other places coming to hear the traditional songs, visit the schools, speak with them, can raise their awareness of how important and interesting their heritage can be.

The last step along this way is the undertaking of a new project about 'multilingual learning', with which we want to give visibility to all the languages spoken in our school: Ten per cent of our pupils speak Albanian, Chinese, Romanian, Polish, Arabic, French, etc. Very often the school does not give space for developing competence in these languages and children feel uncomfortable speaking in their mother tongue, with the risk of growing up without a well defined identity.

The stereotypes, sometimes not explicit but implicit, the economically weak position of immigrant families and the lack of opportunities to share positive and interesting aspects of their culture with the rest of the community, create a certain isolation of these families. Children sometimes succeed in overcoming these barriers at school and create friendships through common activities even outside of the school context.

The risk for community isolation also emerges from political decisions intending to defend local culture and identity.

This project that embraces local and foreign cultures and languages was welcomed by the families, perhaps because of the school's status and the trust in the activities it carries out. This project, which is still developing, was also an opportunity to enlighten the presence of parents and grandparents from other regions of Italy, who contributed to a more varied linguistic background.

Collaboration: an added value and a challenge
In these years the cooperation has grown, involving not only institutional and public

subjects but also private actors and associations. The activities have given birth to a network of personal relationships and contributed to strengthening the knowledge and cooperation between people living in the same territory allowing people with different point of views to share some social priorities. Besides, schools are thus aware they are not alone in promoting ESD. An extensive network has grown that, however fragile, valuably gathers the concern of schools, local organizations and families. Other sponsors learned to share perspectives and they are now more eager to cooperate even on those fields on which they first hesitated.

The school is perceived as a 'champion' in education, not just a knowledge repository, which can contribute actively to the growth of a small community. Teachers act not only as professionals but as members of the community, who try to look beyond the school's mere educational borders. Over the years the Institute has gained itself a reputation and other actors (municipalities, associations, etc.) look to it as a potential partner for their projects, not only as a 'receptacle' of children and parents. The ability to successfully continue the initiatives put in place will depend on the capacity of the school to engage new teachers and share with them the same visions not only in terms of learning, but also of education in general. The goal is to create a system, not just a collection of good practices, and to ensure continuity to the initiatives.

The participation of some organizations, like Legambiente and others, promoting campaigns about ESD every year, has positively created expectations and motivation. The constant commitment of the associations, even in identifying issues to work on, experiences to disseminate and purpose, providing advice and support, is an important reference point for schools, in contrast to local authorities that can change their orientation, and their attention to ESD, according to the political orientation.

Particularly in the case of Legambiente, the established collaboration had the advantage of providing the school with intervention methods other than those usually used, with a specific attention to the implementation of concrete actions and scope of understanding and direct management by pupils. This mode also triggered a series of teachers' reflections that have altered some design choices for directing them towards more practical actions.
The collaboration with Legambiente also provides liaison with other schools and this reinforces the motivation of the teachers in carrying out local initiatives and giving them a broader perspective.

The different responses of the Municipalities to proposals and projects have significantly affected the success of the activities. At the time of the 'Clean the world' campaign, for example, three Municipalities promoted the project and a group of adults were also involved. In the case of the 'Alps caravan', which promoted summer events in small towns, the school and the teachers prepared the activities as the Municipality only contributed some facilities.

The problems we are currently experiencing are mainly budget cuts which are inevitably affecting the school projects and activities, especially the long-term ones. Over the past few years the contribution of a number of municipalities and local authorities (the Mountain Community) has changed from support, especially on the financial aspects, to a smaller participation and sharing as the available funding decreased. At the same time, the contribution of associations, such as Legambiente and other public bodies, such as the Park of the Po river is most appreciated. Although these bodies can not provide financial support, they provide expertise and proposals for joint work. This has led the school to a more systematic tackling of the various aspects of ESD.

Finally, the area on which much remains to be done is finding a way to clearly identify and define the characteristics of the work done by the school. This has to do with the possibility of sharing in a more systematic way the good practices developed by the school and include them in the Educational Plan of the school on ESD is present, but not as marked as it could. It would be more convenient to prepare a coordinated annual plan of the activities to make more systematic the interventions. The main effort, however, is to sustain the various collaborations in place and keep open many relationships, not as a "façade" but with actual and meaningful collaboration.

It takes time and continuous efforts to keep the collaborations between school and community alive. Further information on this case is available in CoDeS Case Blog under: http://codeslegambientepiemonte.wordpress.com/

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Action programmes for ESD: School and Community Collaboration in Cyprus

Aravella Zachariou, Cyprus Pedagogical Institute Nicosia, Cyprus;
Chrysanthi Kadji-Beltran, Frederick University, Nicosia, Cyprus; Loizos Symeou,
Department of Education Sciences, European University Cyprus

Abstract
The "School-Community action programmes for ESD" was carried out in Cyprus under the auspices of the Cyprus Pedagogical Institute. The research investigated the role of the local community in achieving the ESD objectives through community based ESD projects. Data were obtained via qualitative and quantitative approaches from the school teachers (N=21) and the participating parents (N=233) and document the nature of the collaborations, the partners' roles and the resulting benefits. Findings from different aspects of the research were presented in two research papers (Zachariou and Symeou, 2009 and Symeou, Zachariou and Valanidis, 2007). The current essay borrows elements presented in these articles and advances to an overall meta analysis of the programme's data in order to highlight the potential of school and community collaborations for ESD for enabling and empowering the deliberate pedagogy of ESD.

Key words: Education for sustainable development, school and community, collaborations, sustainable development, projects, parents

School and Community Action programmes for ESD
The "School and Community Action Programmes for ESD" was a nationwide programme carried out in Cyprus under the auspices of the Cyprus Pedagogical Institute (CPI). The programme explored the potential of school and community collaborations as alternative ways for achieving ESD goals, facilitating the integration of ESD into school practice and developing the environmental literacy of participants (students, teachers, parents and local populations). Four pre-primary and twelve primary schools enrolled in the programme.

The programme was implemented in three phases; the preparatory phase engaged voluntary teachers in an eighteen hour in-service course. The training focused on organizing, designing, and implementing an ESD project in the local community

of each participating school. The second phase (six months) included the targeted development and implementation of a specific project in each school. The project development and implementation: (a) considered the needs of the local community and the students' interests, needs and abilities, for the selection of the topic; (b) allowed the active participation and cooperation between the school and the local community; (c) was founded on the pedagogical principles of experiential and collaborative learning and made use of interactive and recreational activities in real-life settings; (d) established curriculum links that promoted trans-disciplinarity and accounted for any particularities of the school; and (e) used the local community as a place for engaging students and their parents in interactive activities outside the classroom. Some of the topics chosen were related to enhancing the environment within and outside school grounds (eight schools), neighbourhood parks (three schools) and traffic congestion in their community (three schools). One school focused on the local river and another school addressed the issue of abandoned old cars in the area.

School principals, teachers and students presented their ideas for the project to potential participants from the community: parents, local agents and community members. The audience was invited to participate actively in the project's development and implementation. Planning and coordination of the projects occurred during meetings between the school principals, teachers, participating parents and the teacher trainers. The aim of the meetings was to discuss and clarify issues concerning the project and address any difficulties that occurred during implementation. Everybody was urged to discuss issues regarding the project and its philosophy, the content, their contribution and role in the project and recommend sites in the community that could possibly be used.

Additional meetings between the teacher trainers and the teachers took place every month in order to monitor and discuss the progress of the project and address any difficulties that might appear. The programme framework required a minimum of five meetings between teachers, students and parents. Progress was reported to and discussed with parents, students and local partners (public and private services and other local agents). Additional support was offered by the teacher trainers through electronic and telephone communication with teachers and the school principals.

The partners' meetings were extremely important for ensuring the programmes effective implementation and addressing participants' concerns. Some teacher

participants expressed their reservations for the programme considering the commitment demanded and the need to reorganize their teaching and pedagogical practices. They also had difficulties in persuading parents to participate in the local projects and in the educational activities. In some cases school principals were hesitant to encourage their school's participation in the programme. They were concerned mainly with the school opening to the community, the continuous interaction between students and parents in activities both within and outside the school and the critical reconstruction of the curriculum. With the advancement of the project, in spite their initial concerns, participants gradually appeared very keen to join in.

The third phase of the programme (one month) was dedicated on the dissemination and presentation of the project's results to the school and the local community with the intention of ensuring the continuation of the programme and maintaining all that was achieved. The evaluation of the programme was carried out during this phase also.

The exploration of the cases (school projects)
The programme was an initiative of the Cyprus Pedagogical Institute as response to (a) the national action plan for the promotion of ESD (CPI, 2007) and (b) to research outcomes documenting that Cyprus educational system fails to effectively respond to the need of establishing new roles and forms of engaging parents in school activities (Georgiou, 1996; Symeou, 2002; Symeou, 2003). The programme sought to establish collaboration networks between schools, teachers and parents. Sixteen schools and three hundred twenty one parents participated in the programme along with the participating classes' teachers from all over Cyprus.

The programme aimed to explore the impact of ESD community action programmes in connecting schools with the local reality and in establishing schools as social agents - propagators of environmental literacy and awareness. Specifically through the development of individual school – community collaborations the researchers seek to explore:
-   the teachers' views about the use of the local community and the community members' role in the implementation of the school project
-   students' role and the benefits they received from the project
-   parents' ideas and attitudes developed about their collaboration with the school .

The participating schools developed and implemented their own project targeting a local SD issue in collaboration with the local community. Outcomes indicate that collaborations were formed by school agents (school principals, teachers and students) and community agents (mainly the parents and local population). Data was therefore obtained by means of questionnaires before (N=277) and after the programme implementation (N=233) from the parents, questionnaire addressing the participating teachers (N=21), semi-structured interviews (N=6) and group interviews with teachers (N= 3 groups of 5).

(a) The role of the local community in the implementation of the school's project
Teachers reported that, parents and students participated in 3 - 7 educational activities in the school and in the community. Community settings were used for many of the activities. Students could visit and explore local parks, botanical gardens, police stations, flower shops and nurseries, community's roads and avenues, business centres and interact with local agents, such as parents' association, the local government agents and public servants, private agents and environmental organisations. These activities enhanced the teaching and learning process as they motivated the participants to interact in different places and ways in order to complete a common task.
Within these activities the community facilitated the transfer of the learning procedure outside school where students and parents met with locals and benefitted from their ideas and expertise on the explored issues:

> *"...students interviewed the pharmacist about the importance of local plants in our life, a gardener and a forester about the differences between local and imported plant species, ... they collected traditional recipes that used the plants in cooking, drinks or folk medicine... interacted with their parents and with other locals" (Teacher B).*

The following table was extracted from Zachariou and Symeou, 2009 (p. 134) and illustrates some of the projects' foci and presents indicative activities that involve the community.

(b) The role of the students in the project and the benefits they obtained
Students engaged in the programme activities in order to complete tasks they were assigned with. They were responsible for collecting and recording data by means of observation, diary keeping, interviews etc. and acted as dissemination factors for the programme's outcomes in their school.

