The future is rubbish, says environmental entrepreneur

An Irish business woman has a green solution to the problem of waste, writes **Sandra O'Connell**

WHEN Debbie Boyd talks rubbish, people listen. The Northern Irelander based self-styled "environmental entrepreneur" is the founder of Re3, a firm that claims to have found the holy grail in terms of sustainable waste management.

By using a combination of modern computer technology and old-fashioned steam engineering — the kind that powered the industrial revolution — Boyd is hoping to pull off a revolution of her own.

At its newly-built facility in Limerick, Re3 is perfecting an alchemy that can transform high volumes of household and commercial waste into biomass fibre, which is a clean, green alternative to fossil fuels.

At the heart of the plant are two enormous autoclaves, of the kind originally developed to sterilise surgical equipment. These were designed by Tom Wilson, a British steam engineer and Boyd's partner in Re3, who pioneered the energy recovery process.

Although they work like pressure cookers, what the machines most resemble are Nasa space rockets lying on their sides.

The autoclaves "cook" waste in a matter of hours, sterilising recyclables such as cans, glass and plastics, and turning organic matter into a brown biomass fibre, which is then ready to be turned into pellets or logs. What remains is odourless, clean and not unlike peat.

"In many ways, what we are doing is producing a speeded up version of how peat is laid down and pressure-cooked over millennia," said Boyd.

As a fuel or power generation source, the end product is about half as efficient as coal-based fossil fuels and 1½ times as effective as wood pellets. The autoclave process is energy-efficient and capable of handling all non-hazardous municipal, commercial, industrial and agricultural waste. In doing so, it can cut the volume of waste destined for landfill by 80%.

What's more, autoclaving opens up the prospect of going back to existing landfill sites and mining them as a resource for biomass fuel.

For Boyd, a down-to-earth northerner, getting to the point where she has an industrial scale demonstration model of her vision has been the culmination of more than a decade of research and fundraising.

Yet in many ways, her journey has just begun. The Galvone plant in Limerick is, she says, a research and development facility meant to prove to investors and prospective customers that the system works.

"Getting to this point has been a hard slog," said Boyd, whose career began in a Portadown scrap metal merchants and ended up as chairwoman of the Waste Management Advisory Board of Northern Ireland.

"I realised very early on that the environment was going to be big business," said Boyd, who also holds an honorary professorship from the University of Ulster.

The average Irish household generates 1.5 tons of waste each year and despite sustained efforts, less than one-third of that is recycled, the rest going to landfill.

It is only as landfill costs increased, and the adverse effects of global warming became more apparent, that her ideas gained traction. To date, she has raised €15m (£12.8m) from investors. One of her first backers was Brendan Hughes, a US-based property developer originally from Tyrone. Mark Ennis, an Airtricity millionaire, has invested €2m in the company and Brian Shanley, a Waterford engineering entrepreneur, has invested more than £1.2m.

The Limerick plant, which has a permit to treat 50,000 tons of waste a year, is a joint venture with Greyhound Recycling and Recovery.

Proving the technology was a doddle compared to getting the funding. "I found it incredibly difficult," said Boyd. "For years, I felt like John the Baptist crying in the wilderness. Then, suddenly, waste has become the most pressing issue facing every boardroom."

And to all her mates who likened her to Stegtoe and Son, she's set to have the last, potentially very lucrative, laugh.