

CREATION OF A SUSTAINABLE NETWORKING ENVIRONMENT FOR RESEARCH ACTIONS ON THE ECO PERFORMANCE OF BUILDINGS

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ABSTRACT

The European Research Area (ERA) in the field of energy in buildings continues to develop dynamically in response to both the market needs and to the ongoing technological and legislative developments. Various networking mechanisms can be applied by key actors in the field to enhance access to research activities and increase the coherence of the scientific community: one such mechanism was formulated in the early '90s by the grouping of research actors from the PASSYS and PASSYS II research and technical development projects funded in part by the European Commission. This grouping, the PASLINK EEIG (European Economic Interest Grouping of Outdoor Test Centres), focussed on the maintenance of a highly specialised research infrastructure of outdoor test facilities for evaluation of the thermal and solar performance of building components. The market of the PASLINK EEIG, fundamentally the research market for methods and methodologies in this field, but also the industrial market for development of specific innovative construction components, is changing in line with the ERA. Hence, the grouping must change as a result. A number of options exist for networking, but the transformation of the PASLINK EEIG into a more informal network, as originally considered, would not necessarily guarantee the sustainability of the grouping, despite the fact that its presence as an actor on a European level -providing an essential link between research and application- is justified. Given the changes in the market and the generally adopted concept of incorporating the energy performance of buildings and building components within a more holistic approach, it appears that the scope of the activities of the grouping could be extended. The wider scope of activities could cover more comprehensively the environmental, indeed ecological, performance assessment of buildings, whilst fully incorporating the current activities. A new grouping, ECOPAS EEIG (Eco-Performance Assessment of Buildings) is proposed, in order to fall into line with the widely accepted approach. Given the market requirement for the provision of sustainable network mechanisms which link all the fields of research in the eco performance of buildings, it is proposed that the ECOPAS EEIG should operate as an umbrella organisation for a cluster of more informal networks, covering, for example, current activities (measurement, testing, analysis and simulation) as well as new directions in the field of environmental and ecological impact arising from energy consumption of the construction sector and the built environment.

Keywords: Networking, energy performance, eco performance, buildings, building components

1. INTRODUCTION

The requirement for adaptation to the restructured ERA and the developing market since the turn of the millennium, resulted in the decision of the College of Members of the PASLINK EEIG to form a New Network Co-ordination Committee in order to investigate methods and means for proceeding to the future. The remit of this Committee, consisting of the authors of this paper, was defined in terms of the

outcomes of the DAME-BC project and the proposal at that time for an extended informal network on Building Energy Performance Assessment (BEPAS) [1]. In particular, the Committee was requested to proceed with specific activities in order to prepare for the launch of the new network, and covering:

- The organisation of a scientific conference in the autumn of 2005.
- The preparation of a new mission statement for the grouping.

In the first instance it appeared obvious that the new extended informal network would be one and the same with the EEIG. However, after consideration, it soon became apparent that an EEIG consisting of a large number of full members, associate members, affiliate members and candidate members was not necessarily the appropriate vehicle for an extended informal network. The proposal presented in this paper represents the conclusions from these considerations.

2. ORIGINAL MISSION STATEMENT AND CURRENT ACTIVITIES

The original mission of the PASLINK EEIG, as outlined in the “Agreement made in order to create the European Economic Interest Grouping PASLINK”, is inherently stated in the document as follows[2]:

The object of the Grouping shall be to facilitate and further develop the economic activities of the Members and to improve or increase the results of these activities, including in the field of contract-research on behalf of third parties by offering to prospective customers **a coordinated complex of technical skills and experimental equipment, all in the field of outdoor test cell experiments (hereinafter called "The Field of the Agreement")**.

