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AFRISAM LEADS THE WORLD IN MEASURING ITS CARBON FOOTPRINT

AfriSam has become arguably the world's first construction materials supplier to measure the Carbon Footprint of all its production operations, including cement, aggregate and ready-mix. This follows on from the industry-first CO₂ rating system, implemented by the company, which indicates the Carbon Footprint of each of its cement products relative to the world average.

"Extending the system from cement to aggregate and ready-mix was not only a natural progression for us, but a moral obligation too. We do not consider ourselves exclusive owners of the methodology, and are presenting the model to other aggregate and sand producers as well as various other bodies in the industry, such as the Institute for Quarrying, ASPASA and the SA Ready-Mix Association, encouraging others to come on board so we can join forces in reducing our Carbon Footprint," explains AfriSam's environmental manager, Alan Cluett.

The move will inevitably introduce a new level of competition to the industry. Cluett believes it will be of great benefit to construction companies competing for contracts, because there is a growing tendency in South Africa, as in the rest of

the world, to opt for 'green' buildings. "This, in turn, will promote more responsible environmental management as well as cost-savings," he points out.

There were immediate and positive spin-offs. "The system highlights anomalies and variations in production across the 16 quarries which helps us identify where operations are not fuel efficient, or efficient in the form of electrical energy. In rectifying these, we will become more cost effective and productive."

According to Cluett, the global cement industry accounts for approximately 5% of all anthropogenic emissions of CO₂. "Though the South African cement industry accounts for only 1,76% of emissions as stated in the Greenhouse Inventory, we can actually take little comfort in this figure, because it is significantly diluted by the emissions made by other major South African industries.

"Consequently we set a target to reduce our emissions and calculated what we could do to achieve it and how."

Following the footsteps of its then major shareholder, Holcim, AfriSam began measuring its CO₂ emissions over two decades ago, well before "sustainable development" and "environmentally-friendly" became buzz words. "The practice

fitted into our company mantra: 'If you can't measure it, you can't manage it,'" Cluett continues.

Measuring its Carbon Footprint led to AfriSam's Green Cement programme in 2000. "We extend cement by using Slagment, fly ash, limestone and even silica fume instead of CO₂ expensive clinker, reducing clinker content to 65% and lower, instead of using the conventional 95% associated with Ordinary Portland Cement (OPC). The result is products which conform to SABS standards and which are less susceptible to corrosion, have improved durability and workability and sacrifice none of the strength and quality of traditional cement."

Reducing the clinker content means that less limestone needs to be mined for the same volume of cement. "In fact, limestone volume has been reduced by 35%," Cluett claims. "This means fewer explosives which generate emissions, a drop in transport costs, less drilling, hauling and crushing and consequently a reduction in electricity consumption. In addition, the plant itself can now be associated with higher cement output without any additional equipment."

These benefits, as well as the transport associated with interplant transfers, are all factored into the Carbon Footprint calculations. The measurement methodology considers not only the diesel used by the plant, but also all greenhouse gas equivalents from gasses generated from explosives to welding

gasses and even gasses that can be used for cooking purposes on site, emissions from sewage, water pumping and electricity..

“We have recently introduced another interesting environmental aspect into the equation,” he continues. “We determine the total mining area over which we have control, assess the amount of disturbed vegetation, its nature and the nature of the subsequently rehabilitated area. This helps us calculate the CO₂ absorption for specific biomes. In this way, we can measure and manage how much land is disturbed and establish whether we have reduced or increased the absorption of CO₂ .”

The net impact of these actions was that AfriSam reduced the specific CO₂ per tonne of cement by 37% between 1990 and 2008. “This amounts to some 600 000 tonnes below the 1990 figure. At the same time, we have increased the amount of cement produced by 53%,” he adds.

The success of this measurement methodology prompted AfriSam to extend it to all its aggregate and ready-mix operations.

“We are now discussing targets for CO₂ reduction with works managers at all our aggregate and ready-mix plants which will provide incentives to drive CO₂

emissions down – and ultimately this will benefit not only AfriSam, but the ordinary citizen as well as future generations.”

Through our long-standing association with Holcim, we have been able to benchmark our CO₂ and other environmental indicators with the best industry performers in the world. This has enabled us to continuously set more challenging targets.” he stresses.

AfriSam has also urged its consultants to develop a simple and cost-effective programme suitable for smaller producers so that they too can calculate their Carbon Footprints. “We see the money invested in the development of the protocol for the calculation of CO₂ as a service to the industry and the community.”

The company has also initiated a programme to measure the Carbon Footprint of its head office and regional offices.

CAPTION PIC 01 : AfriSam's Juskei Quarry

CAPTION PIC 02 : An AfriSam readymix vehicle

CAPTION PIC 03 : One of AfriSam's aggregate operations

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