Chapter 1

INTRODUCTION to BLUE DROP PROGRESS REPORT & NATIONAL BLUE DROP RISK-RATING- the regulatory impression

1 INTRODUCTION

The livelihood of mankind depends on the sustainable provision of wholesome water. The Blue Drop Certification programme is an incentive based regulatory programme used by the Department of Water Affairs to proactively measure all the aspects contributing to a sustainable Water Services Business, able to provide wholesome water to the citizens of South Africa.

Experience build-up during the past four Blue Drop assessments, was used by the Department during the 2013 assessment to formulate a Blue Drop Risk Rating (BDRR) tool with the aim to identify, quantify and manage the risks associated with drinking water services provision in the nine provinces. It is not the purpose of this assessment to criminalise poor or high risk drinking water services and water quality, but rather to act a precautionary tool, warning the Water Services Institutions in the country about the level of risk at which water services and water quality is delivered to the citizens of South Africa. The further aim of the Blue Drop Risk Rating tool is to contribute to the overall risk assessment of the Water Services Institutions. In so doing the organisation will be empowered to take relevant strategic management and operational decisions to support and improve on long term sustainable water services.

This report provides information on the risk levels of specific critical components at water services delivery level for the period January 2012 to December 2012. The methodology (Progress Assessment Tool) used will be discussed in Appendix C to this chapter, as well as section 2: Regulatory Impression of each of the respective provinces.

This National Regulatory Impression will not only provide information for the country against the aspects included for evaluation this assessment cycle, but will also clarify the interpretation of some of the statistics.

2 GENERAL SUMMARY and INFORMATION

All Water Services Authorities and their respective Water Services Providers in South Africa were assessed, covering more than 1000 different water supply systems currently registered on the Blue Drop System (BDS) (see Table 1).

Table 1: General water supply system information

INFORMATION CATEGORY	STATISTICS		
	2011	2012	2013
Number of Municipalities (Water Services Authorities) Assessed	162	153	152
Number of drinking water supply systems assessed	914	931	1009
Number of Blue Drop Awards	66	98	NA

A comparison of the respective water supply system Blue Drop Risk-ratings (BDRR), calculated for each of the systems per Water Services Authority per Province, and then compared to the Blue Drop Risk-rating categories (Table 2), clearly revealed that Gauteng presented with the highest percentage

of Low-Risk systems and North West with the highest percentage of systems in the Critical-Risk Category (Figure 1).

