



## Appendix 1

### The case for metering

#### *Experience of the Irish group water scheme sector*

Metering was unheard of in rural Ireland until relatively recent times, but over the past six years the National Federation of Group Water Schemes has become an enthusiastic advocate of metering, both as an essential water management tool and as the basis for an equitable charging system.

This change was heralded by the advent of treated water and the costs associated with this, particularly in the context of Design, Build, Operate (DBO) contracts where every litre of water must be paid for.

An unacceptably high rate of unaccounted for water (UFW) on most group water schemes had to be addressed in tandem with the construction of treatment plants, if those plants were to perform to contract and if group schemes were to meet the volumetric costs of their water supply. This point was graphically illustrated in a study completed by Ryan Hanley Consulting engineers, Client's Representatives to several DBO projects in the west of Ireland.

Following a pilot project on two County Cavan group schemes (Clifferna and Annagh), the DoEHLG agreed to provide funding towards universal metering on group schemes participating in DBO bundle projects. Increasingly, non-DBO schemes are also installing universal metering also, although many cannot do so without capital support.

From the outset, the advantages of metering became clear. Schemes noted the significant reductions in water demand as follows:

- Daily demand dropped even while meters were being installed, as local communities became more conscious of their water supply.
- Further reductions were recorded at consumer connections once the meters were in place and consumers were made aware of excessive water use
- Substantial reductions were recorded as district meter areas (DMAs) were created, within which leaks and bursts could be more easily located.
- Metering also highlighted unauthorised connections, where large volumes of water were being drawn from the network or other authorised connections.
- Charging based primarily (or exclusively) on metered use has facilitated a further drop in daily demand, particularly as bills are issued.
- Metering has allowed schemes to implement ongoing UFW control and water conservation programmes. Thus the benefits are cumulative.

Below are some examples of the impact of metering on individual group schemes of various sizes:

<b>Group Water Scheme</b>	<b>Before metering m3</b>	<b>Demand today m3</b>
Tobberowen/Lissybroder	583	180
Elmhill	62	30
Caherlistrane	2,600	1,300
Doobally	65	30
Erne Valley	5,500	3,300
Billis	2,030	1,600
Crosserlough	1,650	1,050

*NFGWS 3<sup>rd</sup> July 2008*

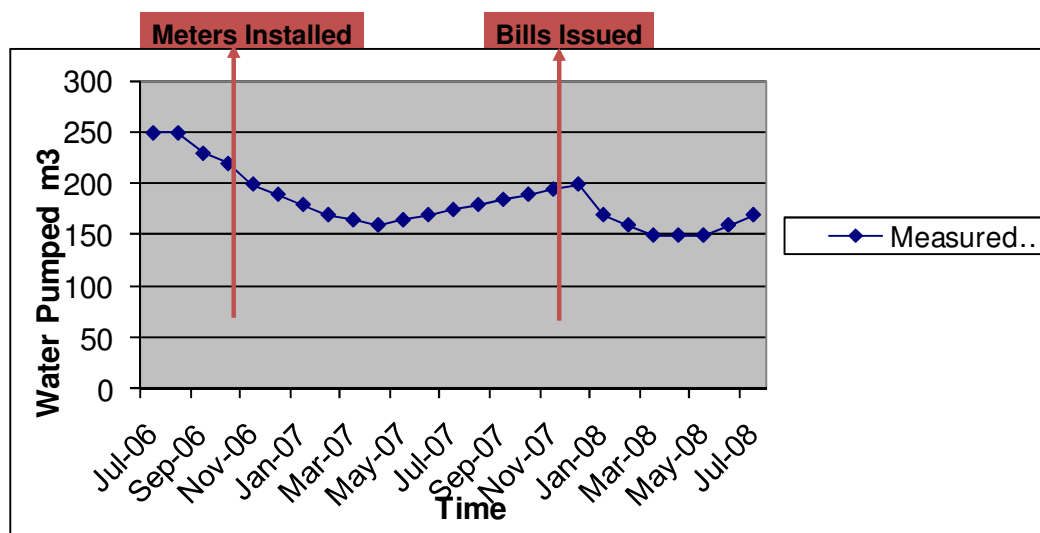
## Appendix – Group Water Scheme Examples

### Mayo GWS (150 Connections)

- This Mayo GWS successfully reduced its UFW through:
  - Universal metering
  - Active Leakage Control
  - Critical Mains Replacement
  - Pressure Reduction
  - Demand Management
- The results can be seen in the table below:

Mayo GWS	Before	After
Operating System	1 booster zone	2 zones – gravity + booster
No. Of Connections	150	150
Demand into Supply	479m <sup>3</sup> /day	185m <sup>3</sup> /day
UFW	334m <sup>3</sup> /day (70%)	20m <sup>3</sup> /day (11%)
Cost of UFW/year @ 80cent/m <sup>3</sup>	€70,373	€5,840

### Laois GWS with 90 Connections



## Cost Implication for Scheme Members

Figures from a GWS:

No.	2005 (m <sup>3</sup> )	2006 (m <sup>3</sup> )	Leakage	
			m <sup>3</sup>	Cost
1	114	7,609	7,495	€5,996.00
2	9,577	15,300	5,723	€4,578.40
3	173	4,805	4,632	€3,705.60
4	5,777	8,681	2,904	€2,323.20
5	709	2,186	1,477	€1,181.60
6	4,495	5,686	1,191	€952.80
7	363	755	392	€313.60

- GWS charge is 80 cent/m<sup>3</sup>  
(€3.60 per 1,000 gallons)

## Galway GWS (90 Connections)

	May 2006	Target
Daily demand	142 m <sup>3</sup> /day	71 m <sup>3</sup> /day
UFW % (m <sup>3</sup> /day)	60% (85)	20% (14)
Cost of UFW <b>(Savings)</b>	€10,835.40/year	€1,761.91/year <b>(€9,073.49)</b>
Distribution System	35% UFW	
Consumer Side	65% UFW 4% of all connections account for 45% of daily demand.	

## Leakage in Distribution Mains Vs Consumer Side

- Leakage Distribution across 6 GWS in Co. Mayo

GWS	Distribution System	Consumer Side
1	30%	70%
2	26%	74%
3	34%	66%
4	15%	85%
5	45%	55%
6	13%	87%