In the framework of this mission statement, during its ten years of operation the PASLINK EEIG has acted as the co-ordinator of three EU funded projects:

- PV-HYBRID-PAS: Hybrid Photovoltaics in Buildings (JOR3-CT96-0092 / 1996 - 1998) covering principles and examples of building integrated PV; combined heat and power production from PV in buildings; tests in PASLINK test cells under real climatic conditions; and simulations on case study buildings.
- IQ-TEST: [3]ERK6-CT1999-20003 / 2000 - 2003) covering the improvement of existing quality procedures for test site management, testing and data analysis; training instruments; round robin testing as part of a feasibility study for standardisation activities; documentation and collation of information on the PASLINK methodologies; and analysis of completed and ongoing RTD in order to develop the future research strategy of the network.
- DAME-BC: Dynamic Analysis and Modelling applied to Energy Performance Assessment and Prediction of Buildings and Components (Renewables and Rational Use) (ENK6-CT2002-80650) covering the linking with other networks; conference activities; extension of the LORD data analysis tool and development of a guidance tool for estimation of testing accuracy; and preparation of a Data Analysis Support Unit and a Performance Prediction Support Unit.

During this period PASLINK EEIG also acted as a subcontractor for the EU funded project PRESCRIPT: European Pre-Standardisation of Building Integrated PV Components, which covered the development and benchmarking of a pre-standard for testing PV roofs and façades.

Members of the grouping (in particular TNO, JRC, etc.) have been active in supporting CEN and in the past a number of proposals have been submitted for funding of pre-normative research in the field of measurements and testing. The culmination of these efforts was the standard EN12494 on “in-situ measurements” where PASLINK experience on analysis was included within the preparation phase of the standard.

The project work carried out by the EEIG has been of valuable experience and has facilitated the cohesive nature of the grouping since its founding in 1994. As such, the following points can be extracted as valuable experience of the group collaborations during this period:

- Significant experience has been developed with respect to implementation of research projects with PASLINK EEIG as co-ordinator and involving large consortiums and changing membership.
- Standards have been set for the management of projects, proposals submissions, information exchange and collaboration.
- The sustainability of its operation has been demonstrated.
- Significant contribution and support to standards development can be implemented through the networking process.

- The network mechanism is flexible in permitting contractual work to be carried out by the most appropriate member, associate or 3rd party thus permitting the grouping to act effectively on a European level.
- The Scientific Community has maintained close contact through collaboration and continues to do so after 20 years of joint research, whilst a number of other networking activities efforts within the 5th & 6th Framework Programmes of the European Research Area have not taken concrete form.

3. DEVELOPMENT OF A NEW MISSION STATEMENT

The development of a new mission statement for the grouping has first focused on the changes in the market. As such the following points have been taken into account. In the medium term an upturn in the European Research budget can be expected, this being necessitated by the fact that the EU has fallen behind the USA and Japan in terms of GDP spent on research and development. The EU level is currently approx. 1.8% compared to 3% in the USA and Japan and it is necessary –and justifiable- for this increase to be implemented [3]. Furthermore, and following on from the Research Infrastructures Survey: 2005, the support and creation of research infrastructures will be a significant theme of the 7th Framework Programme [4,5]. This survey of European Research Infrastructures was undertaken by the Commission between December 2004 and January 2005, in order to obtain a snapshot of existing research infrastructures and those due for creation within the next two years. The current status is under review and is known to be preliminary. The first round of the survey resulted in feedback from 585 existing research infrastructures across the entire scientific field and 157 proposed (or under construction) research infrastructures. The objective was to address organizational, operational and financial issues as well as to establish the international cooperation and recognition of each infrastructure. As such, in line with the market developments, a new mission statement is proposed for the grouping. The scope of the new network is to provide the essential European dimension required to link research to application in the field of energy and environmental performance assessment of buildings and the built environment. The proposed structure and operation of the ECOPAS EEIG within the Field of Agreement is shown below in Figure 1.