Title	Aim	Indicative community locations used	Indicative activities	Educational methods and techniques
Junk cars in our community	To make the local community aware of and sensitive to the environmental risks of junk cars in order to take measures to confront the problem	Areas in the community with abandoned cars Junk yards in the community	Locate the number and type of abandoned cars Collect information regarding the importance of used old cars for recycling scrap metal	Recording data through worksheets, photos and videos Observation, interviews, recording data through worksheets, photos and videos, note keeping, discussions
A botanical garden in our neighbourhood.	Create a botanical garden in the neighbourhood with local aromatic plants and herbs	Community, aromatherapy centre, local traditional restaurant Community forest Empty public plot near school	Collect information and data about herbs and human health Collect information about the use of local herbs in traditional cooking Field study to become familiar with local herbs Create the botanical garden in co-operation with local population, parents and governmental services (landscaping, planting)	Interviews, discussions, observation, experimentation, recording data through photos and video recording Interviews, role play observation inquiry Experimentation, observation, outdoor games, interview with a forester Discussions, experimentation, local intervention

Table 12. Representative examples of the implemented projects

The outside–the–school settings and the programmed tasks facilitated the transition of the teaching methods to non-traditional teaching. As explained by the teachers (questionnaire), students were involved in creative expression activities (e.g. poems and fairy tales), they used the new technologies, designed and constructed creative crafts, engaged in role play and other theatrical activities and in some of the cases they used scientific investigations. This was reported both by the questionnaire results as well as through the interviews:

… [students] were working in teams, searching, discussing, observing, taking photos, keeping notes and they were only asking for my opinion when they wanted support or guidance to continue their investigation. I never saw this kind and degree of cooperation among my students in the classroom. (Teacher 1)

We went to the community's park […] the students developed their communicative skills playing the "Chinese Whispers" game with the materials… Through the game they enriched their environmental knowledge, became familiar with the place … they smelt, they touched, they awoke their senses. (Teacher 4)

They [the students] experienced a fun form of learning [. . .] they were used to being 'tied' in front of a desk, working with a textbook. The activities in the community set students free to reflect on what they were experiencing. They felt the lesson was a game. Their interaction with the place and the people was amazing. (Teacher 11, Focus group interview 1)

Using a 1-5 scale, teachers estimated that the programme had strong influence on their students' environmental literacy. They considered that their students' involvement in the programme helped them learn that addressing environmental problems requires collective effort ($\bar{x}$ = 4.70, SD = 0.57). Moreover, they reported a raise in their students' environmental awareness ($\bar{x}$ = 4.50, SD = 0.51) and understanding of their personal responsibility for the improvement of the environment ($\bar{x}$ = 4.40, SD = 0.75). Students also became familiar with their local environment ($\bar{x}$ = 4.35, SD = 0.98) and the environmental problems of their community ($\bar{x}$ = 4.15, SD =0.98), they developed initiatives for the protection of the community environment ($\bar{x}$ = 4.10, SD = 1.16), and they realised that environmental problems are not only those connected with the natural environment ($\bar{x}$ = 4.05, SD = 0.94). Teachers also appeared to consider that their students' participation in the projects helped them to realize that the school is not only a place for the acquisition of knowledge ($\bar{x}$ = 4.70, SD = 0.47), but also a place for dealing with the problems of the community ($\bar{x}$ = 4.00, SD = 1.21).

(c) Parents' ideas and attitudes about their collaboration with the school
Teachers were asked to express their ideas about the parents' participation. During interviews they reported that they did not expect parents to express much interest and engage in the school activities (Zachariou and Symeou, 2009). Nonetheless, as reported in the questionnaires, parents' response was higher than the one expected as 77% of the parents joined at least one of the meetings. Only 22.3% of the parents did not attend any of the programme's meetings. Forty one per cent (41.2%, N=106) of the parents attended one or two meetings and 33% (N=77) of the parents attended 3 - 5 meetings. Only 3.6% (N=8) of the parents attended more than five meetings. The parents' response was also explored with respect to the nature of the meetings. Most parents joined the informative meetings (75%, N=135). Slightly more than half the parents enrolled in creative activities in the classroom (53.6%, N= 97), 34.3% (N= 62) of the parents accompanied students during visits outside school and a smaller proportion of the parents (14.9%, N=27) participated in meetings with local stakeholders (local community, governmental and non governmental bodies). Limited participation in meetings with local stakeholders appears to be related to the parents' idea that these meetings are someone else's responsibility (p= 0.00), their lack of interest for this type of activities (p=0.00) and lack of time (p=0.03).

Parents were asked to estimate their expected level of participation in the project before the project implementation and their actual level of participation after the project completion using a 1-5 scale (1=no participation, 5=very high level of participation). Parents' estimation for their expected level of participation was neither high nor low. They expected an average participation ($\bar{x}$ ~3) in helping with the collection of resources (e.g. books, dvds etc.), and participating in dissemination activities in the school. They expected to participate less in activities outside school, dissemination activities in the community and taking part in resolving the problem scrutinised by the project ($\bar{x}$ ~2). Actual participation for all the above was lower than the anticipated one ($\bar{x}$ ~2). Lowest participation (estimated and actual) was reported for the parents' contact with local stakeholders (local authorities, environmental committees, organisations and reporters).

Factors hindering parents' engagement in the project implementation were explored by the questionnaire using a 1-5 scale where 1: no hindering and 5: maximum hindering. Parents were presented with a number of possible factors obstructing their participation. Initially they were asked to estimate how big an obstacle they expected each factor to be and at the end of the project they were asked to report how big an obstacle each factor actually was. Overall, the difficulty each of the

stated factors posed to the parents' participation was rather low ($\bar{x}$ <2), with the exception of time ($\bar{x}_{estimated}$ = 3.72, SD=1.33 and ($\bar{x}_{actual}$ = 3.63, SD=1.33). Parents did not believe that the programme "was a waste of time" or that "schools shouldn't bother with environmental issues". Neither were they indifferent to the environmental issues examined by the project ($\bar{x}$ ~1). The factors that slightly appeared to affect parents and were perceived as impeding their participation ($\bar{x}$ ~2) were that schools should "focus on language and maths teaching". They were slightly worried about their collaboration with the children and they weren't sure about how the project would be implemented. They expressed concern about understanding the teachers' instructions and about participating in classroom activities. They also had reservations about them collaborating with local stakeholders.

Finally the reported level of actual difficulty that each factor posed was lower compared to their initial estimations. Before their involvement in the project obstacles were perceived greater than their actual dimensions. Parents acknowledge that the experience of the project was beneficial for them. They reported that they found averagely interesting all the stages of the project implementation (see table 12) and that their participation in creative activities at school was the most interesting one. Most of the parents (93.8%) suggested that they would be interested in collaborating with the school in the future for similar projects.

For the following statements, rate how interesting each of the implementation stages in which you participated was to you (1: no interest – 5: maximum interest)	$\bar{x}$	SD
Creative activities in school	3.51	1.14
Information about the development and implementation of the project	3.44	1.11
Information collecting activities for the classroom	3.36	1.19
Attending lectures about the project's issue	3.00	1.22
Project implementation activities (measures, suggestions, actions for addressing the issue explored)	2.99	1.21
Presentation of the project to the school community	2.96	1.31
Community visits for data collection	2.81	1.35

Table 13. Parents' ideas about the environmental project implementation stages (Symeou, Zachariou and Valanides, 2007, p. 16)

The value of the collaboration
For the community
School-Community collaborations proved to be a valuable tool for raising public awarness for the environment and sustainable development, developing solidarity, empowering and actively engaging citizens into resolving local issues and creating a sense of ownership for the local community. The projects, although driven by the educational authorities (CPI), were initiated by the schools who acted as the nucleus of the collaborations. Several members of the local community engaged in the project implementation offering their expertise and support. The local agents that engaged the most in the projects were the parents. The school and parents' collaboration, traditionally occurring in contexts different to the specific projects', establish a relation and sense of familiarity amongst parents and schools which can justify the high response of formal participation in the project.

Contrary to what occurs internationally, where environmental organizations constitute the basis for public and community participation (Skanavi-Tsampoukou, 2004), in Cyprus these organizations seem ineffective in inviting citizens in an active environmental civil society (Zachariou and Symeou, 2009). The culture of citizen's engagement in adressing environmental issues is not widely spread in the island as environmental movements in Cyprus have not yet undertaken a greater role in engaging society in addressing environmental issues. The establishment of an active civic society for environmental and sustainable development still has some way to go (Zachariou and Symenou, 2009). This fact highlights the importance of the schools' initiatives in the direction of sustainable development. The collaborations initiated by schools have the potential of gradually creating a culture of solidarity and care and the outcomes can benefit the community in terms of infrastructure, raising the quality of life for the locals and developing sustainable life styles. This potential was obvious through the overwhelming response of the parents, expressing their interest and willingness to join in any future similar projects.

The collaboration and schools' action in the community highlighted the value of the community as an "open class", a learning field and effective educational tool. The multidimensional educational potential of the community lies in the variety of the community settings that can be used as well as the human resources provided by its population. Shared experience and real life context promote participative experiential learning and establish networks, information flow and collective action that can promote sustainable living in the community (Zachariou and Symeou, 2009; Boyer and Roth, 2005; Liu and Kaplan, 2006; Thomson, 2006).

For the students

The project implementation facilitated transferring the teaching and learning process into the community. Students' learning was linked to their daily life in the community (Mordock and Cransy, 2001), evoked feelings and gave them opportunities for motivated learning, constructive curiosity and exploration (Balantyne and Packer, 2005; Malone and Trander, 2003). ESD pedagogy therefore became deliberate and meaningful.

Students' engagement in the project develment and implementation in the community enriched their literacy as they were able to explore information from different resources, evaluate, analyse and synthesise the data needed, reach good decisions and take responsible actions (Volk and Cheak, 2003). They became familiar with local issues and were informed about what caused these issues and how they affect their quality of life. Beyond cognition, students developed skills, that are important for achieving sustainable development. They learned to work together and adress issues collectively for the common benefit through democratic processes. They improved their communication skills, leadership and problem solving skills. They developed critical thinking for addressing environmental and sustainable development issues.

Students acquired a sense of community identity and belonging. They felt like they owned the project and were responsible for its success and viability. Interaction in the community put the learners in a situation where they own the issue and empowers them to take positive action. According to Knapp (1995) ownership and empowerment is the educational climate needed for changing people's behaviour and bring about the pursued change.

For the parents

School and parents collaboration is a traditional collaboration as they both pursue the child's cognitive, emotional and moral growth (Epstein, 1995). The traditional collaboration can take different forms of escalating involvement starting with simple reciprocal informative communication and reaching full collaboration between schools and families. Therefore parents collaboration for the school and community action projects for ESD was anticipated. The "width" of the parents' actual participation was neither overwhelming nor negligible. Nevertheless if we consider the type of activities they engaged in we can observe that the "depth" of their participation was relatively superficial. For Cyprus research has indicated that the educational system appears to have failed to establish new roles for parents' participation in school (Symeou, 2007; Symeou et al., 2007). Parents were sceptic with activities which took place outside 'familiar zones'. For example they attended activities taking place in school grounds or activities informing the school community but avoided joining in activities outside school, meeting with local authorities and other local agents. This indicates a conservative and cautious stand which limits their potential as social agents.

By the end of the project the parents appeared to be enthusiastic about joining in other similar school projects in the future, and they acknowledged that the obstacles they encountered were not as deterrent as they expected. The school – community action programme, appears to melt away the parents' reservations for collaborating with school. The lack of culture for an active civic society for environmental and sustainability issues can be rectified through educating people. Schools prove to be an effective means to reach many of the social agents. The parents participation in the project as well as the students' awareness and motivation regarding local environmental issues in their community helped establish new parental cultural habits and practices.

