

## Non-Revenue Water Practices Assessment Rating Fields and Criteria

Practices Field		Program Management	Information Systems	Water Balance Practice	Apparent Loss Reduction and Control	Real Loss Reduction and Control	Monitoring and Analysis
<b>Description of Practices Field</b>		Rates utility practices on NRW Program leadership, organization, planning, budgeting, human and material resources, incentives and use of outside resources	Rates utility practices on establishing information systems, and keeping them up to date so that NRW planning and programs are based on accurate information	Rates utility practices on water audit / water balance as per IWA terminology and methods, focusing on accuracy and validity	Rates utility policies and activities on all components of apparent loss reduction and control	Rates utility policies and activities on all components of real loss reduction and control	Rates utility practices on use of experiences, program results, and information system data to assess plans and procedures, and revise strategies, plans and targets
<b>Criteria for Basic NRW Practices</b>	1	Top Management Interest / Leadership regarding good NRW management	Information Systems Plan	Water Audit / Water Balance Procedures	Planned Customer Database Verification / Update	Leak repair capabilities	Regular Water Balance Update
	2	NRW Management Organization	General NRW Information System (Key Indicators and Trends)	Estimation of system Input (master metering) - including imports and exports	Written guidelines on customer meter class and meter sizing	Leak Repair Time - distribution pipes	Assessment of NRW plans and activities for effectiveness and cost efficiency, for planning
	3	Communication and Coordination among Departments regarding NRW	Water Source / Supply Information System	Estimation of billed metered consumption (customer metering)	Written guidelines on meter replacement, based on financial analyses	Leak Repair Time - service connections	(Large) customer consumption monitoring
	4	NRW Program Planning and Budgeting	Billing and Customer Information System	Investigation and analysis of customer metering inaccuracies	Customer meter reading control and efficiency improvement	Use of Pressure Management	Billing accuracy and efficiency investigation and improvement
	5	Oversight of Plans and Budgets	Water Distribution Network Maps and Data Systems (GIS or other)	Estimation of billed unmetered consumption	Use of customer meter workshop for meter testing	Active leakage control program based on financial considerations	Monitoring of arrears and delinquent accounts
	6	Technical Skill Level and Training of NRW Personnel	Maintenance Management System	Estimation of unbilled authorized consumption	Reduction of the number of unmetered connections, especially large uses (gov't, etc)	Use of District Meter Areas (DMAs), Zones or Sectors	Pressure Monitoring and Control
	7	Technical Resources Available	Program on Data Validity Improvement	Estimation of unauthorized consumption	Program to reduce unknown or unauthorized use: unauthorized connections, meter tampering, bypasses	Pipe Rehabilitation / Replacement Policies and Implementation, based on financial considerations	Customer reporting feedback system / call center, with response rate monitoring
	8	Reporting and Public Information on NRW Progress, Targets, Plans and Budgets	Information Systems Integration / Compatibility	Estimation of data handling errors	Public education on water use, cost of water supply, and consequences of unauthorized use	Information / Promotion to the public and local authorities on the importance of prompt reporting of bursts	Regular NRW Monitoring Reports
<b>Criteria for Advanced NRW Assessr</b>	9	Advanced, Ongoing, Staff Training / Capacity Building	Database on pipe material, age and condition, break rate	Use of uncertainty analysis to examine expected range of water audit results, by category	Program for residents of slum areas with unauthorized connections to "legitimize" their connections	Analysis of pipe material, burst frequency, age etc for planning rehabilitation and / or replacement	Monitoing and quality control on the team and their efforts on reducing unknown and or unauthorized water use
	10	Use of internal awards and recognition for excellent staff performance	Database on meter type, size, class, and age	Use of leak / burst records for leakage component analysis	Use of disconnection policy for non-payment	Efforts to reduce or eliminate storage tank overflows or leakage	Quaility control on crews or contractors which conduct leak detection, repairs, rehabilitation or replacement works
	11	Performance-based compensation bonus systems for staff	Database on DMA configuration and performance	Night flow testing and analysis to estimate leakage	Assessment of different type or class of water meters for both large and small customers	Regular maintenance of valves, air valves, PRVs, hydrants and mains flushing	Zone or DMA performance analysis
	12	Experience in contracting for NRW services	Water Network Hydraulic Model	Water balance refinement using a comparison of top-down and bottom up audit methods	Use of AMI / AMR Systems (perhaps for large customers only)	Use of flow / pressure / noise sensors to detect leakage	Use of SCADA for real time monitoring and operational optimization