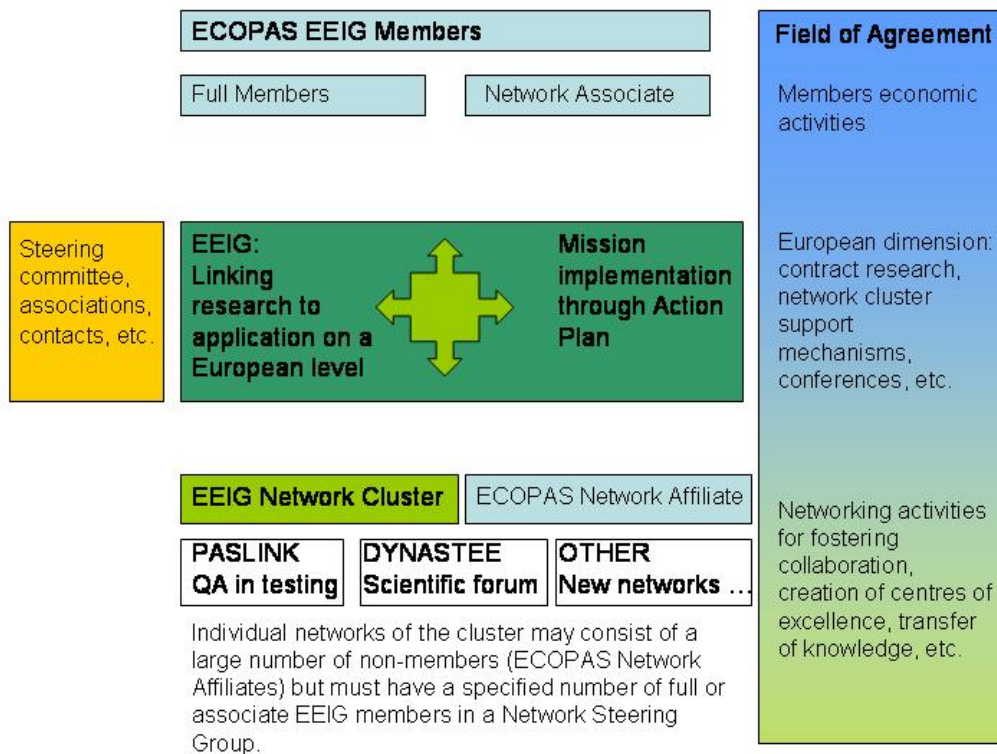


Figure 1. Structure and membership of the ECOPAS EEIG.

Three types of membership are defined:

- Full Members: as with PASLINK EEIG membership with full fees.
- Network Associate: full access to all networking activities and services with full fees, but can only use the reference Network Associate.
- Network Affiliate: participation in one or more informal networks of the cluster with affiliate fees.

4. IMPLEMENTATION OF THE ACTION PLAN

The mission of the new network shall be to facilitate and further develop the economic activities of the Members and to improve or increase the results of these activities, including those in the field of contract-research on behalf of third parties. The specific network will provide a **coordinated cluster of actions and networking mechanisms, grouping technical skills and experimental equipment, such that they constitute a distinct and sustainable link between research and application, in the field of energy and environmental performance assessment of the built environment (hereinafter called "The Field of the Agreement")**.

The network will operate in a networking environment on a European level, with the aim of implementing the specific activities which it is responsible for. The activities of other organisations or EEIGs that network with the New Network will be the responsibility (and liability) of that organisation and not of the EEIG as shown in Figure 2.

