SA Irrigation Innovation Scoops International Award

The developer of a uniquely South African water administration system, which has increased the productivity of water use in irrigation agriculture, has won a sought-after international accolade.

Dr Nico Benadé was awarded the International Commission on Irrigation and Drainage's (ICID's) Innovative Water Management Award for the Water Administration System (WAS) at a ceremony held in Kuala Lumpur, in Malaysia in September 2006. This is the first time a professional represented by the South African National Committee on Irrigation and Drainage (SANCID) has scooped the award in this category.

To provide irrigation schemes with decision support for efficient water management, the WAS was developed with funding from the Water Research Commission (WRC). WAS is a decision-support program for use by water user associations on irrigation schemes in managing their water accounts and their water supply to clients through rivers, canal networks and pipelines.

"This water management system is a prime example of taking the innovation process through the full cycle – from research to practical application to exploitation of its commercial potential," comments Dr Gerhard Backeberg, Director: Water Utilisation in Agriculture at the WRC, and Chair of SANCID, who nominated Dr Benadé for the award. "The gratification associated with the ICID Award is the international recognition of an innovation which is truly South African."

The system can be implemented at various levels from a small water office that manages a few abstractions and measuring stations up to a catchment management level with thousands of abstraction points and measuring stations. Among its capabilities, WAS calculates water releases from rivers and canal networks, taking lag times and various water losses into account.

Largely as a result of Dr Benadé's efforts, the WAS is now being implemented on irrigation schemes with a total area of 142 843 ha, which is almost 28% of the irrigated area of South Africa serviced by water user associations (formerly government water schemes and irrigation boards). This includes about 9 500 abstraction points. In some schemes, WAS has been operational for the last 15 years, with great effect.

Field measurements have shown that losses at these schemes have been reduced by 10% to 20% through improved water releases in canals and rivers. With an average water allocation of 8 147 m^3 per hectare and estimated losses of 20%, this translates to an average water saving of between 23 to 46 million m^3 of water per year.

Training is offered to all end-users of the program, and Benadé has set up a private company to provide services support. "Feedback from WAS users at training courses indicates that after converting, it is considered impossible to manage irrigation schemes without the use of the WAS program," he concludes.

TABLE 1: Irrigation schemes where the WAS program is used

Irrigation scheme	Area (ha)	Quota allocation (m^3/ha)	Full quota (m^3)	Abstraction points	Years in use
Impala WUA	17 012	10 000	170 120 000	423	10
Gamtoos Irrigation Board	7 408	6 000	44 448 000	808	3
Groenland Irrigation Board	5 864	6 000	35 184 000	146	6
Hartbeespoort Irrigation Board	13 915	6 200	86 273 000	1 721	9
Hereford Irrigation Board	3 425	7 700	26 372 500	53	3
Korentte Vetterivier Irrigation Board	852	7 000	5 964 000	121	4
Lower Olifants River WUA	9 212	12 200	112 386 400	1 415	10
Loskop Irrigation Board	16 135	7 700	124 239 500	794	15
Groot Marico Government Water Scheme	2 523	5 300	13 371 900	309	5
Mooirivier Government Water Scheme	4 954	7 700	38 145 800	603	12
Orange/Riet WUA	15 941	11 000	175 351 000	679	6
Sandvet Government Water Scheme	10 542	1 080	11 385 360	616	10
Vaalhartz WUA	35 060	9 140	320 448 400	1 873	12

WatSave Award winner Dr Nico Benadé and WRC Director: Water Utilisation in Agriculture Dr Gerhard Backeberg.