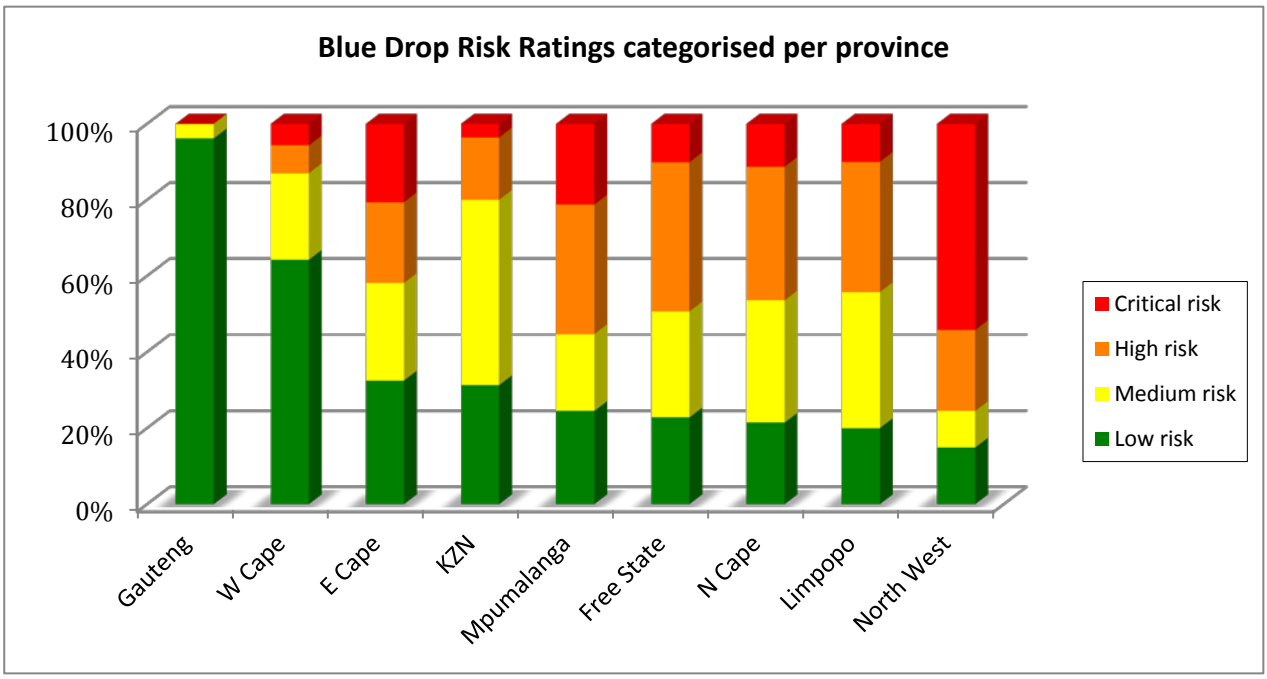

Figure 1: Proportion of systems per Blue Drop Risk-rating category per province

Ranked according the percentage of systems per province occurring in the Low-risk Blue Drop Risk category, Gauteng as a province can be regarded performing the best at the moment measured against the 2013 Blue Drop PAT criteria since it presented the most systems in the Low-risk category. Western Cape is followed by Eastern Cape as provinces presenting with most number of supply systems characterised with good drinking water quality management systems in place. Table 2 below supplements Figure 1 and provides more information on the ranking of the respective provinces, as well as percentage of systems per Blue Drop Risk-rating category.

Table 2: Distribution of the number of systems per risk category

Provincial Position	Blue Drop Risk-rating Category			
	<50% Low risk	50% to <70% Medium risk	70% to <90% High risk	90% to 100% Critical risk
1. Gauteng	96%	4%	0%	0%
2. Western Cape	64%	23%	7%	6%
3. Eastern Cape	32%	26%	21%	21%
4. Kwa-Zulu Natal	31%	49%	16%	4%
5. Mpumalanga	25%	20%	34%	21%
6. Free State	23%	28%	39%	10%
7. Northern Cape	22%	32%	35%	11%
8. Limpopo	20%	36%	34%	10%
9. North West	15%	10%	21%	54%

The current assessment also indicates that of all the systems assessed, 146 systems (15%) showed a significant reduction in the BDRR since the 2012 assessment (Appendix A). The Western Cape recorded the most systems (44) and the Free State the least systems (2) with significant improvement in risk ratios. While the Department acknowledges this improved performance in the

Western Cape, it is also concerned about the limited number of improving systems in the Free State, Limpopo (6), North West (6) and Northern Cape (8).

An additional concern to the Department is the number of systems with Blue Drop Risk-ratings in the High – to Critical Risk category (Table 3: 393; 39%).

Table 3: Distribution of the number of systems as per risk category

BDRR	Category	Number	%
90 - 100	Critical Risk	155	15%
70 < 90	High Risk	238	24%
50 < 70	Medium Risk	294	29%
<50	Low Risk	322	32%
		1009	**100%**

The Department wishes to acknowledge the top 50 performing systems with BDRR less than 19% (see Appendix B). A special complement is due to the following system, all within the residual risk range of 12±5%:

System	WSA	WSP	2013 BDRR
Buffeljags Bay	Overstrand Local Municipality	Overstrand Local Municipality	12.16%
City of Johannesburg	City of Johannesburg Metropolitan Municipality	Johannesburg Water and Rand Water	12.16%
Ekurhuleni	Ekurhuleni Metropolitan Municipality	Rand Water	12.16%
Tshwane Central & South (Rietvlei)	City of Tshwane Metropolitan Municipality	Tshwane MM and Rand Water	12.16%
Nieuwoudtville	Hantam Local Municipality	Hantam Local Municipality	12.31%
Tulbagh	Witzenberg Local Municipality	Witzenberg Local Municipality	12.32%
Mogale City	Mogale City Local Municipality	Rand Water and City of Johannesburg	12.40%
Saldanha Bay	Saldanha Local Municipality	West Coast District Municipality	12.50%

3 SPECIFIC BLUE DROP RISK-RATING INFORMATION

It is generally accepted that excellent drinking water quality (low risk) produced by a drinking water treatment plant is a function of technology and the human skill to maintain and control the technology and unit processes (the latter equal activities that secure the mentioned low risk).

