



Sustainable Construction in Public and Private Works through IPP approach

Minutes of the 4th Meeting of SUSCON Partners
held in Nicosia on February 1st, 2008



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1. Introduction

Within the context of implementing the SUSCON programme, the fourth meeting between the partners was held in Nicosia on February 1, 2008.

The meeting was co-organised by the University of Cyprus (UCY) and CYBARCO and took place in the old senate room (106) of the University of Cyprus. The main objectives of the meeting were to:

- Review the work completed up-to-date,
- Assess the implementation progress,
- Discuss the problems encountered and foreseen,
- Plan future actions.

2. Participants

Partner	Participants
National Technical University of Athens (NTUA)	Professor Maria Loizidou Dr. Christofis Koroneos Mr Konstantinos Moustakas Mr Marios Maurogiannos Dr Maria Zachariou Dodou
University of Cyprus (UCY)	Dr. Ioannis Ioannou, Lecturer Dr. Despo Kassinos, Assistant Professor Ms Margarita Vatyliotou Ms Maria Monou
CYBARCO	Mr Panikos Palochis Mr Paulos Charalambides
EDRASIS	Ms Kyriaki Polychronaki
Cyprus Scientific and Technical Chamber (ETEK)	Mr Linos Chrysostomou
Other participants	
Representatives of the Cyprus Sustainable Construction Competition Assessment Committee	Ms Joanna Constantinidou (Cyprus Environment Service) Ms Elena Sophocleous (ETEK)

3. Meeting Agenda

- 9:00 – 9:15 Arrival of participants
- 9:15 – 9:30 Welcome Speech - Introduction
Prof. M. Loizidou - project coordinator (NTUA)
Dr. I. Ioannou (UCY)
- 9:30 – 9:45 Progress of the SUSCON project
Prof. M. Loizidou (NTUA)
- 9:45 – 10:00 Task 4: Development of eco-design criteria
Dr. C. Koroneos (NTUA)
- 10:00 – 11:10 Task 5: Application of eco-design criteria in construction
Dr. C. Koroneos (NTUA)
- 11:10 – 11:30 Coffee Break
- 11:30 – 12:20 Organisation of Sustainable Construction Competition
Greek Sustainable Construction Competition
*Ms V. Missa (EPTA)**
Cyprus Sustainable Construction Competition
Ms M. Vatyliotou (UCY)
Discussion on the organization of the competition in Cyprus
Dr. D. Kassinos (UCY), Mr L. Chrysostomou (ETEK),
Ms J. Constantinidou (Cyprus Env. Service), Ms E. Sofokleous (ETEK)
- 12:20 – 13:00 TASK 6: Online Database for the Construction Industry
Mr Konstantinos Moustakas (NTUA)
- 13:00 – 13:20 TASK 7: Dissemination
Ms Vasiliki Missa (EPTA), Mr Konstantinos Moustakas (NTUA)
Ms Margarita Vatyliotou (UCY)
- 13:20 – 13:50 Discussion
All partners
- 13:50 – 14:00 Closing
Prof. M. Loizidou, NTUA

* *Ms Missa's presentation was given by Mr Moustakas (NTUA), since a personal problem prevented Ms. Missa from participating in the project meeting.*

4. Minutes of the meeting

The meeting started with welcoming speeches by **Prof. M. Loizidou (NTUA)**, the SUSCON project coordinator, and **Dr. Ioannou (UCY)**. Dr. Ioannou highlighted the importance of the SUSCON project as it is one of the first European Projects awarded to the Department of Civil and Environmental Engineering at UCY.

Prof. Loizidou (NTUA) proceeded with a presentation on the progress of the SUSCON project. Prof. Loizidou's presentation included the following:

- 🌱 An introduction to the general aims and objectives of the SUSCON project,
- 🌱 An overview of the project's Tasks and Actions and the project's results per action,
- 🌱 A discussion on critical issues regarding the project management.

Specifically Prof. Loizidou referred to the following:

Task 1 – Management and Reporting to the EC: A reference was made to the previous project meetings. The organisation of the fourth project meeting was delayed until February 2008 due to the strike affecting NTUA during 2007.