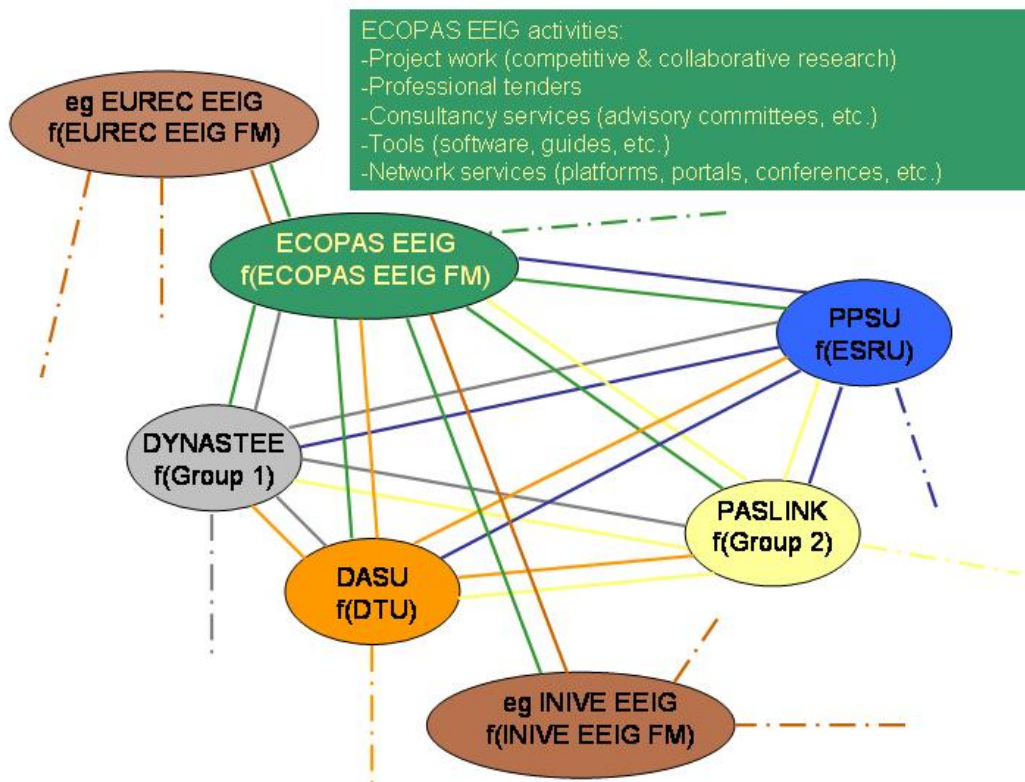


Figure 2. ECOPAS EEIG networking environment and liabilities f(actors).

A feasible timescale for implementation of an action plan in line with the revised mission statement of the grouping would be 3-5 years. The following action plan is presented for adoption.

With ten new Member States having joined the European Union in May 2004, it is opportune to:

- Extend the network with organisations from the new Member States with parallel promotion of the new name and mission in EU15 & EU10.

- Adopt a Centre of Excellence operational framework through appropriate culture change within the network.
- Create and support a cluster of informal networks by bundling the expertise in different disciplines; e.g. statistics, building research, renewable energies, etc. or different field categories; e.g. monitoring, dynamic analysis, eco impact, etc.
- Create specific informal networks in established research areas e.g. focus on the dynamic aspects of analysis and modelling, review and consolidate the network activities on Outdoor Testing, etc.
- Realign support to industry through collaboration with associations of manufacturers in order to prepare product research development strategies for different branches –and in particular for SMEs- and also to assist in the understanding and implementation of the Building Products Directive and EPBD.
- Continue to support the development of calculation methods for standard organisations (e.g. CEN).
- Investigate new areas of application of expertise (eco-buildings, impact of occupants, façade control, etc.).

5. CONCLUSIONS

The PASLINK EEIG has proven to be a sustainable mechanism for networking in the field related to outdoor testing and also beyond. The scientific community around PASLINK EEIG has maintained close contact and collaboration over a period of twenty years. During this time, founding members have developed new directions and new priorities and have left the grouping, whilst other members not previously associated with the grouping have joined. The EEIG structure remains somewhat inflexible in terms of the requirements of the market and yet it has proven to be a sustainable vehicle for collaboration [6]. The PASLINK EEIG therefore needs to evolve in terms of both mission and operation. The new mission should incorporate the changes in the market of energy in buildings, whereby a holistic approach to energy and the environment is the now accepted approach. Acting as a provider of networking mechanisms for more informal networks - operating in the field of agreement - the new grouping, ECOPAS EEIG, could provide a service which is at present missing from the market by creating a sustainable link between research and application at European level.

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