Centre for PBL & Sustainability: Enhancing Sustainability in Engineering and Science education
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WHY THIS INITIATIVE?
As noted by Barnett (2000), the University finds itself in an age of super-complexity, with one of the most complex challenges of our time being to alter trajectory to a more sustainable society on a corporate, regional, national and international level. The political pressure is ever more distinct to provide sustainable scientific and technological transformations to decouple the increase in problematic environmental and social impacts from economic growth, and secure a balance between the three pillars of sustainability. As pointed out by Peet, Bijma & Mulder (2004), education is of crucial importance in this decoupling as sustainable development requires a long-term vision and integral approach.

Several researchers within the field of Education for Sustainable Development (ESD) have argued that a paradigm shift is needed in Higher Education to face these new challenges of sustainability, see for example Cortese (2003), Sterling (2004) and Gough & Scott (2007). On the institutional level this paradigm shift implies a more systemic perspective emphasising collaboration between different disciplines, and on the more operational level the process of education also has to change as stressed by Cortese (2003:19) in the following:

“The process of education will emphasize active experiential, inquiry-based learning and real-world problem solving on the campus and in the larger society.”

Along the same vein, Sterling (2004) argues that an ecological paradigm for education is characterised by development and action-orientation; critical and creative inquiry; reflective and iterative learning; an indicative and open curriculum; learning in groups, organisations and communities; and a democratic and participative environment. We believe that the PBL philosophy embrace exactly these values.

Problem and Project Based Learning (PBL) has been shown to be an effective framework for educating engineers and scientists capable of solving complex tasks in a collaborative framework. In a Centre for PBL and sustainability (PBL-SUS) we wish to research and develop PBL methods for integrating sustainability into Engineering and Science Education to foster sustainable scientific and technological innovations and transformations.

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LEVELS OF ENGAGEMENT IN ESD
(Adapted from Sterling, 2004)

Education about sustainability
an “add-on” strategy

Education for sustainability
a “built in” strategy

Education as sustainability
a “re-build” strategy

Toward a Sustainable Education Paradigm?

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