The first progress report was submitted in May 2006 and the evaluation of the revised interim report (May 2007), resubmitted early in January 2008, is expected.

The second progress report will be submitted at the end of February 2008. All the project partners were invited to report all their project costs incurred from the beginning of the project to 29/2/2008, by the end of February.

In Greece, two *Advisory Board Meetings* were organised; the first one in May 2006 and the second one in April 2007. The next Advisory Board meeting is expected to take place in February 2008. It is anticipated that the last Advisory Board meeting will take place towards the end of the project.

Three *Advisory Board Meetings* have taken place in Cyprus; in April and December 2006 and June 2007. The 4th meeting is expected to take place at the end of February/beginning of March 2008. Reference was made to the large number of Advisory Board members in Cyprus; the Board currently comprises of 32 organisations. According to Prof. Loizidou, the role of the Advisory Board is very important in both countries; especially with regards to the preparation of recommendations for national institutional arrangements.

Task 2 - Analysis and Documentation of the Construction Sector in Greece, Cyprus and EU level. Two deliverables have been prepared for this TASK:

- 🌱 An analysis of the construction sector in Greece and Cyprus,
- 🌱 An Environmental Impact Assessment of the Construction Activities in Greece and Cyprus.

Task 3 - Life Cycle Analysis (LCA) in two construction activities. The deliverables of this task are:

- 🌱 Report on best available practices,
- 🌱 Life Cycle Assessment of an Office Building,
- 🌱 Life Cycle Assessment of Road Pavement.

The results of the two case studies for which an LCA was conducted were summarised.

With regard to the results of the LCA Analysis, Ms. Constantinidou (Cyprus Env. Service) questioned the fact that the Greenhouse effect is bigger for the case of a building (78% of the total impacts including both construction and use) than during the use stage of a road pavement (52% of the total impacts including both construction and use).

Dr. Koroneos (NTUA) replied that for the case of a building, some provisions regarding the energy use and use by occupants are known from the construction stage and thus are easy to be measured, however, this information is not known for the case of a road pavement (e.g. predicting the number of cars using a road is not always easy, therefore, car emissions and their contribution in Greenhouse effect were not included in the analysis). For this reason, Dr. Koroneos mentioned that only the construction and maintenance stages were included in the LCA for the case of the road pavement. Dr. Koroneos also explained that for the case of buildings, an increase in the use of Renewable Energy Sources results in a significant alteration of the Greenhouse effect to the overall LCA impacts.

Ending the discussion on LCA, Prof. Loizidou mentioned that the exact methodology followed, as well as the assumptions made, are all explained in detail in the reports prepared for Task 3 which are also available on the SUSCON website.

Prof. Loizidou also expressed the need for updating the "Report on best available practices".

Task 4 - Development of eco-design criteria: The ecodesign matrix and checklist for the construction industry has been developed and a relevant ecodesign criteria study has been conducted.

Task 5 - Application of eco-design criteria in construction: The software for the evaluation of the environmental performance of construction works has been produced and both construction companies involved in the project, EDRASIS and CYBARCO will have to decide within February 2008 on which of their construction projects to apply the software. Following the application

of the tool by the two construction companies, this will be further disseminated.

As part of Task 5, recommendations for national institutional arrangements on Sustainable Construction will have to be drafted by the project partners. Prof. Loizidou emphasised both the role of the Advisory Boards in both countries, as well as the role of ETEK in Cyprus, in pushing the relevant authorities to apply such arrangements.

Task 6 - Online Database for the Construction Industry: Based on the General Specifications and functional requirements report prepared by UCY, the online database has been developed and its structure is now available on the website: www.uest.gr/eupalinus. All the project partners were reminded to provide their input by February 10 to allow enough time for updating the Eupalinus online database before submitting the second progress report to the EU.

Task 7: Dissemination: The importance of disseminating the project results was highlighted and reference was made to the organisation of the Sustainable Construction Competition in both countries.