Teachers suggested that they did not expect parents to express much interest in collaborating for the project and when they did, teachers failed in engaging them in more substantial tasks. The prevailing school culture impedes them from acknowledging that parents can have a role different to the traditional spectador (e.g. attending school assemblies, meetings of the parents' association or meetings with the teachers). Teachers attidudes can be understood if we consider that even though the educational system and existing policy support the collaboration between schools and local community agents, the school operation remains in the narrow conventional framework dictated by the national curriculum and the ministry instructions (Eliam and Trop, 2013). The collaboration culture is something that gradually has to be built. The outcomes of the research highlight the potential that the school and community action programmes for ESD indeed have for changing this culture and leading towards social transformation for sustainable development. Further information on this case is available in CoDeS Case Blog under: http://codespedagogical.wordpress.com

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The collaboration between local administration and university to promote education for sustainability (ES) school networks in agroecology

Germán Llerena, Local administrator and Environmental educator, City Hall Sant Cugat del Vallès, Catalonia, Spain; Mariona Espinet, Departament de Didàctica de la Matemàtica i de les Ciències Experimentals, Autonomous University of Barcelona, Catalonia, Spain

Abstract:

The Science Education Department from the Autonomous University of Barcelona (UAB) and the local administration of the Sant Cugat del Vallès municipality in Catalonia, Spain have been collaborating for the last seven years through the programme School Agenda 21 to promote education for sustainability programmes in schools and the community. The collaboration has focused on School Agroecology which has facilitated the establishment of links between the schools and the land, so that a new community could be built. A new network has been created with the participation of 22 public schools (0-18 years), five agro-environmental educators, researchers from the university, administrators from the local administration and other relevant community stakeholders. The results of the case indicate that School agroecology is a social context that facilitates the construction of a community where the different stakeholders have the opportunity to make changes in the land, in education and in education for sustainable development. This case study is also part of the European Comenius Network CoDeS whose main aim is to collect exemplar case studies on school community collaboration towards sustainability. Further information on this CoDeS case is available under CoDeS Case Blog (2013) http://codessantcugat.wordpress.com/.

Key words: Case study, education for sustainable development, environmental education, school agroecology, school agenda 21, collaboration, community change, land transformation, food gardens.

The focus: University and Local Administration focus their collaboration on school agroecology

The university and the local administration have been collaborating through the programme School Agenda 21 to promote ESD in schools and the community.

The collaboration is focused on the development of School Agroecology which facilitates the establishment of links between the schools and the land so that a new community is being built. School Agroecology takes the transdisciplinarity of Agroecology as an important reference, taking into account the ecological, social, political and economical dimensions of new and alternative agricultural practices. The collective intervention of transforming school yards into agroecological food gardens creates a shared project which is community based. Schools become part of the local agricultural land by incorporating a new educational space within the local agricultural practice. A new network of school agricultural spaces is created which transforms the land within and outside the school so that the agricultural heritage is recovered in the municipality.

The schools: Local School Agenda 21 Network embraces motivated teachers on school agroecology
The municipality has 80.000 inhabitants, but the proportion of children is very high. More than 18.000 students attend the schools in the municipality. Some students come from the city of Barcelona and at the same time some leave the municipality to attend schools in Barcelona. Forty per cent of the students in the municipality of Sant Cugat attend public schools while the other 60% attend private schools. Spain holds a dual educational system where public and private schools coexist. The private sector is owned by the Catholic Church, independent family cooperatives or private business. Right wing governments tend to increase public support to private schooling while left wing governments show a tendency to support public schooling. During the last decades Spanish public schooling has improved dramatically in terms of capacity and quality, but recently the Catalan administration has started to decrease public school resources. Half of the schools are at least 30 years old, whereas the other half have been built during the last 10 years. Schools have quality buildings with sufficient spaces for a comfortable educational activity.

The teachers and students who participate in the collaboration through the School Agenda 21 Programme are shown in Table 14. The collaboration between the city hall and the university has created a working frame where schools develop their own programme which is similar but also different to the others. Thanks to the collaboration schools initiate contacts with other agents of the community through the network. All public schools from the municipality participate in the collaboration although they show diversity of motivation, commitment and expectations for the participation. Each school holds different cultural, social, pedagogical and financial resources, interests and motivations within the collaboration that needs

to be respected. Whereas some schools focus their work on just one group of students other are capable of organizing a commission supported by the direction team. In addition some schools focus their work on just one educational level, whereas others work in a transversal manner involving all levels of the school. The collaboration has facilitated a constant change in each school towards including more teachers, increasing the diversity of pedagogical resources, and involving more curriculum areas.

School diversity can also be seen in the level of the education for sustainability visions held by the more motivated teachers. In fact at the beginning it was difficult for school to make agroecology compatible with these visions since many schools worked with a more technological and energy oriented vision of sustainability. Little by little all schools embraced the agroecological sustainability field and adjusted it to their needs, interests, and resources available. The more critical and social dimensions of school agroecology are introduced very slowly, since it is a difficult issue in education. In any case the network helps to slowly promote a more critical vision of education for sustainability.

	Teachers involved in the program	Students involved (approx.)	Students in public Schools in Sant Cugat	Students in private Schools in Sant Cugat
Infantile schools I (0-3 years)	19 teachers (7 public schools)	200	367 students (8 schools)	1.154 students (20 schools)
Infantile Schools II (3-6) and Primary Schools (6-12)	16 teachers (11 public schools) 2 teachers (2 private schools)	4.800	4.534 students (11 schools)	9.847 students (10 schools)
Secondary Schools (12-18)	6 teachers (4 public schools)	150	1.632 students (4 schools)	
Transition to job plan	1 teacher	15	40 students (1 group)	0
Formative Cycles (12-18)	0	0	349 students	202
Teachers without School	4			
Educators	6			
Total	54	5.165	6.922	11.203

Table 14: Characteristics of Sant Cugat del Vallès schools participating in the collaboration http://stc.santcugat.cat/AnuariEstadistic/13_cultura_educacio.html

The community: Middle class communities working towards the recovery of agricultural practices
Sant Cugat del Vallès is an accommodated city of 80.000 inhabitants close to Barcelona, in Catalonia, Spain with a university and business oriented population.

The economy is basically in the service sector. The city has experienced the urbanistic boom during the last decades and only recently this tendency has stopped as a consequence of the financial crisis. The municipality expands through a wide section of land half of which includes the Collserola Natural Park, and the other half is traditionally agricultural land. During the last decades there has been an abrupt transition towards massive construction and development of transportation infrastructures. The agricultural past of the city has been abandoned because of the new rich culture created by the urban explosion. In addition the local agriculture is of a productivist character not very close to food gardening. This culture does not facilitate the appreciation of a subsistence economy which is closer to agroecology. Some immigrants from other areas of Spain and other countries hold an agricultural memory based on traditional agricultural practices that can be acknowledged and used as cultural capital for school agroecology. Young citizens of Sant Cugat are more open to food gardening and agroecology in general since the developmentalist paradigm is declining acceptance and the welfare state is falling down. The "food question" is starting to become a central issue in developed communities such as Sant Cugat.

An ever changing collaboration: The local administration and the university expanding their agency

What stakeholders initiated the collaboration?
The stakeholders who initiated the collaboration in 2006 were the university through the participation of researchers and the city hall's environmental department through the participation of local administrators. From the university side young and consolidated researchers have participated acting as the pedagogical coordinators of School Agenda 21 Programme contributing with the school agroecological vision and the research. From the side of the city hall local administrators have participated acting as the promoters of the programme among the schools and the community agents. This collaboration also promotes the involvement of the key actors, the public schools from 0 to 18 years, through their participation into an ES school network. Finally the collaboration has recently created and involved a new community actor, the agro environmental educator, whose role is to help schools develop agroecological practices and to link the school to the local settings of the community. The collaboration is centered on the development of local school agroecology, an education for sustainability field that aims at sustainable transformation of the local food system.

School Agroecology as an ES vision
The vision of the collaboration comes from Agroecology as a transdisciplinary area that includes the contributions of social movements, professional practices, and scientific disciplines. Agroecology departs from the basic human needs of feeding and approaches the necessary processes to redirect the control of food production and consumption to citizens regulated by social, ethical and environmental values. Agroecology, as a social perspective, emphasizes the ethical and political dimensions of the food system. Agroecology defends the rights of citizens to get a major control over the food production and consumption processes which at present are in the hands of big bussines in the global financial market. In the same direction, school agroecology is an educational field that aims at introducing the educational community to the development of meaningful agroecological practices so that new links with the land and the community can be built. School agroecology emphasizes the participation of key educational and community actors to instigate community and school changes so that both can gain more control over the food system where they live. A socio cultural framework orients the research and the management of the school agroecological programme so that school and community diversity is acknowledged. The themes, the methodology and the management of the programme reflect the values inspired by agroecology.

The methodology used for the collaboration was based on principles of corresponsability, horizontality and respect for the diversity of visions, rhythms, and contexts of all stakeholders. The methods include continuous horizontal and collaborative participation in the network, intervention in individual school change processes, continuous training of all actors involved providing response to either educational as well as agroecological needs, and finally the inclusion of community actors who contribute with specific agroecological and educational knowledge and practices. Both principal actors of the collaboration have mutually influenced each other and have expanded their agency in the sense that university engages into local action, and local administration engages into research.

Expanding the agency of community actors
The sustainability of the collaboration between the local administration and the university can be explained in the first hand as a consequence of the local administrators 'vision that the Environment Department should be involved in Education for Sustainability. During the last decade, Catalan municipalities have embraced a political frame to promote education for sustainability programmes and Sant Cugat del Vallès has been one of the most committed middle sized municipalities. On

the other hand another sustainability factor of the collaboration is the university's vision that the improvement of education for sustainability is a long process, theoretically founded, innovation oriented and research based. Finally the main actors involved firmly believed that the research function of university actors should be enriched with the function of being active transformers of social reality, and the function of social actors could also benefit from including the research dimension within their professional action.

An evolving collaboration

Since its initiation the collaboration has evolved. At the beginning it focused on establishing a frame where a deep and long lasting work was possible. Neither institution had a tradition of long term collaborations as a consequence of local political agendas. In this first phase, both institutions developed a "conservative style of collaboration" adjusted to the models, methods, and regular practices of local administrators so that a contract for collaboration could be signed. The context of collaboration in this first phase was based on traditional models of ES evaluation programmes. The local administration was seen as a consumer of research products, and the university was considered the expert that could deliver reliable knowledge to the local administration.

Later on the collaboration evolved and a more democratic model of collaboration was established supported by the success of the programme experienced by all public schools and the beliefs of local key actors. Local administration began to initiate research projects on their own programmes, and the university actors became the pedagogical coordinators of the School Agenda 21. In addition more democratic and participatory decision making processes were developed within the programme including the model of evaluation. Local administration began to experience commitment and agency towards research and university actors began to actively participate in the local programmes. At present research dimensions begun to be incorporated by teachers who develop pedagogical innovations on ES following a dynamics close to action research. The local administration actors have started to apply the knowledge within their own institution, the city hall, and extended the way of working to other areas such as Social welfare department and the Education Department. The university has created a new research group named Gresc@ (Research group on education for sustainability, school and community) and they have initiated a new field of research in education named School Agroecology. A new community has also emerged locally which develops education for sustainability in school agroecology and who is slowly adopting the

role that the collaboration between local administration and university had at the beginning.

How is all this funded?

Since 2000 the city hall had reserved funds for the School Agenda 21 programme. At the beginning these funds had to be used to support school improvements in sustainability practices through participatory processes. Once the collaboration between the local administration and the university started the funds were devoted to support individual ES school projects. This funding activity was regulated through contracts between each individual school and the local administration with the novelty that the School Agenda 21 Group of community actors would act as a participatory decision making institution for the administration of their own funding. The city hall has also funded other external ES activities in local schools to support the environmental educators who have contributed to the programme. This funding has helped the new environmental education actors to get more stability and constant presence in the programme. The city hall has also partially funded the university through the establishment of a contract. Once the collaboration started the university used these funds to hire research students who could learn to conduct research in this new social learning on ES site. In this case the university used their own resources through the professional time of senior researchers who collaborated with the programme and supervised the young researchers. The university also contributes with their funds through sending undergraduate students in environmental sciences or biology to the programme.

In addition schools have also contributed to the funding through the involvement of families. In public Catalan schools families are responsible of funding school dining-halls and extra curricular activities for their children. In this case families used their funding to hire agro environmental educators to help in the running of food school gardens. The Catalan government has also contributed to the programme in two ways: (a) partially funding and recognizing the work of teachers as official in-service training for their promotion and (b) hiring unemployed citizens so that they could participate in the programme. Finally it would be unfair not to mention the micro-funding activities that all community actors have realized along the programme. The unexpected nature of fund needs sometimes got resolved by generous contributions of local actors who have used their own individual funds to pay for some small expenses. These micro-funding gestures are very important since they facilitate the continuity of the programme in very crucial moments.

