Experience Gained in Pilot Scale and Bench Scale Fluidised Bed Processing

**COMMISSIONED PLANTS**

**Seglament Hot Gas Generator**
- **Client**: Seglament
- **Bed area**: 25 m²
- **Plant purpose**: A 10 MW plant for the combustion of duff coal at greater than 98% burnout to provide hot gases for the drying of slag. Subsequently also used for organic waste incineration.
- **Project duration**: 1988 – 1989
- **Current status**: Operating successfully
- **Awards**: South African Institution of Mechanical Engineers Projects and Systems Award 1990

**Biomass Sludge Boiler**
- **Client**: A multinational food producer based in Estcourt, KwaZulu Natal.
- **Bed area**: 27 m²
- **Plant purpose**: A 20 MW plant for the incineration of a stream of 12 tons/hr coffee grounds (85% water) while raising 26 tons of process steam with the off-gases.
- **Project duration**: 1992 - 1994
- **Current status**: Operating successfully
- **Awards**: South African Institution of Chemical Engineers Innovation Award 1994

**High Sulphur Pitch Incinerator**
- **Client**: SASOL
- **Bed area**: 21 m²
- **Plant purpose**: Incineration of 2500 kg/hr of high sulphur pitch and 2000 kg/hr of phenolic effluent. The plant is designed for 85% sulphur capture by the addition of limestone. Potential use for thermal soil remediation.
- **Project duration**: 1995 - 1997
- **Current status**: Operating successfully

**African Products Deodariser**
- **Client**: African Products
- **Bed area**: 16 m²
- **Plant purpose**: To deodorise a stream of gas from dryers, while generating hot gases and ultimately process steam. This plant is part of the ‘Greenfields’ development projects, which has been in operation since late 1997.
- **Project duration**: 1996 - 1997
- **Current status**: Operating successfully

**FBC Hot Gas Generators**
- **Client**: Palabora Mining Company
- **Bed area**: 10 m²
- **Plant purpose**: Two 8.5 MW fluidised bed coal combustors used to provide hot gas to dry vermiculite.
- **Project duration**: 1995 - 1996
- **Current status**: Operating successfully

**Other applications**
- Recovery of precious metals through incineration of wood chips
- Chemical vapour deposition onto valuable substrates

**CONCLUDING REMARKS**

Fluidised bed technology is robust with unique characteristics, rendering it suitable to a host of different applications; despite the advances made in modelling and simulation, in this kind of investigative work, there are always surprises necessitating test work; there are great advantages to having access to a range of versatile test facilities, skills and expertise; and partnership with industry is essential to solve real problems and for building greater knowledge and expertise in the field.