Mr Moustakas (NTUA) mentioned that if the competition is considered successful, there would be no need to proceed with a second competition. In Greece a second competition, organised by the project partners, is under consideration and will be decided after the completion of the first competition (February 15, 2008). The first competition in Greece was organised by the Greek Association of Environmental Protection Companies (PASEPPE).

In closing, Prof. Loizidou provided all partners with both the websites of the SUSCON project and the Eupalinus database. The importance of the provision of input to both websites by all the project partners was once again highlighted.

Dr. Koroneos (NTUA) proceeded with a presentation on the Development (task 4) and the Application (task 5) of eco-design criteria in construction.

Initially, Dr. Koroneos briefly mentioned the ecodesign criteria that have been developed in Task 4. Based on these criteria, the software for the evaluation of the environmental performance of each building was produced.

The software produced will be applied to a number of construction projects in each of the two project construction companies: CYBARCO and EDRASIS. Following this, the software will be disseminated, for the purpose of applying this to a number of private and public organisations in Greece and Cyprus.

The tool has been developed in an EXCEL sheet and the evaluator can define the significance of each assessment parameter based on local or national conditions and the specific environmental or economic goals. The assessment is based on two main axes: (1) Environmental and (2)

Economics. The Environmental axis is divided in five main environmental areas:

-  Land Resources,
-  Energy Resources,
-  Material Resources,
-  Water Resources,
-  Health and Safety.

The Economic axis is divided in the following areas:

-  Local Economy,
-  Efficiency,
-  Adaptability,
-  Operational Costs,
-  Capital Costs.

In the various worksheets, the evaluator assigns a weight to each environmental performance parameter based on the potential spatial extent, duration and intensity of the effect and to each economic performance parameter based on the goals set. The results of the assessment are presented in a spider chart consisting of six axes (five axes for the environmental performance and one for the economic performance).

Dr. Koroneos presented an example of evaluation according to which two charts have been produced: one presenting the absolute figures of performance and a second one presenting the normalised performance figures.

In closing, Dr. Koroneos highlighted the flexibility of the software produced; each time the software is used, different results will be produced due to the different local conditions (climatic, environmental, social, economic, technological and cultural) and the targets set. According to Dr. Koroneos, the software needs to be applied by users well aware of the topic of ecodesign.

Mr Chrysostomou (ETEK) mentioned that the work established is significant and needs to be communicated to the relevant stakeholders (both engineers and technocrats) in a tangible way. Prof. Loizidou (NTUA) suggested the preparation of a manual to be provided to the relevant stakeholders in order to facilitate the software application.

Mr Charalambides (CYBARCO) mentioned that the only way to apply the ecodesign criteria and evaluate the ecological performance of each construction is to incorporate such criteria in the procurement procedure. Based on this, Dr. Kassinos (UCY) referred to Green Public Procurement Plan in Cyprus, also incorporating a number of procurement criteria for new buildings.

The application of the software tool by both CYBARCO and EDRASIS was further discussed. The first results from the software implementation have to be produced prior to the next project meeting (April 2008). Mr Moustakas (NTUA) mentioned that Dr. Christina Marouli, from the LIFE External Monitoring Team, would also want to participate in the next meeting in which the implementation results will be presented. Both, Dr. Kassinos and Prof. Loizidou expressed the willingness of UCY and NTUA respectively to support the two construction companies in applying the software.

Prof. Loizidou (NTUA) also suggested the application of the software, as part of a student work both in NTUA and UCY, in order to further evaluate its implementation. The software has also to be presented at the next Advisory Board Meetings organised in both countries. Mr. Maurogiannos from the NTUA working team will assist the Cypriot partners in presenting the software in Cyprus and will also be available for providing support to the Cybarco staff that will run the software.

Mr Moustakas (NTUA) gave a presentation on the organisation of Sustainable Construction Competition in Greece, as part of the SUSCON project dissemination activities. During the presentation the following were discussed:

🌱 General information was given on the Greek Competition Awards for the Environment which were organised for the first time in 2006. The promotion of the competition by MEGA channel as the main communication sponsor for the awards was significant.