The tools: Some tools for the development of the collaboration

a) School Agenda 21 Contracts and regulations
Neoliberal trends in local administration policies have supported free market rather than participatory scenarios. School agenda 21 programme has been able to promote programme changes in relation to contracts and paper work that are more adaptable to school and teachers needs,, style of work, and timing. The local administrator has needed to work strategically engaging into juggling negotiations to allow a bottom-up rather than a top-down approach to the programme management.

b) Group work
This is a fundamental tool, a horizontal and continuous space of encounter and work among all stakeholders. Organizing monthly group work meetings that are authentically meaningful to all stakeholders is a very difficult and demanding task for the local administrator and university. The following are some tools that are presently being used:

b1) Agroecological workshops
These tools provide ES school network practitioners with competencies to engage into agroecological practices. Network environmental educators, university students in practicum and community specialists contribute with their knowledge and experience to enrich community agroecological knowledge. Teachers are very fond of this type of tools since they feel they need training. However they always feel that more would be better and time is usually lacking.

b2) School visits
Network participants visit the schools and the food gardens when they meet once a month. The agro environmental educators are the protagonist of this type of tool since they are often the community actors in charge of school food gardens. This type of tool reinforces their role within the community. However, time is always lacking when doing this type of activities.

b3) Exchanges of pedagogical experiences
Teachers and environmental educators exchange their agroecological pedagogical practices within special sessions designed for this specific purpose. Reflection on practice is encouraged and new projects get developed. The difficulty is teachers' lack of time to go deeply into the description and analysis of their own practice.

c) Research projects that aim at developing concrete educational experiences
These research projects facilitate the development and reflection of more challenging educational innovations. The new experiences are explicitly planned, documented throughout their implementation and reflected along and after their implementation. The problem is that practitioners do not appear to benefit from them in the way they were expected to, given that the research time is different from the action/professional time.

d) Minutes of the Group Work
Detailed minutes of the community group work are written once a month. The collaboration has established a new dissemination trend within the programme called "ES Monographs of Sant Cugat del Vallès". The purpose is to provide detailed documentation of what is done in the group work including pictures, illustrations, videos etc. The purpose is twofold, in one hand these minutes can be used by the community members who were not in the meeting or the new comers, and on the other hand, they serve as future documentation for historians to build the history of ES in the city.

e) Elaboration of didactical material
Each year the programme publishes two successful agroecological educational experiences that can be distributed to all schools from the municipality and also to other schools in the region.

The value: Some hints on the barriers and impacts of the collaboration
The most important conceptual barrier of this collaboration was overcoming the limitations derived from stakeholders' conceptions of social relationships based on a vertical top-down model of collaboration. Another important barrier was the traditional separation between teachers and families which increases at the higher levels of the education system. Finally, the other important barrier was the instability and uncertainty of environmental educators' professional status in Catalonia and also in Spain.

The impact of the collaboration has been the creation of a new ES field: School Agroecology, which can really act as a motor for school and community change. At the level of schools the impact has been differently experienced. For the Nursery Schools the collaboration has provided an opportunity to become active members of the educational community for the first time ever. For primary schools the impact has been in the systematic introduction of new educational spaces such as school food

gardens that keep growing year by year. For secondary schools the collaboration has provided a safe context where adolescents have become authentic agents of ES in the community. For the city hall environment department the collaboration has opened their eyes to real education processes overcoming the old vision of schools as being recipients of sustainability messages. For the university the collaboration has provided a social laboratory from where to directly draw experience of ES innovation and research. For the NGO side the collaboration has created a new role, the agroenvironmental educator, who has been able to participate as one more member in the educational community. Finally, a new emerging impact comes from the new young agroecological farmers in the municipality who have found a new social network from where to start and promote new local business for food production and consumption.

The results experienced in this particular case have been drastically affected by the impact of the strong neoliberal political regulations developed in the last three years. In Spain these political trends have reduced the municipality agency by introducing important funding cuts from central governments to municipalities. Many local services such as welfare support systems and environmental education programmes were reduced dramatically and ultimately disappeared. The future of school community collaboration for sustainable development in Sant Cugat del Vallès is uncertain although its needs are higher than ever. New ways of collaboration will need to be envisioned that are more critical, take into consideration the emerging needs of communities and schools and work towards the collective vision of an alternative world which has a stronger political dimension. Further information on this case is available in CoDeS Case Blog under: http://codessantcugat. wordpress.com/.

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Social organisation and environmental conflicts: An experience in school-community collaboration in response to Brazil's oil and gas industry

Laísa Maria Freire, Jamile Marques, Roberta Salles, Neusa Regina Silva, Eleonora Aguiar, Aline Amado, Reinaldo Bozelli, Laboratório de Limnologia, Departamento de Ecologia, Instituto de Biologia - Universidade Federal do Rio de Janeiro, Brazil

Abstract

The CoDeS Comenius multilateral network focuses on school-community collaborations that address sustainability. In this context, the on-going collaboration between the Community Terminal Pesqueiro (CTP) and an elementary school in the municipality of Campos dos Goytacazes, Rio de Janeiro, Brazil is an example of socio-environmental learning and social organisation. The experience reported here was developed as part of the transformation of the CTP into a community with a critical view of environmental issues. At the end of the project, CTP began to show signs of mobilisation and organisation. The project promoted educational efforts to stimulate social participation in public decision-making and started a discussion on the environmental impacts resulting from the economic growth of the oil and gas industry in the region.

Key words: Environmental conflicts, oil impacts, social changes, environmental learning, environmental management.

Why are social organisation and environmental questions combined in a project that focuses on Education for Sustainable Development?

A public university (Universidade Federal do Rio de Janeiro) and the local government (Secretaria Municipal de Educação de Campos dos Goytacazes) worked together for the implementation of a project associated with the environmental licensing of the oil and gas industry. The project's origins stem from a mandatory condition of the environmental licensing of the Brazilian Oil Company PETROBRAS through an Environmental Education Project addressing sustainability issues.

The first step was to identify CTP as a community, experiencing social and environmental impacts from the oil and gas industry. Next, we identified the strengths

and interests related to environmental issues of the CTP. This step would enhance the actions proposed by the project and develop motivational strategies designed to build a sense of belonging to the locality, as well as interest in the environment and its cultural aspects. Thus the school-community collaboration was focused on solutions and on coping with local environmental problems to support the locality's ecological and social sustainability.

The experience was based on ecological and social sustainability. Sustainability is a polysemic concept involving different public and private interests that change according to the social actors involved. In this way our actions addressed both social sustainability (Sachs, 2002), which is based on the principles of equitable distribution of income and assets, equal rights, human dignity and solidarity of social ties, and ecological sustainability (Sachs, 2002), which assumes an understanding of the importance of organisms' coexistence, considering the connections among them and with the abiotic environment. Both notions of sustainability are related to the environmental management process and are crucial to it.

In order to minimise impacts on the environment, in Brazil the government must undertake public environmental management by ordering the process of social appropriation of natural resources through instruments established by legislation. In this process the government has the responsibility and the role of mediating different interests and conflicts that arise in society resulting from the different modes of allocation and use of natural resources (Quintas, 2005). In an attempt to give visibility to discussions regarding the environmental justice movement (Martinez-Alier, 2007), the environmental regulatory agency required educational actions to promote social organisation, a sense of belonging, the need for political engagement and environmental protection. In our case this educational process was designed to contribute to the understanding of social and environmental risks experienced by the CTP and to promote opportunities for negotiation and construction of a priority agenda for them. The proposed work involving Education for Sustainable Development (ESD) and the environmental licensing process would reduce the environmental injustices in the CTP because of a critical view in the Education for Sustainable Development approach. Thus education about environmental issues was strongly oriented towards the dialectical relationship between the concepts of social space and natural space.

The Terminal Pesqueiro Community and the APIC Public School
The CTP belongs to the district of Santo Amaro, south of the São Tomé lighthouse

beach, in the municipality of Campos dos Goytacazes, State of Rio de Janeiro, Brazil. Due to its geographical position, situated between multiple channels, rivers and the sea, the CTP has remained isolated and largely forgotten by the public government for decades. According to residents, the construction of the Public School APIC in the 1990s brought some improvement in both urban and educational infrastructure.

According to school staff (October/2008), the locality has approximately 56 brick houses and approximately 165 inhabitants, with low educational levels and few professional qualifications. Most of the inhabitants have a high degree of kinship (relatedness), evident in their features, particularly among the children. Although most of the residents are engaged in fishing, amongst them there also are farmers, freelancers, a few civil servants hired by the municipality of Campos dos Goytacazes and a few others employed in temporary summer services at the local beaches.

The community is surrounded by diverse ecosystems including rivers, lagoons, mangroves and the sea. In terms of water resources the water flow is controlled by both old and newer floodgates that protect the community from flooding events. Nearby in the municipality of Campos dos Goytacazes is the last stretch of a mangrove forest, called the Carapeba mangrove, which has been in decline since the 1970s due to a government construction that has modified water routes, migratory bird routes, flora and fauna.

The choice of this group is justified: they is a small environmentally vulnerable community due to the impact of the oil and gas industry (Piquet, 2003) and the introduction of large enterprises in the region at the Barra do Furado Logistic Complex.

APIC School is a small public school with 11 employees (including teachers and school principal) and 32 students, according to the Brazil Scholar Census in 2011. It offers kindergarten and the first years of elementary school (preschool and first through fifth grades). The school has a simple infrastructure that includes electricity, school meals and water obtained from public supply. However, it does not have a science lab, sports court, library or reading room. The garbage collection is periodic, and sewage disposal occurs through septic tanks (INEP, 2011).

Because it is the only school in the community, APIC School plays an important role in retaining children in the locality. The role of the school in this collaboration was to help mobilise the community. The school principal, a local leader, played an impor-

tant role because the community listened to her. She also monitored the project's progress and introduced members of the community to the project managers.

Although the school had no specific plan or vision for ESD, it initiated some actions with the project. During the project the school became not only a place to study but also a place where new social relationships were built. In this case, organising the claims for local improvements involved women (mainly) who also started the discussions about social and environmental issues. After the project we hope that some local environmental issues become part of the school curriculum.

Oil and gas industry, environmental licensing and the actions developed through the school-community collaboration that address sustainability

As previously explained, this project grew out of the need to fulfil a mandatory condition for the environmental licensing of the Brazilian Oil Company.

Implementation of the "Educational Centres of Northern Rio de Janeiro and surroundings" (PÓLEN) project, was performed by Nupem/Universidade Federal do Rio de Janeiro (UFRJ) and supervised by the Brazilian Institute of Environment and Renewable Resources (Ibama), in partnership with 13 municipalities between 2006 and 2012 (Bozelli, 2010). The collaboration between the University and municipal government sought to mitigate the impacts of the oil and gas industry and to reach the most vulnerable groups, in this case the residents of the CTP in Campos dos Goytacazes.

The key actors in the development process were a math teacher, a geography teacher, a representative of an NGO and a school principal in addition to representatives from the university (teachers, undergraduate students and graduate students). The actions of the "Self Sustainable Lighthouse Project" included the following: elaboration of environmental maps, primary and secondary information sampling, implementation of a viable communication space, building panels with photographic records of the region and historical collection, motivational lectures, seminars, forums, monitoring and support of the organisational actions taken up by the community. APIC school was the location that facilitated the project's activities and hosted the meetings. Students of APIC school received special attention through the activity "What do I see on the way from my house to school" that addressed their perceptions of the surroundings.

We highlight three tools: environmental maps, channels of communication and motivational lectures. The environmental maps (in groups, the participants drew their surroundings on paper) allowed the community to identify and better characterise the space where they live after field activities, lectures and debates. This activity was performed in the beginning and at the end of the project.

