

## **VISTECH PROGRAM CASE STUDY (Environmental Technology):**

**Project Title - Sustainable Water System for Dairy Farms  
Funding - AU\$351,000 Grant in Victoria as part of a US\$1 million project**



### **Project Overview**

This collaboration between Melbourne based Sustainability Ventures and Aqwise in Israel will assist the sustainable diversification of dairy farms. Modules of the system are currently installed and being tested on a commercial farm in Invergordon, in Northern Victoria's 'Water Wheel country' in Greater Shepparton.

The project combines water re-use and treatment technologies to produce food and bio-products by extracting further value from existing dairy farm water resources such as effluent or saline water – cleverly turning a waste problem into a business opportunity.

Reuse opportunities include aquaculture products such as fish and aquatic plants and hydroponic plants.

The project learns from and adapts the success of applying technology in Israel's Arava valley. The Arava valley is a desert area which stretches from the Dead Sea to the Red Sea and much of the region is below sea level. Yet incredibly, through applying water saving and re-use technologies, some 65% of the fresh vegetable exports from Israel and about 13% of cut flower exports come from the Arava valley where the most advanced farming methods are used.

Intended to have low capital and operating costs, the sustainable water system will also integrate fully with the existing farm structure and will produce high value products, opportunities for greater farm revenue, and opportunities for employment. All through adopting a technology system that will be user friendly while offering low water and energy consumption.

### **Progress to date**

A full scale, working demonstration of the systems components are now in place on the demonstration site and the R&D project is successfully complete. Seminars have been held for interested farmers in the region and the company is now at the point of commercialisation. (Photo above is of installed aquaculture tanks in Invergordon.)

### **Victorian company comment**

"VISTECH has provided us with the opportunity for an international collaboration, the value of which transcends the mere dollars contributed by the parties. Australian farmers remain in dire need to participate in new opportunities to stay on the land when water is so scarce and farm profitability is at record lows."

## **VISTECH Program Case Study (ICT and Advanced Manufacturing):**

**Project Title - Self-navigating, Industrial Floor-Cleaning-Robot**

**Funding- AU\$310,000 Grant in Victoria as part of a US\$0.9 million project**

**Project Overview**



Victorian company FloorBotics International, and an Israeli electronics company, have collaborated in the development of an Autonomous Robotic Navigation Algorithm (ARNA™) which provides the navigation system for an entirely new robotic cleaning machine.

The specialist, self guided, floor cleaning robot will be of particular use for efficiently and accurately cleaning large, secure industrial spaces such as aircraft hangers. Other uses might include safely and securely cleaning sensitive industrial areas where clean-room hygiene is required in areas such as bio-tech manufacturing.

Robots can often be a better fit for such jobs than humans as they are thorough – patiently working over an entire floor space, working all day and night and never getting bored.

The FloorBotics project has seen a group of designers and engineers working in Burwood and meeting weekly over Skype videoconference with the software engineer in Tel-Aviv, Israel. Having built and tested alpha and beta prototypes, the manufacturing specification has been improved and completed. The first two floor cleaning robots, each the size of a small ride-on mower, have been airfreighted from Melbourne for demonstration to potential customers in the USA and Europe.

### **Progress to date**

The project created alpha and beta prototype carpet vacuum sweepers during 2008/09, building on FloorBotics 9th Generation (VR9) robot platform. During 2009 the first working production prototypes have been built so that fully functional floor-cleaning robots are now being tested in-market. (Photo above is from late 2008 showing the newly designed “sensor face” of the robot and the body during development testing.) This project completes and commercialises in 2010.

### **Victorian company comment**

"The process of developing this product has been an exciting experience. If it wasn't for Victorian Government funding support we couldn't have come this far. It is very satisfying to get to this point where we can now begin the commercialisation process in earnest."

## **Project Title - Acoustic Severe Asthma Monitor**

### **Funding**

AU\$208,000 Grant in Victoria, as part of US\$1.14 million project



### **Project Overview**

Pulmosonix in Victoria and Karmelsonix in Israel are collaborating to produce a technology for non-invasive continuous monitoring of severe asthma patients.

The technology is based on combining features in the area of pulmonary acoustics – automated wheeze detection by Karmelsonix and determination of the acoustic transfer impedance of the thorax by Pulmosonix. The device will help to properly diagnose and monitor those whose asthma results in hospitalisation. A particular problem in these cases can be “silent lung” where it is not clear the patient is suffering from an asthma episode and the mix of acoustic and wheeze technologies will help monitor such cases.

The new Acoustic Severe Asthma Monitor will give clinicians an Asthma Severity Index which is indicative of the patient’s response to therapy, their condition, and the need for any possible additional measures which will allow them to be more accurately diagnosed and treated – reducing both patient stress and improving outcomes for the patient and hospital.

### **Progress to date**

Having undertaken design, development and prototype build stages during 2007/08; the company has more recently been testing the device in hospitals in two device trials. The first trial was for adult patients at the Alfred Hospital in Melbourne and the second, currently active trial for children is at the Royal Children’s Hospital in Melbourne. (The photo above is of SAM - Severe Asthma Monitor – the gorilla who is used to involve / interest children participating in the hospital trials.)

The company believes the product is close to commercialisation and the project will complete in mid-2010.