🌱 The project categories for the Sustainable Construction Awards and the evaluation criteria for each category were mentioned. The project categories for which an award will be given are: A. Building and B. Road Works. The criteria dimensions for the *Sustainable Building Award* are:

- Environmental Dimension,
- Energy Dimension,
- Social Dimension,
- Economic Dimension,
- Aesthetics and Setting Dimension.

The criteria dimensions for the *Sustainable Road Works Award* are:

- Environmental Dimension,
- Social Dimension,
- Economic Dimension,
- Aesthetics and Setting Dimension,
- Innovation Dimension.

🌱 The timeframe for the organisation of the competition was mentioned: The competition commencement was announced in October 2007. The last date for the submission of the proposals was December 17 of 2007, whilst an extension was given for the Building category until February 15, 2008. The evaluation of the proposals for both categories is

expected to begin in February 2008 and to be completed by the end of March. The competition awards event is planned to take place in May 2008 (one day informational event).

- 🌱 The Greek Assessment Committee, comprising nine members, was presented;
- 🌱 The characteristics of the competition were explained; only enterprises (construction companies or enterprises as final users) could participate by submitting proposals for projects either in the private or the public sector. Each enterprise could submit proposals in both project categories. Information was also provided on the structure of the submitting forms.
- 🌱 The exact evaluation methodology based on the competition criteria was explained: Each criteria dimension will be evaluated according to a scale of 1-5 and all dimensions will be of the same weighting. The evaluation will be based on the submitted forms and relevant documentation provided by the candidates.
- 🌱 Awards: Two awards, one for each category, will be given during the organisation of the one-day informational event in Greece in May 2008. These projects will be promoted via publications in daily press and the announcement of the enterprises' names on the websites of the SUSCON project, PASEPPE (Greek Association of Environmental Protection Companies), Hellenic Federation of Enterprises and the Central Union of Chambers in Greece. Finally, Mr. Moustakas stressed that the main attempt of the SUSCON project in this field is to introduce the award of sustainable construction in the European Awards for Environment and for that reason Ms. Missa travelled to Brussels in autumn 2007.

Ms Vatyliotou (UCY) proceeded with a presentation on the Sustainable Construction Competition organized in Cyprus. During the presentation the following were discussed:


- 🌱 Introduction: Although two competitions were initially planned to take place in Cyprus, the organisers decided this would not be feasible due to the project's tight time schedule.
- 🌱 Competition aims: the organisation of the competition aimed to give public organisations and companies the opportunity to promote their environmental practices in the construction sector and to further motivate the application of such practices.
- 🌱 Evaluation: The proposals submitted will be evaluated by an Assessment Committee comprising of nine members. Five Committee meetings already took place from July to September 2007, during which the final criteria, the application guide and the evaluation forms were finalised. The project categories included in the competition are: A.


Building and B. Infrastructure works. The final criteria dimensions for the *Sustainable Building Award* are:


- Environment Dimension,
- Energy Dimension,
- Social Dimension,
- Economic Dimension,
- Unified Design Dimension.


Criteria dimensions for the *Sustainable Infrastructure Work Award* include:

- Environment Dimension,
- Energy Dimension,
- Social Dimension,
- Economic Dimension,
- Aesthetics and Setting Dimension,
- Innovation Dimension.

 Timeframe and characteristics of the competition: The competition was announced on November 1, 2007 and the final date for the submission of the proposals was January 18, 2008. Towards the end of the submission period, an extension was given until the end of January 2008. In both competition categories, construction works completed in the last 15 years could be submitted by the architect, construction company, owner or final user given that all the involved actors agreed on the submission.

 Competition awards will include a monetary prize, a symbolic award, a participation diploma to all the partners involved in construction and promotion via the internet and by publication articles in daily press.

 Competition dissemination: The announcement of the competition was disseminated through letters to various organisations and associations, emails forwarded to all the engineers in Cyprus and other interested parties, personal communication with a number of stakeholders, distribution of leaflets, setting of posters in key locations and a live radio interview. In addition, a number of relevant articles were published in daily press and newsletters of numerous associations, organisations, the Cyprus Scientific and Technical Chamber and the University of Cyprus. The number of internet connections with the competition website was also significant.