The groups produced different maps (Fig.1). The results showed (in the first environmental maps) that a group composed mostly of women produced a more domestic vision, including elements such as the area around their houses, their husbands' boats and the rosebush in the yard, which indicate a sense of belonging and ownership but no connections with others. The group of fishermen, the school principal and the president of the neighbourhood association "AMAFAROL" presented a broader view of the locality, describing the sea, canals and all of the community. Many environmental impacts, such as roads and multiple channels, were shown by the maps but were not considered environmental problems once they were identified as having brought benefits to their lives.

At the end of the project, when the groups re-drew the maps, they not only identified needs, potentialities and transformations in their environment, but they also showed an understanding of the importance of local natural resources (identifying rivers, canals and mangroves) to the community and as part of their space. They also identified the risks of flooding for houses near mangrove areas and along the main road.

Fig. 21 - Presentation of environmental maps produced by participants

An important tool was the establishment of a communication channel through the school. At first, a glass framework containing photos of the project's progress, news

about future activities and relevant aspects to encourage the community to participate in the environmental management of their region was placed at the APIC school. However, this approach was not effective in encouraging communication between the actors in the project. The lack of a reading habit among the community and high illiteracy levels rendered it an inefficient tool for communication. As an alternative approach, communication was conducted orally through the principal and teachers at APIC. This proved to be a more effective way to communicate with the community.

Motivational lectures (fig. 22) supported the development of CTP members' public speaking skills; they demonstrated confidence in expressing themselves and explaining the social and environmental issues they faced. For example, two documents were sent to the local government that detailed the needs and wishes of the community in terms of urban infrastructure and housing. In addition, a small group was mobilised to draft documents and collect signatures. The community now demonstrates a better understanding of the locality and expresses a broader and more integrated view of the environmental issues.

Fig 22 - Motivational lecture at APIC Public School

Evaluating the collaboration
University support and PETROBRAS funding made this project possible. The activities were controlled and evaluated by process and result indicators. This evaluation occurred both internally and externally. Key actors performed internal evaluations through meetings and debates about the course of actions, and the environmental agency conducted evaluations using reports and, later, field visits to monitor the development of the activities.

The evaluation process occurred in 2011 and in 2012. The actions developed were evaluated through qualitative research. The process indicators were assessed as an interim evaluation in monitoring the achievement of the objectives. The result indicators were elaborated in discussion groups with key actors. These indicators were as follows: (i) risks relating to exploration and production of oil and gas activities recognised by the communities involved, (ii) proposals for actions related to the impact of the oil and gas industry formulated and forwarded to the government, (iii) participant actors involved in local spaces / regional discussion of the oil and gas industry's impact.

The results of the internal evaluation demonstrate that the collaboration between school and community was positive because more women/mothers could be reached through the school. Regular discussions at the school about its surroundings, environmental problems and attempts to solve them are another positive outcome. Moreover, the environmental agency, through an external evaluation, identified boundaries for this collaboration because, traditionally, school environmental education is uncritical and not involved in the processes of social organisation.

Conclusions and Implications
This CoDeS case shows that the CTP realised its importance and demonstrated a greater degree of mobilisation through educational activities. They became aware that by acting together, they can protect their rights and advocate for life improvements. Participants realised that they can demand basic rights such as piped water supply, evening classes, job training, employment opportunities, greater clarification on the issues involving the community and other claims that they consider fundamental.

A result of the mobilisation was the production of two documents. One document was delivered to the municipality of Campos dos Goytacazes and requested the improvement of houses damaged by floods (Freire et al., 2012). This letter also demonstrated the CTP's concern about being removed from their homes due to the beginning of the construction of the Barra do Furado industrial logistics complex. The other document, intended for the Public Light Company, requested repairs to the community's facilities. Given these achievements, we understand that the community has now clarified its needs and desires and sees that the government should give them further assistance.

In addition, a resident participated in a Public Hearing to decide about a new venture in the oil and gas industry. This resident's involvement served as an encou-

ragement for community participation in these spaces, as he shared in the project activities, the topics discussed and referral data presented at the hearing. To expand the insight in the collaboration process, this case was further analysed, discussed and compared within the multilateral network CoDeS. Further information on this case is available at CoDeS Case Blog under: http://codescasectp.wordpress.com/

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School-university collaboration in waste-to-resource management

Norizan Esa, School of Educational Studies, Universiti Sains Malaysia, 11800 Pulau Pinang, Malaysia

Abstract

Collaboration between school and university provides an opportunity for implementing knowledge that was developed by university research in schools as a response to everyday problems faced in real life. At the same time, teachers and students become aware that the activities they carry out in school are of interest to the academic community and can form part of research for the generation of new knowledge for the improvement of practice. There are mutual benefits from the university and school collaborations. This collaboration may be extended to involve other communities. This case study will explore the collaboration between school – university and other communities for waste to resource management and identify achievements and challenges that emerged during the process. Some of the achievements include influencing the canteen operator to provide organic waste for composting, while some students started to implement the waste-to-resource management at home.

Waste as resource

Humans produce huge amounts of waste as part of their lifestyle. By 2005 organic solid waste constituted 52% of the total waste produced in Malaysia. This percentage was 53% in 2012, divided between 45% food waste and 8.45% paper. The waste generated in this year was 0.76kg/capita/day. This amounted to 33 000 tonnes/day or a total of 12 million tonnes/year (Arpah Abdul Razak, 2013). Waste has long been considered as something that has no use or its usefulness has expired and only deserves to be discarded or thrown away. With the large amount of waste generated each year and the total amount increasing with increase in the population, Malaysia will be swamped with waste and face a shortage of land to take the waste. Although current waste management policy is more holistic, inclusive of environmental, public health and waste reduction considerations, improving public awareness remains a challenge (Badgie, Dawda; Samah, Mohd Armi Abu; Manaf, Latifah Abd; Muda, Azizi B., 2012)

There is therefore an urgent need to educate the public about waste reduction as a viable means of sustainable solid waste management, in line with the goals of the National Waste Management Policy (Ministry of Urban Wellbeing, Housing and Local Government, 2013). The National Waste Management Policy declared its goals of focusing on a holistic solid waste management that is sustainable, giving importance to environmental conservation and waste reduction (Latifah et al., 2009). Sustainable solid waste management involves utilising low energy in the production of valuable products from waste that has a positive effect on the environment (Bagchi, 2004 in Behzad, Rodzi Ahmad, Saied, Elmira and Mokhtar Mazlin (2011). One avenue to educate the public is through the education of school children. The exposure of these students to ways of reducing waste is expected to act as a multiplier for the promotion of waste reduction practices amongst their families. At the same time, such activities become concrete experiences from which pupils will learn about the benefits of waste reduction to the environment.

Figure 23: Hands-on vermicompost training session held in the school grounds

Composting is a process that can reduce the amount of organic waste generated by human consumption. In this process, biological degradation changes the organic material into a stable mixture of material that can be safely applied to soils as fertiliser. In this way the amount of organic material in municipal waste that reaches the landfill is reduced, while at the same time compost is a valuable resource that can be used as soil enhancer and mulch. Another option is the introduction of worms to aid the degradation process, resulting in a product that is better and more useful than compost. This product is vermicompost, that can be used as regulator for plant growth and as soil conditioner. It contains nutrients that are readily absorbed by plants (Jayanta, 2013). Vermicomposting as a viable waste reduction activity will allow pupils to understand how waste can be managed without harming them in the future. This project is designed to provide hands on experience to secondary

school pupils in reducing solid waste through vermicomposting. Such experience is hoped to promote sustainable waste management practices among pupils and the communities they come from.

Research at the university on low technology waste management is shared with schools. Several schools were involved in collaborating with the university to manage waste as a resource.

Figure 24: Vermicompost workshop held at the university. The university vermicompost research laboratory is within the building

The focus of this collaboration is to reduce the amount of organic waste produced and reroute the disposal of this waste away from landfills. In the project waste is treated as a resource that can be utilised to produce environmentally friendly organic material that can be used in different ways, including as biofertiliser. This project attempts to address environmental issues since the improper disposal of organic waste can lead to environmental problems. The university team shared composting and vermicomposting techniques with participating schools. At the same time students were trained to use organic fertiliser in producing home grown organic plants that were then harvested and consumed or sold. Thus the project also addresses social issues as students learn to work together as a team and be entrepreneurial. Their experience in selling organic food helps to address economic aspects of sustainable development.

A constructivist learning environment with experiential learning as the main approach was adopted. Students explored the different ways that waste can be processed, the different types of products created and the many ways these can be used.

Figure 25: Part of school vegetable garden that utilises vercompost as fertiliser

The schools involved in the collaboration have been very accommodative. In certain instances there was negotiation of the type of activity that the school wished to participate in. As the initiator of collaboration, the university complied with the schools' requests thus a harmonious relationship was established throughout the collaboration. There was also negotiation in the grade level of students involved in the project as well as numbers. In one case, the number of students involved increased due to increased interest of school administrators in the project as well as the opportunity to win competitions organized by other bodies such as the local council. However, one school pulled out of the collaboration when there was a change of school principal. The new principal wanted the school to focus more on other activities.

Collaborating schools

Nine secondary schools participated in this project. The schools were of various types but they all were public schools. This means that they were fully funded by the central government. Some schools in Malaysia may be an all girls' school or an all boys' school. However most of the schools in Malaysia are co-educational schools. There were two categories of schools in this collaboration. First were the regular day schools that have students coming from the neighborhood. Four of the participating schools were day schools, one of them being an all girls' school, while the other three were co-educational schools. Another category was the day school with selected students. Two schools were all girls' schools and the other three were co-educational schools. Students from schools of this category are high performing students selected among the local student population. These students are selected based on their performance in the national examination when they were in year six of primary school. However some may be selected after their excellent performance in the national examination taken during their third year in secondary school.

Type	Location	Profile	Participating members
Regular Day School	City centre	Strong collaboration with Consumers Association of Penang	Science teachers, science students
	Suburb	Public school, day school	Teachers, students
	Rural	Students mainly from rural area near a small but growing town, the only school in Penang offering an agriculture stream.	Teachers, students (Agriculture class, environment society)
	Rural	Students mainly from rural area within a small but growing town, strong collaboration with a computer company in recycling	Teachers, students (Geography club, other societies)
	Rural	Won international competitions	Teacher, students
Selective Day School	City centre	Categorized as high performing cluster school, partly boarding school, won international competitions, organised international students' conference	Science teachers, students (environment club)
	City centre	Categorized as cluster school, partly boarding school, organised international students' conference	Science teachers, students
	Rural	Partly boarding school	Teachers, students, Bio-technology and Science Club
	Rural	Partly boarding school	Teachers, students (various societies)
	Rural	Won international competitions	Teachers, students (Cooperative club, Puteri Islam, Entrepreneur Club)

Table 15: Collaborating schools

Thus some may live far away from the school and hence provided with hostel facilities. These students live in the school hostel and are allowed to go home during certain weekends and school holidays. Approximately 600-1200 students attend each of the collaboration schools. However, only a section of the students from each school participated in the project (30 - 100 students).

All schools have the vision of being green schools. They have carried out projects that are environmentally friendly in their effort to realise this vision. Competitions organised by the state authorities and the Department of Environment, Ministry of Natural Resources and Environment further encouraged their green efforts. Thus the invitation to collaborate with the university is warmly welcomed by the schools. However there were also schools that approached the university to take part in the collaboration. In most cases, stakeholders from the school are the principals or head teachers, the teacher(s) assigned to the project and students.

The vermicompost and garden school community
The main group of community involved in the collaboration is the school community. They involve teachers and students. The teachers act as facilitators but some of them face difficulty in getting the students to be fully involved in the project. These teachers need to play an active role in persuading and monitoring the project activities. This is not so in some schools where students diligently carried out the project without much prompting from the teachers. In one case, the school principal noted that students' interest will be increased when there is a competition involved. However the community cherishes the collaboration with the university as students and teachers can enrich their experience, which gives added value to their school life. Collaboration with university is highly regarded.

