

Objective One case study knowledge economy

Sustainable Composites Ltd
New Portreath Road
Redruth
Cornwall TR16 4QL

tel 01209 843484
fax 01209 843488
email enq@suscomp.com
web www.suscomp.com

The projects in the Knowledge Economy investment cluster include those developing the Combined Universities and activities that support the development of much stronger links between Higher Education and business.

Developing the Combined Universities in Cornwall is considered so important to the development of Cornwall and the Isles of Scilly it was the only project specifically outlined in the Single Programming Document contract. Prior to commencing the Objective One Programme in 2000, there was no such university opportunity in Cornwall.

University level provision in Cornwall and its links with business encourages graduates to start their own businesses, attracts new business and encourages innovation and knowledge transfer, thereby increasing the overall wealth of Cornwall and the Isles of Scilly.

Sustainable Composites Ltd

A Redruth-based company has used Objective One investment to carry out research into sustainable surfboard manufacturing.

Research being carried out at Sustainable Composites Ltd could also have applications in other industries including construction.

Norman Frost, Managing Director, said that at the same time as experimenting with natural resins, Sustainable Composites Ltd is also developing foam made from castor oil. The foam can be used to make surfboard blanks (the basic board which is then shaped).

He said: "I have looked into this sort of thing years before but the time was never right. Now money is being ploughed into sustainable research. If this resin and foam can be developed on a commercial basis Sustainable Composites Ltd can sell this knowledge to other companies. We are already working with Hilzeez Surfboards and Home Blown, a local manufacturer of surfboard blanks."

The company is using money from the **Cornwall Research Fund** to develop a resin made out of castor oil instead of polyurethane. The Cornwall Research Fund was set up with Objective One European Social Fund (ESF) investment as part of the Combined Universities in Cornwall (CUC) initiative. It is one of several projects supporting knowledge exchange between businesses and CUC



'Eco-Board', the most sustainable surfboard in the world, built in collaboration with the Eden Project.

including research, equipment, and graduate placements.

Peter Castell, CUC business development manager, said: "One of CUC's most important roles is to work with businesses, helping them to exploit new know-how and technology. The development of plant based resins and foams at Sustainable Composites is a great example of how new knowledge can give businesses fantastic commercial opportunities."

A prototype 'eco-board' received publicity in 2004 when Sustainable Composites Ltd and partner company MoveVirgo joined a collaboration with the Eden Project. That resulted in what was then the most sustainable composite surfboard in the world being built.

The 'eco-board' was the brainchild of Chris Hines, sustainability director at the Eden Project and former director of Surfers Against Sewage, and Pat Hudson, Eden Guide. It consisted of a balsa wood core (a 'blank') cut from a balsa tree growing in the Humid Tropics Biome at Eden. After shaping, the core was coated with a composite layer of hemp cloth in a

Objective One case study knowledge economy

matrix of resin derived from castor oil. At the time Russell Winter, Britain's most successful professional surfer, backed the project.

That board is still being displayed around the country and will eventually become part of a permanent exhibit in the Eden Project's Humid Tropics Biome.

"That proved that this sort of thing could be done, but the materials were not ideal," continued Mr Frost. "We embarked on pushing the research further and are now developing a foam blank based on castor oil and making more user friendly natural resins so that people who are not necessarily specialists can use them easily.

"The product has to be sustainable yet have similar properties to the conventional synthetic board otherwise people will just not buy them.

"We are already working with a 90% plant-based resin and once we have perfected this and the foam there will be a complete technique for making sustainable surfboards. The material already has some advantages, for instance it is more damage tolerant. Of course castor oil based resin has some synthetic content but we are eventually aiming to reach the Holy Grail of everything being 100% natural."

Mr Frost set up business with a partner as MoveVirgo Ltd in 1982. In 1998 Steve Wilkinson and Pam Williams took over MoveVirgo and Mr Frost stayed on in a research capacity. Sustainable Composites was set up in 2001 specifically to carry out research and development. The company now also works with design students from University College Falmouth, a partner in the Objective One flagship CUC project. Mr Frost has also used some of the new equipment at the CUC Tremough campus to create and print surfboard designs.

As well as the surfboard application Sustainable Composites Ltd is working with a major player in the building industry to develop a sustainable building insulation foam – potentially a huge market. In addition further work is being carried out with the resin systems to optimise them for roofing applications.

For more information about the Cornwall Research Fund contact Peter Castell on 01872 322936.



The basis of the 'Eco-Board' is a balsa wood core (a 'blank') cut from a balsa tree growing in the Humid Tropics Biome at Eden.