 Discussion: Adequate time, resources and cooperation are needed for the proper organisation of any competition. In addition, it was difficult to convince construction companies and architects to participate, perhaps due to the fact that this competition was organised for the first time and only on a project base or, because the concept of “sustainable construction” is not well known to the public.

Ms Vatyliotou also added that it is not easy to define “sustainable construction” and that was evident by the time needed by the Competition Assessment Committee to finalise the criteria.

Ms Sofokleous (ETEK) also added that during the Committee meetings, confusion between the definitions of “sustainability” and “ecology” was evident. She also added that future improvements are needed, especially concerning the categorisation of the awards. Especially for the *Sustainable Infrastructure work* award category it was mentioned that it is difficult to evaluate different work types with the same criteria, while, for the *Sustainable building award* category it was mentioned that different criteria could be used for the evaluation of different sizes of buildings. Prof. Loizidou (NTUA) suggested that sensitivity analysis could help in resolving a number of issues related to the categorisation of the criteria.

Ms Constantinidou (Cyprus Environment Service) added that another problem faced was whether to award the company, the architect or the construction. In order to resolve this issue the Committee has decided that the construction work is the one to be awarded, for the implementation of which a number of actors have contributed.

Dr. Kassinos (UCY) announced the candidate proposals submitted to the competition by January 31, 2008. Eight proposals were submitted (four in the sustainable building award category and four in the sustainable infrastructure work category). According to **Mr Chrysostomou (ETEK)**, eight participations was a good number given the fact that the competition was organised for the first time. He also added that a representative sample of a number of works was submitted. Mr Chrysostomou also mentioned that an interest in sustainable construction practices was shown and that the future organisation of a similar competition (by ETEK and UCY) is worth considering.

Mr Moustakas (NTUA) commented on the differences between the organisation of the competition in Greece and Cyprus. Differences were evident in the criteria dimensions, the competition characteristics, the awards and the dissemination of the competition. One of the disadvantages of the competition in Greece is that only big enterprises could participate as a participation fee was requested by the organisers of the Awards.

Mr Moustakas (NTUA) briefly described the EUpalinus online database that was developed within the framework of the project.

At the end of the presentation each meeting participant was requested to contribute by providing material for the existing database so as to improve the database by the end of February, before the submission of the progress report.

Ms Sofokleous (ETEK) suggested that some technical information could also be added to the database. Ms. Vatyliotou (UCY) replied that the database website would be communicated to the Competition Assessment Committee and that all the members would be requested to provide their input. It was

also agreed that UCY would search for similar databases on the internet in order to further improve the EUpalinus database.

Ms Moustakas (NTUA) presented the dissemination activities in Greece. Reference was initially made to the SUSCON website. It was mentioned that the fourth SUSCON newsletter would be prepared by EPTA by the end of February in order to be disseminated during the next Advisory Board Meetings in both countries. Reference was also made to three scientific publications, conference and exhibition presentations and a presentation given during an event organised by the Centre for Renewable Energy Sources in Greece. In addition, an article has been published in daily press while a new one is being prepared for publication in “NEA” newspaper.

In order to further promote Sustainable Construction Competition in Greece articles have been published in a number of magazines and newsletters (“GreenBuilding” magazine, newsletters of Panhellenic Association of Engineers Contractors of Public Works and the Panhellenic Association of Chemical Engineers) and all the organisations with GreenBuilding certification have been informed on the competition via presentations and personal communication.

According to Mr Moustakas, the one-day informational event will take place at the end of May and it will be combined with the ECOTEC 08 Environment Technologies Exhibition which will take place on May 25-29, 2008. Mr Moustakas, also suggested that during the informational event the second sustainable construction competition in Greece could be promoted.

In closing, Mr Moustakas referred to the organisation of the FINAL Conference in Greece. This will take place in September, during the last month of the project. ETEK and TEE (Technical Chamber of Greece) could play a very important role by both promoting the conference and inviting a number of stakeholders to participate. Invitations could also be sent to the CYBARCO offices in Athens.