Figure 26: Students listening attentively to a talk on vermicompost at the university

Schools are encouraged to collaborate with other communities. Examples include the Local Council, Malaysia Solid Waste Management Board, Consumer Association of Penang, Department of Agriculture, Syarikat Pembersihan Safina, Malpom Sdn Bhd and United Palm Oil Sdn. Bhd. In some cases, members of the Parent Teacher Association were also involved. Schools that have hostels also included canteen operators as the stakeholder. Since these operators prepare food for the hostelites, the waste they produce is collected to feed the compost and vermicompost stations. Another stakeholder from within the school are the school gardeners. Grass clippings and other plant trimmings were rerouted to the compost stations instead of collected by the garbage collectors. In one school, the gardener helped care for the worms especially during school breaks. Stakeholders from outside the school include government departments, local authorities, non-government organisations particularly those focused on environmental action.

The vermicompost and garden project
The main stakeholders in this collaboration are the university and the school itself. Other stakeholders include the PTA, NGOs, local authority, government agencies and individual members of the public. In some cases, it is the university that initiated the collaboration although in some cases school or the school PTA expressed an interest to collaborate. Key actors in this collaboration are the teachers who ensure the continuity of the project and initiating collaboration with other parties, and the university research team that provides advice, monitor the progress of the project and provide funding and materials. In some schools, the school administrators show keen interest in the projects, further motivating teachers and students.

This collaboration is focused on environmental action, providing opportunities for students to appreciate organic waste as a resource and deriving benefit from the composting/vermicomposting and garbage enzyme activities they carry out on the waste. The products of these activities were used in the schools in place of their chemical equivalents. There is also some relevance to the economic dimension of ESD when students undertook economic activities involving the sale of their produce, both organic vegetables and compost/vermicast. Another project involved carbon emission and energy reducing actions and two schools won an international competition for their projects. Another school went on to win another international competition on environmental education.

Figure 27: Manufacturing enzyme from fruit waste in the school laboratory

The collaboration ranged between several months and five years, depending on the time the school first participated. The main contribution to the sustainability of the collaboration is the continued interest and dedication of the teachers to ensure the project remains relevant to the students. In some schools, students also showed great interest and contributed to the sustainability of the collaboration. Monitoring was carried out by periodic visits by the university team and meetings with teachers held at the university. There were also reports written by teachers and log books kept by students where they recorded their observations and reflections. Schools also created weblogs of their activities and this helped the monitoring of the progress.

A major part of funding comes from the university, but the school also has other sources of funding. Funding comes mainly in the form of materials with which to carry out the project. Some schools also receive monetary help from private companies.

The collaboration has helped increase appreciation for science learning and the application of science learned in the classroom. Students can see real examples of what they learn in the classroom and improve their understanding. This understanding has encouraged them to practice waste to resource management at home, as well as influence their family members and neighbours to do so. It has also increased students' awareness about the environment and inculcated environmentally friendly practices like waste reduction and use of organic compost in home gardens as well as avoidance of chemical products. In one school students are required to bring one plant to school and find information about the biology and physiology of the plants as well as their scientific names.

The collaboration has remained mainly between the school and the university. However some schools intensified their collaboration with other parties, participating in activities introduced by these parties but incorporating the university-school project.

Reducing waste gainfully

The collaboration strengthened the relationship between university researchers and teachers, particularly the administrators. Further collaboration is facilitated by this strong bond established. Students and teachers learned new methods of managing organic waste. They also became aware that seemingly simple activities are also those that interest university research. They can see the value of what they are involved in. This collaboration also serves to extend networking between schools and other parties. What becomes evident is the improved school development outside academic pursuits.

There are other facets of school improvement as a result of the collaboration. However in some schools there was competing interest with recycling activities that brought in higher monetary gains as schools sold used material to vendors and collected substantial sums of money that they can use for school development. Furthermore the recycling activity was tagged with incentives of acquiring computer notebooks by a computer company when the school is able to achieve the target set. Another competing focus is the leaning of some schools towards performance in national examinations. As such there are schools that chose to slow down or withdraw from the project. Collaboration is also at a minimum, not involving outside parties much.

Figure 28: Students giving a presentation of their project to university researchers from Malaysia, South Africa and India, and school teachers and administrators

Research carried out in university can be translated into beneficial activities in the community particularly schools. Findings can be used to improve practices and provide opportunities for school to apply these findings in real life settings. Students gain experiential knowledge that enriches what they learn within the classroom.

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ANNEXES

Annex 1:
List of the 40 CoDeS case studies organized by country

Case Number	3
Country	Austria
Case Type	360°
Title	National Park and School Collaboration: A long term partnership in an Austrian alpine region
Author names	Franz Rauch, Mira Dulle, Gustav Tengg
Contact	franz.rauch@aau.at; mira.dulle@aau.at; direktion@hs-winklern.ksn.at
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2012/09/17/carinthia/"http://codescases.word-press.com/2012/09/17/carinthia/ Blog: HYPERLINK "http://codeswinklern.wordpress.com/"http://codeswinklern.wordpress.com/

Case Number	12
Country	Austria
Case Type	360°
Title	The Wiener Neudorf Inclusion Project: Collaboration between educational institutions and municipality for sustainable development
Author names	Irene Gebhardt, Angela Gredler, Claudia Müller
Contact	irene.gebhardt@gebhardt.co.at; musikschule@wr-neudorf.at; claudia.mueller@kabsi.at
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2012/09/17/wienerneudorf/"http://codescases.wordpress.com/2012/09/17/wienerneudorf/ Blog: HYPERLINK "http://codeswienerneudorf.wordpress.com/"http://codeswienerneudorf.wordpress.com/

Case Number	16
Country	Austria
Case Type	Universe
Title	Solar Plus- School-Community Cooperation for a Citizen Solar Plant
Author names	Andrea Binder-Zehetner
Contact	binder-zehetner@la21wien.at
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2013/03/21/334/"http://codescases.wordpress.com/2013/03/21/334/ Blog: HYPERLINK "http://codesla21vienna.wordpress.com/"http://codesla21vienna.wordpress.com/

Case Number	34
Country	Austria
Case Type	Universe
Title	Generation innovation region Mostviertel: Diversity in innovation and education
Author names	Petra Wagner-Luptacik
Contact	petra.wagner-luptacik@ait.ac.at
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Wagner-Luptacik_generation%20innovation.pdf"http://www.comenius-codes.eu/Events/PosterCodes_Wagner-Luptacik_generation%20innovation.pdf

Case Number	39
Country	Austria
Case Type	Universe
Title	Meeting of the class representatives in the townhall of Dornbin
Author names	Elmar Luger
Contact	elmar.luger@dornbirn.at
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Luger_Meeting%20of%20the%20class%20representatives.pdf"http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Luger_Meeting%20of%20the%20class%20representatives.pdf

Case Number	35
Country	Belgium
Case Type	Universe
Title	HUB and its partners collaborating towards a sustainable future
Author names	Talia Stough
Contact	taliass@aol.com
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Stough_HUB%20and%20its%20partners.pdf"http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Stough_HUB%20and%20its%20partners.pdf

Case Number	33
Country	Brazil
Case Type	Universe
Title	Strengthening relationships in the TP community to recognize, confront and solve environmental conflicts related to the oil and gas industry
Author names	Laísa Maria Freire, Jamile Marques, Roberta Salles, Neusa Regina Silva, Eleonora Aguiar, Aline Amado, Reinaldo Bozelli
Contact	laisa@biologia.ufrj.br
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2014/02/26/489/"http://codescases.wordpress.com/2014/02/26/489/ Blog: HYPERLINK "http://codescasectp.wordpress.com/"http://codescasectp.wordpress.com/

Case Number	2
Country	Catalonia
Case Type	360°
Title	School Agroecology as a motor for community and land transformations: The collaboration between local administration and university to promote ES school networks
Author names	German Llerena, Miren Rekondo, Mariona Espinet
Contact	germanllerena@santcugat.cat; miren.rekondo@gmail.com; mariona.espinet@uab.cat
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2012/02/14/santcugat/"http://codescases.wordpress.com/2012/02/14/santcugat/ Blog: HYPERLINK "http://codesmancoplana.wordpress.com/http:/codesmancoplana.wordpress.com"http://codesmancoplana.wordpress.com"http://codessantcugat.wordpress.com/http://codesmancoplana.wordpress.com

Case Number	13
Country	Catalonia
Case Type	Universe
Title	Promoting community involvement through the participation in "shared activities" on school agroecology
Author names	Arnau Amat, Mariona Espinet
Contact	aamatv@gmail.com; mariona.espinet@uab.cat
Links	Abstract: HYPERLINK „http://codescases.wordpress.com/2012/02/14/50/"http://codescases.wordpress.com/2012/02/14/50/ Blog: HYPERLINK „http://codesmancoplana.wordpress.com/"http://codesmancoplana.wordpress.com/

Case Number	25
Country	Catalonia
Case Type	Universe
Title	Turull Forest Environmental Classroom, an equipment that promotes networking in the territory in a neighbourhood of Barcelona
Author names	Laia Capdevila
Contact	lcapdevila@bcn.cat; agenda21escolar@bcn.cat
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2013/09/25/480/"http://codescases.wordpress.com/2013/09/25/480/ Blog: HYPERLINK "http://codesturull.wordpress.com/"http://codesturull.wordpress.com/

Case Number	29
Country	Catalonia
Case Type	Universe
Title	Spring to spring. We learn from water
Author names	Núria Canals, Lluis Pagespetit
Contact	nuriacanalsangra@gmail.com; ll.pagespetit@viladraueducacio.com
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2013/04/05/368/"http://codescases.wordpress.com/2013/04/05/368/ Blog: HYPERLINK "http://codesviladrau.wordpress.com/"http://codesviladrau.wordpress.com/

Case Number	36
Country	Catalonia
Case Type	Universe
Title	Secondary students as ES/ESD educational agents in the community: Servicelearning in School Agroecology.
Author names	Miren Rekondo, Mariona Espinet, Germán Llerena, Montserrat González, Josep Maria Casado, Anna Castellví
Contact	miren.rekondo@gmail.com
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Miren_Secondary%20students%20as%20ES.pdf"http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Miren_Secondary%20students%20as%20ES.pdf

Case Number	37
Country	Catalonia
Case Type	Universe
Title	Erola, a program for the recuperation of the heritage
Author names	Núria Canals, Lluis Pagespetit
Contact	nuriacanalsangra@gmail.com
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/ PosterCodes_Canals_Erola%20a%20program%20for%20the%20recuperation%20of%20the%20heritage. pdf"http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Ca- nals_Erola%20a%20program%20for%20the%20recuperation%20of%20heritage.pdf

Case Number	5
Country	Cyprus
Case Type	360°
Title	Paving ESD through School-Community Action Programs: Experiences, findings and perspectives
Author names	Aravella Zachariou, Loizos Symeou, Chrysanthi Kadji
Contact	aravella@cytanet.com.cy; l.symeou@euc.ac.cy; pre.kch@frederick.ac.cy
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2012/09/17/cyprus/"http://codescases.wordpress. com/2012/09/17/cyprus/ Blog: HYPERLINK "http://codespedagogical.wordpress.com"http://codespedagogi- cal.wordpress.com

Case Number	7
Country	Finland
Case Type	360°
Title	How holistic understanding of wellbeing and sustainable development creates a foundation for a new sustainable model of society in Espoo "Sustainability in community practices"
Author names	Anna Maaria Nuutinen
Contact	anna.nuutinen@espoo.opit.fi
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2012/09/17/espoo/"http://codescases.wordpress. com/2012/09/17/espoo/

Case Number	38
Country	Finland
Case Type	Universe
Title	Learnnig from the local and global collaboration of a leading edge rural environmental school for EE
Author names	Annukka Alppi
Contact	annukka.Alppi@hameenkyro.fi
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/ PosterCodes_Alppi_Learning%20from%20local%20and%20global%20collaboration.pdf"http://www. comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Alppi_Learning%20 from%20local%20and%20global%20collaboration.pdf