Ms Vatyliotou (UCY) referred to the dissemination activities in Cyprus. It was mentioned that the project was well disseminated during the organisation of the sustainable construction competition. Further dissemination activities mentioned included:

- 🌱 Dissemination via the organisation of the Advisory Board Meetings: Three Advisory Board Meetings took place and the fourth meeting is planned around the end of February - beginning of March.
- 🌱 Publication of a significant number of articles in the daily press: Approximately 25 articles were published in a number of national newspapers, most of which have a high readability.
- 🌱 A significant number of articles published in associations’ newsletters, the newsletter of UCY and ETEK: More than 10 article publications were

published in newsletters and associations magazines from the beginning of the project.

- 🌱 The production of two versions of leaflets; the first related to the environmental impacts of construction activities and the second related to the dissemination of the Sustainable Construction Competition.
- 🌱 Promotion of the SUSCON project in two events: During the Researchers Evening, in September 2006, where project leaflets were distributed to the public and during the seminar “Mortars used in restoration - Conservation of monuments and traditional buildings” which took place in June 2007, where 100 leaflets were distributed to a number of architects and civil engineers.
- 🌱 Two live radio interviews: The first was given by Mr Avraamides and the second by Prof. Papanastasiou, Head of the Department of Civil and Environmental Engineering of the University of Cyprus.

In closing Ms. Vatyliotou referred to the future dissemination activities in Cyprus:

- 🌱 The organisation of the 4th Advisory Board meeting,
- 🌱 The organisation of one-day informational event that will be combined with the awards for the competition,
- 🌱 The promotion of the buildings and works awarded in the competition (in daily press, on the internet etc.).

5. Closing – Future Actions

Prof. Loizidou (NTUA) thanked all the partners for their participation in the 4th Project meeting. Mr Moustakas (NTUA) added that all the partners should start considering ways to prepare recommendations for national institutional arrangements based on the findings of the SUSCON project. These recommendations will also be discussed in the next Advisory Board Meetings organised in both countries. He also asked the partners' representatives to provide the relevant feedback, by including data on their expenses related to the SUSCON project before the end of February, in order to be able to submit the next progress report on time. It was agreed that UCY would provide a detailed script on the difficulties faced in the organisation of the competition, how these had been overcome and the dissemination activities in Cyprus in order to be included in the next progress report.

The timeframe for the future actions is the following:

Action	Responsibility	Date – Deadline
<i>Organisation of the 3rd Advisory Board Meeting in Greece</i>	NTUA, EPTA	<i>End of February – Beginning of March 08</i>
<i>Organisation of the 4th Advisory Board Meeting in Cyprus</i>	UCY	<i>End of February – Beginning of March 08</i>
<i>Preparation of the 4th SUSCON newsletter</i>	EPTA	<i>February 2008</i>
<i>Submission of the second Progress Report Report on the project costs</i>	<i>All partners Submission by NTUA</i>	<i>29/2/2008</i>
<i>Detailed description of the competition organisation in Cyprus, the difficulties faced and the dissemination activities in Cyprus to be included in the progress report</i>	UCY	<i>February 2008</i>
<i>Communication of the EUpalinus database to the Cyprus Competition Assessment Committee and input request.</i>	UCY	<i>February 2008</i>
<i>Internet research on existing sustainable construction databases to further improve the EUpalinus database.</i>	UCY	<i>February 2008</i>
<i>Decision on the buildings for which the software will be applied and provision of a short description to the beneficiary</i>	CYBARCO EDRASIS	<i>End of February 2008</i>
<i>Organisation of the 4th partners meeting in Greece, Athens</i>	NTUA	<i>11/04/08</i>
<i>Organisation of the Final Conference</i>	NTUA, EPTA	<i>18/09/08</i>
<i>Organisation of one day informational event in Greece</i>	NTUA, EPTA	<i>25 – 29 May 2008</i>
<i>Organisation of one day informational event in Cyprus</i>	UCY, CYBARCO, ETEK	<i>May 2008 (this should be organised on a different date to the one in Greece and a two month notice needs to be provided).</i>

6. Contact Details of the meeting participants

	Name	Partner	Email	Tel. no	Involvement to the project
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