Case Number	40
Country	Germany
Case Type	Universe
Title	School Year for Sustainability
Author names	Ludwig Haas
Contact	ludo.haas@t-online.de
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2013/10/07/484/" http://codescases.wordpress.com/2013/10/07/484/ Blog: HYPERLINK "http://codesfrankfurt.wordpress.com/" http://codesfrankfurt.wordpress.com/

Case Number	6
Country	Greece
Case Type	360°
Title	School – community collaboration for ESD in a nursery school: an action research project
Author names	Elli Naoum, Eugenia Flogaitis, Georgia Liarakou
Contact	panoselli@yahoo.gr; liarakou@rhodes.aegean.gr; cgav@aegean.gr
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2012/09/17/pallini/" http://codescases.wordpress.com/2012/09/17/pallini/ Blog: HYPERLINK "http://codespallini.wordpress.com" http://codespallini.wordpress.com

Case Number	27
Country	Greece
Case Type	Universe
Title	TECHNO-LIPSI: Promoting products - Promoting local food products. School and community create together their future in a small Greek island
Author names	Eugenia Flogaitis, Georgia Liarakou, Dr. Costas Gavrilakis
Contact	cgav@aegean.gr
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Gavrilakis_Techno-Lipsi%20Promoting%20local%20food%20products.pdf" http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Gavrilakis_Techno-Lipsi%20Promoting%20local%20food%20products.pdf

Case Number	32
Country	Greece
Case Type	Universe
Title	Flora: Revealing capital, Revealing our natural capital
Author names	Eugenia Flogaitis, Georgia Liarakou, Costas Gavrilakis
Contact	cgav@aegean.gr
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Gavrilakis_Flora%20Revealing%20our%20natural%20capital.pdf" http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Gavrilakis_Flora%20Revealing%20our%20natural%20capital.pdf

Case Number	1
Country	Hungary
Case Type	360°
Title	How houses can build bridges: perspectives of a school-community collaboration for SD on creating inclusive and empowering learning areas.
Author names	Edit Lippai, Mónika Réti
Contact	lippai.edit.hu@gmail.com; retimon@gmail.com
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2012/02/14/huhild/"http://codescases.wordpress.com/2012/02/14/huhild/ Blog: HYPERLINK "http://codeshuhild.wordpress.com/"http://codeshuhild.wordpress.com/

Case Number	14
Country	Hungary
Case Type	Universe
Title	Environmental science in the dormitory
Author names	Edit Lippai, Mónika Réti
Contact	lippai.edit.hu@gmail.com; retimon@gmail.com
Links	Abstract: HYPERLINK „http://codescases.wordpress.com/2013/03/21/326/"http://codescases.wordpress.com/2013/03/21/326/ Blog: HYPERLINK „http://codesbudapest.wordpress.com/"http://codesbudapest.wordpress.com/

Case Number	9
Country	Italy
Case Type	360°
Title	Small municipalities, small schools, working together for a sustainable future
Author names	Leda Zocchi, Vanessa Pallucchi,
Contact	Alessia Maso – Legambiente Scuola e Formazione: alessiamaso@gmail.com; leda.zocchi@tiscali.it
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2012/09/17/povalley/"http://codescases.wordpress.com/2012/09/17/povalley/ Blog: HYPERLINK "http://codeslegambientepiemonte.wordpress.com/"http://codeslegambientepiemonte.wordpress.com/

Case Number	15
Country	Italy
Case Type	Universe
Title	Teenergy schools: European funds, national expertise, local participation
Author names	Monica Lazzaroni, Francesca Lazzari
Contact	m.lazzaroni@provincia.lucca.it; f.lazzari@provincia.lucca.it
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2013/03/21/337/"http://codescases.wordpress.com/2013/03/21/337/ Blog: HYPERLINK "http://codeslucca.wordpress.com/"http://codeslucca.wordpress.com/

Case Number	19
Country	Italy
Case Type	Universe
Title	La chiameremo Osvaldo: Multimedia School Library
Author names	Angelo Bardini, Graziella Ginepreti
Contact	Instituto Comprensivo di Cadeo: pcic800good@istruzione.it
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2013/03/21/330/"http://codescases.wordpress.com/2013/03/21/330/ Blog: HYPERLINK "http://codescadeo.wordpress.com"http://codescadeo.wordpress.com

Case Number	20
Country	Italy
Case Type	Universe
Title	School and community: a contaminating relation
Author names	Antonella Bachiorri, Alessandra Puglisi,Guido Giombi
Contact	antonella.bachiorri@unipr.it
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2013/03/21/344/"http://codescases.wordpress.com/2013/03/21/344/ Blog: HYPERLINK "http://codescirea.wordpress.com/"http://codescirea.wordpress.com/

Case Number	21
Country	Italy
Case Type	Universe
Title	An initiative of ESD on grain between myth and sustainability: From Cocalo to Demeter, from grain to bread
Author names	Marcella Tomasino, Mauro Priano, Pietro Pizzuto
Contact	pietro.pizzuto@unipa.it
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2013/03/21/341/"http://codescases.wordpress.com/2013/03/21/341/Blog: HYPERLINK "http://codespalermo.wordpress.com/"http://codespalermo.wordpress.com/

Case Number	22
Country	Italy
Case Type	Universe
Title	Building Small but Virtuous Networks - Learning sustainable lifestyles on energy consumption together
Author names	Liliana Carrillo, Claudia Galetto, Fernanda Gigli, Floriana Montani
Contact	l.carrillo@pracatinat.it
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2013/03/21/347/"http://codescases.wordpress.com/2013/03/21/347/ Blog: HYPERLINK "http://codespracatinat.wordpress.com/"http://codespracatinat.wordpress.com/

Case Number	23
Country	Italy
Case Type	Universe
Title	How an NGO could foster and sustain school-community collaboration? The perspective and the experience of Legambiente in Italy
Author names	Vanessa Pallucchi, Cristina Vecchi,
Contact	c.vecchi@legambiente.it
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Pallucchi_How%20an%20NGO%20could%20foster%20and%20sustain.pdf"http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Pallucchi_How%20an%20NGO%20could%20foster%20and%20sustain.pdf

Case Number	24
Country	Italy
Case Type	Universe
Title	Biodiversity farming
Author names	Anna Lacci
Contact	ceas.sinismontiferru@comune.narbolia.or.it
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Lacci_Biodiversity%20farming.pdf"http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Lacci_Biodiversity%20farming.pdf

Case Number	11
Country	Malaysia
Case Type	360º
Title	School-university collaboration in waste-toresource management
Author names	Norizan Esa, Mahamad Hakimi Ibrahim, Nooraida Yakob, Hasnah Md Jais, Hashimah, Mohd. Yunus, Mohd. Ali Samsudin and Aswati Hamzah
Contact	norizanesa@usm.my
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2012/09/17/sains/"http://codescases.wordpress.com/2012/09/17/sains/ Blog: HYPERLINK "http://codesusm.wordpress.com"http://codesusm.wordpress.com

Case Number	30
Country	Netherlands
Case Type	Universe
Title	The OPEDUCA Project - Flight for Knowledge
Author names	Luc Goossens
Contact	luc.goossens@rcerm.eu
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2014/02/26/491/"http://codescases.wordpress.com/2014/02/26/491/ Blog: HYPERLINK "http://codesgeleen.wordpress.com/"http://codesgeleen.wordpress.com/

Case Number	10
Country	Norway
Case Type	360°
Title	Children's tracks-collaboration between schools and local authorities for sustainable land use planning
Author names	Nina Elisabeth Høgmo, Mari Ugland Andresen
Contact	m.u.andresen@naturfagsenteret.no
Links	n.e.hogmo@naturfagsenteret.no; m.u.andresen@naturfagsenteret.no Abstract: : HYPERLINK "http://codescases.wordpress.com/2012/09/17/hedmark"http://codescases.wordpress.com/2012/09/17/hedmark Blog: HYPERLINK "http://codesstangemunicipality.wordpress.com"http://codesstangemunicipality.wordpress.com

Case Number	31
Country	Norway
Case Type	Universe
Title	Extreme Weather
Author names	Mari Ugland Andresen, Nina Elisabeth Høgmo
Contact	m.u.andresen@naturfagsenteret.no
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Andresen_Extreme%20weather.pdf"http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Andresen_Extreme%20weather.pdf

Case Number	17
Country	Romania
Case Type	Universe
Title	The green school yard
Author names	Tóth Maria, Nagy Borbála
Contact	herototh@cluj.astral.ro; borbala_nagy@yahoo.com
Links	Abstract: HYPERLINK "https://codescases.wordpress.com/2012/10/23/306/"https://codescases.wordpress.com/2012/10/23/306/ Blog: HYPERLINK "http://codesherocluj.wordpress.com/"http://codesherocluj.wordpress.com/

Case Number	18
Country	Slovenia
Case Type	Universe
Title	Tending the school vegetable garden and promoting it locally
Author names	Katarina Vodopivec, Jelka Miklavčič, Daša Sojer
Contact	kvk.sola@gmail.com; jelka.miklavcic@gmail.com; dasa.sojer@gmail.com
Links	Abstract: HYPERLINK "https://codescases.wordpress.com/2013/01/22/315/"https://codescases.wordpress.com/2013/01/22/315/, Blog: HYPERLINK "http://codesdomzale.wordpress.com/"http://codesdomzale.wordpress.com/

Case Number	8
Country	South Korea
Case Type	360°
Title	School Forest, Center of the Local Community: Focusing on Seongnam Hyeeun School having partnerships with a school, a civic group and local government
Author names	Mi-hyun Won, Yong-suk Jung, Sun-Kyung Lee, Myeong-hui Lee
Contact	wmhberry@nate.com; forrestfl3@naver.com; sklee@cje.ac.kr
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Won_The%2oschool%2oforest.pdf"http://www.comenius-codes.eu/Events/Vienna_confe-rence/Posters/media/posters/PosterCodes_Won_The%2oschool%2oforest.pdf Blog: HYPERLINK "http://codeshyeeun.wordpress.com/"http://codeshyeeun.wordpress.com/

Case Number	28
Country	Switzerland
Case Type	Universe
Title	The history of the small grumble "Der kleine Muck"
Author names	Michèle Joss
Contact	michelejoss@sunrise.ch
Links	Poster: HYPERLINK "http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Joss_the%2ohistory%2oof%2othe%2osmall%2ogrumble.pdf"http://www.comenius-codes.eu/Events/Vienna_conference/Posters/media/posters/PosterCodes_Joss_the%2ohistory%2oof%2othe%2osmall%2ogrumble.pdf

Case Number	4
Country	United Kingdom
Case Type	360°
Title	School-community collaboration for the engagement of pupils, teachers and governors in the science, engineering and technology of "carbon neutral" schools
Author names	Margaret Fleming, Mark Lemon, Fiona Charnley,
Contact	margaret.fleming@ntlworld.com; mlemon@dmu.ac.uk; f.j.charnley@cranfield.ac.uk
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2012/09/17/leicester/"http://codescases.wordpress.com/2012/09/17/leicester/ Blog: HYPERLINK "https://codesiesdbsf.wordpress.com"https://codesiesdbsf.wordpress.com

Case Number	26
Country	United Kingdom
Case Type	Universe
Title	Bike it
Author names	Jacky Burnell
Contact	senseandsustainability@gmail.com
Links	Abstract: HYPERLINK "http://codescases.wordpress.com/2013/03/21/322/"http://codescases.wordpress.com/2013/03/21/322/ Blog: HYPERLINK "http://codesbaystonhill.wordpress.com/"http://codesbaystonhill.wordpress.com/

ANNEXES

Annexes 2:
List of CoDeS cases organized by number

Case Number	CASE 1
Case Type	360°
Title of the poster	How houses can build bridges:Perspectives of a school-comunity collaboration for SD on creating inclusive and empowering learning areas.
Authors names	Edit Lippai, Mónika Réti
Country	Hungary
Contact	lippai.edit.hu@gmail.com; retimon@gmail.com

Case Number	CASE 2
Case Type	360°
Title of the poster	School Agroecology as a motor for community and land transformations: The collaboration between local administration and university to promote ES school networks
Authors names	German Llerena, Miren Rekondo, Mariona Espinet
Country	Catalonia
Contact	germanllerena@santcugat.cat; miren.rekondo@gmail.com; mariona.espinet@uab.cat

Case Number	CASE 3
Case Type	360°
Title of the poster	National Park and School Collaboration: A long term partnership in an Austrian alpine region
Authors names	Franz Rauch, Mira Dulle, Gustav Tengg
Country	Austria
Contact	franz.rauch@aau.at; mira.dulle@aau.at; direktion@hs-winklern.ksn.at

Case Number	CASE 4
Case Type	360°
Title of the poster	School-community collaboration for the engagement of pupils, teachers and governors in the science, engineering and technology of "carbon neutral" schools
Authors names	Margaret Fleming, Mark Lemon, Fiona Charnley
Country	United Kingdom
Contact	margaret.fleming@ntlworld.com; mlemon@dmu.ac.uk; f.j.charnley@cranfield.ac.uk

Case Number	CASE 5
Case Type	360°
Title of the poster	Paving ESD through School-Community, Action Programs: Experiences, findings and perspectives
Authors names	Aravella Zachariou, Loizos Symeou, Chrysanthi Kadji
Country	Cyprus
Contact	aravella@cytanet.com.cy; l.symeou@euc.ac.cy; pre.kch@frederick.ac.cy

Case Number	CASE 6
Case Type	360°
Title of the poster	School – community collaboration for ESD in a nursery school: an action research project
Authors names	Elli Naoum, Eugenia Flogaitis, Georgia Liarakou
Country	Greece
Contact	panoselli@yahoo.gr; liarakou@rhodes.aegean.gr; cgav@aegean.gr

Case Number	CASE 7
Case Type	360°
Title of the poster	How holistic understanding of wellbeing and sustainable development creates a foundation for a new sustainable model of society in Espoo "Sustainability in community practices"
Authors names	Anna Maaria Nuutinen
Country	Finland
Contact	anna.nuutinen@espoo.opit.fi

Case Number	CASE 8
Case Type	360°
Title of the poster	School Forest, Center of the Local Community: Focusing on Seongnam Hyeeun School having partnerships with a school, a civic group and local government
Authors names	Mi-hyun Won, Yong-suk Jung, Sun-Kyung Lee, Myeong-hui Lee
Country	Korea
Contact	wmhberry@nate.com; forrestfl3@naver.com; sklee@cje.ac.kr

Case Number	CASE 9
Case Type	360°
Title of the poster	Small municipalities, small schools, working together for a sustainable future
Authors names	Leda Zocchi, Vanessa Pallucchi,
Country	Italy
Contact	Alessia Maso – Legambiente Scuola e Formazione: alessiamaso@gmail.com; leda.zocchi@tiscali.it

Case Number	CASE 10
Case Type	360°
Title of the poster	Children's tracks-collaboration between schools and local authorities for sustainable land use planning
Authors names	Nina Elisabeth Høgmo, Mari Ugland Andresen
Country	Norway
Contact	n.e.hogmo@naturfagsenteret.no; m.u.andresen@naturfagsenteret.no

Case Number	CASE 11
Case Type	360°
Title of the poster	School-university collaboration in waste-to-resource management
Authors names	Norizan Esa, Mahamad Hakimi Ibrahim, Nooraida Yakob, Hasnah Md Jais, Hashimah Mohd. Yunus, Mohd. Ali Samsudin and Aswati Hamzah
Country	Malaysia
Contact	norizanesa@usm.my

Case Number	CASE 12
Case Type	360°
Title of the poster	The Wiener Neudorf Inclusion Project: Collaboration between educational institutions and municipality for sustainable development
Authors names	Irene Gebhardt, Angela Gredler, Claudia Müller
Country	Austria
Contact	irene.gebhardt@gebhardt.co.at; musikschule@wr-neudorf.at; claudia.mueller@kabsi.at

Case Number	CASE 13
Case Type	Universe
Title of the poster	Promoting community involvement through the participation in "shared activities" on school agroecology.
Authors names	Arnau Amat I Vinyoles, Mariona Espinet
Country	Spain
Contact	aamatv@gmail.com; mariona.espinet@uab.cat

Case Number	CASE 14
Case Type	Universe
Title of the poster	Environmental science in the dormitory
Authors names	Edit Lippai, Mónika Réti
Country	Hungary
Contact	lippai.edit.hu@gmail.com; retimon@gmail.com

Case Number	CASE 15
Case Type	Universe
Title of the poster	Teenergy schools: European funds, national expertise, local participation
Authors names	Monica Lazzaroni, Francesca Lazzari
Country	Italy
Contact	m.lazzaroni@provincia.lucca.it; f.lazzari@provincia.lucca.it

Case Number	CASE 16
Case Type	Universe
Title of the poster	Solar Plus- School-Community Cooperation for a Citizen Solar Plant
Authors names	Andrea Binder-Zehetner
Country	Austria
Contact	binder-zehetner@la21wien.at

Case Number	CASE 17
Case Type	Universe
Title of the poster	The green school yard
Authors names	Tóth Maria, Nagy Borbála
Country	Romania
Contact	herototh@cluj.astral.ro; borbala_nagy@yahoo.com

Case Number	CASE 18
Case Type	Universe
Title of the poster	Tending the school vegetable garden and promoting it locally
Authors names	Katarina Vodopivec Kolar, Jelka Miklavčič, Daša Sojer
Country	Slovenia
Contact	kvk.sola@gmail.com; jelka.miklavcic@gmail.com; dasa.sojer@gmail.com

Case Number	CASE 19
Case Type	Universe
Title of the poster	La chiameremo Osvaldo: Multimedia School Library
Authors names	Angelo Bardini, Graziella Ginepreti
Country	Italy
Contact	Instituto Comprensivo di Cadeo: pcic8oogood@istruzione.it

Case Number	CASE 20
Case Type	Universe
Title of the poster	School and community: a contaminating relation
Authors names	Antonella Bachiorri, Alessandra Puglisi Guido Giombi
Country	Italy
Contact	antonella.bachiorri@unipr.it

Case Number	CASE 21
Case Type	Universe
Title of the poster	An initiative of ESD on grain between myth and sustainability: From Cocalo to Demeter, from grain to bread
Authors names	Marcella Tomasino, Mauro Priano, Pietro Pizzuto
Country	Italy
Contact	pietro.pizzuto@unipa.it

Case Number	CASE 22
Case Type	Universe
Title of the poster	Building Small but Virtuous Networks - Learning sustainable lifestyles on energy consumption together
Authors names	Liliana Carrillo, Claudia Galetto, Fernanda Gigli, Floriana Montani
Country	Italy
Contact	l.carrillo@pracatinat.it

Case Number	CASE 23
Case Type	Universe
Title of the poster	How an NGO could foster and sustain school-community collaboration? The perspective and the experience of Legambiente in Italy
Authors names	Vanessa Pallucchi, Cristina Vecchi
Country	Italy
Contact	c.vecchi@legambiente.it

Case Number	CASE 24
Case Type	Universe
Title of the poster	Biodiversity farming
Authors names	Anna Lacci
Country	Italy
Contact	ceas.sinismontiferru@comune.narbolia.or.it

Case Number	CASE 25
Case Type	Universe
Title of the poster	Turull Forest Environmental Classroom, an equipment that promotes networking in the territory in a neighbourhood of Barcelona
Authors names	Laia Capdevila
Country	Spain
Contact	lcapdevila@bcn.cat; agenda21escolar@bcn.cat

Case Number	CASE 26
Case Type	Universe
Title of the poster	Bike It
Authors names	Jacky Burnell
Country	United Kingdom
Contact	senseandsustainability@gmail.com

Case Number	CASE 27
Case Type	Universe
Title of the poster	TECHNO-LIPSI LIPSI: Promoting products - Promoting local food products School and community create together their future in a small Greek island
Authors names	Eugenia Flogaitis, Georgia Liarakou, Dr. Costas Gavrilakis
Country	Greece
Contact	cgav@aegean.gr

Case Number	CASE 28
Case Type	Universe
Title of the poster	The history of the small grumble "Der kleine Muck"
Authors names	Michèle Joss
Country	Switzerland
Contact	michelejoss@sunrise.ch

Case Number	CASE 29
Case Type	Universe
Title of the poster	From spring to spring. We learn from water.
Authors names	Núria Canals, Lluis Pagespetit
Country	Spain
Contact	nuriacanalsangra@gmail.com; ll.pagespetit@viladraueducacio.com

Case Number	CASE 30
Case Type	Universe
Title of the poster	The OPEDUCA Project - Flight for Knowledge
Authors names	Luc Goossens
Country	Netherlands
Contact	luc.goossens@rcerm.eu

Case Number	CASE 31
Case Type	Universe
Title of the poster	Extreme Weather
Authors names	Mari Ugland Andresen, Nina Elisabeth Høgmo
Country	Norway
Contact	m.u.andresen@naturfagsenteret.no

Case Number	CASE 32
Case Type	Universe
Title of the poster	Flora: Revealing our natural capital
Authors names	Eugenia Flogaitis, Georgia Liarakou, Costas Gavrilakis
Country	Greece
Contact	cgav@aegean.gr

Case Number	CASE 33
Case Type	Universe
Title of the poster	Strengthening relationships in the TP community to recognize, confront and solve environmental conflicts related to the oil and gas industry
Authors names	Laísa M. Freire dos Santos
Country	Brazil
Contact	laisa@biologia.ufrj.br

Case Number	CASE 34
Case Type	Universe
Title of the poster	Generation innovation region Mostviertel: Diversity in Innovation and Education
Authors names	Petra Wagner-Luptacik
Country	Austria
Contact	petra.wagner-luptacik@ait.ac.at

Case Number	CASE 35
Case Type	Universe
Title of the poster	HUB and its partners collaborating towards a sustainable future
Authors names	Talia Stough
Country	Belgium
Contact	taliass@aol.com

Case Number	CASE 36
Case Type	Universe
Title of the poster	Secundary students as ES/ESD educational agents in the community: Service Learning in school agroecology
Authors names	Miren Rekondo, Mariona Espinet, Germán Llerena, Montserrat González, Josep Maria Casado, Anna Castellví
Country	Spain
Contact	miren.rekondo@gmail.com

Case Number	CASE 37
Case Type	Universe
Title of the poster	Erola , a program for the recuperation of the heritage
Authors names	Núria Canals, Lluís Pagespetit
Country	Catalonia
Contact	nuriacanalsangra@gmail.com

Case Number	CASE 38
Case Type	Universe
Title of the poster	Learning from the local and global collaboration of a leading edge rural environmental school for EE
Authors names	Annukka Alppi
Country	Finland
Contact	annukka.Alppi@hameenkyro.fi

Case Number	CASE 39
Case Type	Universe
Title of the poster	Meeting of the class representatives in the towhall of Dornbin
Authors names	Elmar Luger
Country	Austria
Contact	elmar.luger@dornbirn.at

Case Number	CASE 40
Case Type	Universe
Title of the poster	School Year for Sustainability
Authors names	Ludwig Haas
Country	Germany
Contact	ludo.haas@t-online.de

CODES SELECTED CASES OF SCHOOL-COMMUNITY COLLABORATIONS FOR SUSTAINABLE DEVELOPMENT

The publication constitutes a report on the process of building a collection of cases on successful school community collaboration for sustainable development based on first hand direct experience of CoDeS partners.
The ongoing collection of cases in blog format canbe found in: www.codescases.wordpress.com.
The report is organized in three parts: (a) CoDeS Methodological Case Study Approach; (b) CoDeS Case Survey; and (c) Collection of CoDeS Case Studies on school community collaboration for sustainable development.
The work included in the "CoDeS Case Book" and the blog has been used as a background information for other CoDeS products along the development of the network.