In terms of the microbiological water quality, Table 4 indicates that only 25% of the systems (some bulk supply points included) reported a compliance of 95% and better at monitoring frequency of 80% and better (dark green section). Although an additional 32% of the systems reported a microbiological quality compliance of 95% and better, it was done at a monitoring compliance of less than 80% (orange section). The monitoring frequency less than 80% questions the credibility of high quality compliance statistics and raises a further concern about the actual number of quality non-compliances areas where non-compliances are recorded (35% of systems; See the red section of Table 4). The department view this poor quality and monitoring compliance in a serious light.

Table 4: Microbiological water quality compliance versus monitoring compliance

Monitoring compliance (%)	Micro Quality Compliance (%) < 90	90<95	95<96	96<97	97<98	98 +
< 30	148	20	2	7	13	76
30 < 50	66	24	6	3	3	64
50 < 70	43	30	9	12	5	75
70 < 80	33	14	4	8	7	51
80 < 90	16	11	1	7	10	58
90 +	25	30	8	6	7	166

The dependence of the credibility of chemical quality compliance data is also dependent on the monitoring frequency. Unfortunately the chemical monitoring compliance was not recorded during this assessment. The chemical quality compliance is however of concern with only 767 of the system/ bulk supplier points (72%), recording a quality compliance of 95% and better (Table 5).

Table 5: Chemical water quality compliance

	Chemical Quality Compliance (%) < 90	90<95	95<96	96<97	97<98	98 +
Nr of systems/WSPs	259	42	27	25	38	677

The above information should therefore be considered when the Drinking Water Quality Risk Rating (DWQRR; Table 6) is interpreted. A significant number of the 781 systems in the Low Risk category may have recorded a higher DWQRR if chemical monitoring frequency were considered. Of concern is the 23% of the systems that have recorded a medium to high DWQRR (Table 6).

Table 6: National Drinking Water Quality Risk Ratios

DWQRR	Category	Number	%
90 - 100	Critical Risk	18	2%
70 < 90	High Risk	190	19%
50 < 70	Medium Risk	20	2%
<50	Low Risk	781	77%
		1009	**100%**

As mentioned earlier in the document the above, water quality and monitoring statistic is in some way a function of the human skills and competence available to control unit treatment processes and distribution of water. Table 7 confirms the latter in that 52% of the systems recorded a high to critical risk in terms of Process Control.

Table 7: The National Process Control Risk Ratios

PCRR	Category	Number	%
90 - 100	Critical Risk	236	23%
70 < 90	High Risk	297	29%
50 < 70	Medium Risk	299	30%
<50	Low Risk	177	18%
		1009	**100%**

These high risk ratios are due to limited compliance in terms of suitable qualified supervisors and Process controllers. Only 21% of the systems have the required number of compliant supervisors employed and 66% of the systems operated without suitable qualified supervisors (Figure 2).

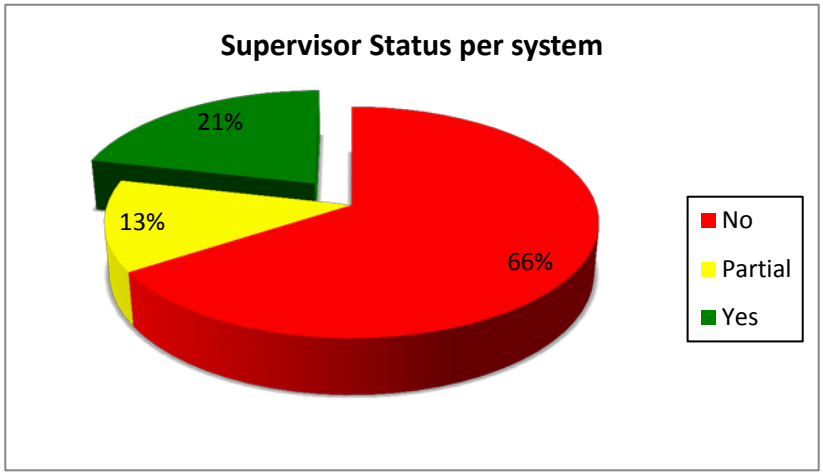

Figure 2: National Supervisor Status

An additional contributing factor to the high Process Control Risk ratings is the unavailability of suitably qualified Process Controllers. From Figure 3 it is evident that only 11% of the systems assessed have Process Controllers complying in terms of draft Regulation 17 and DWA requirements.

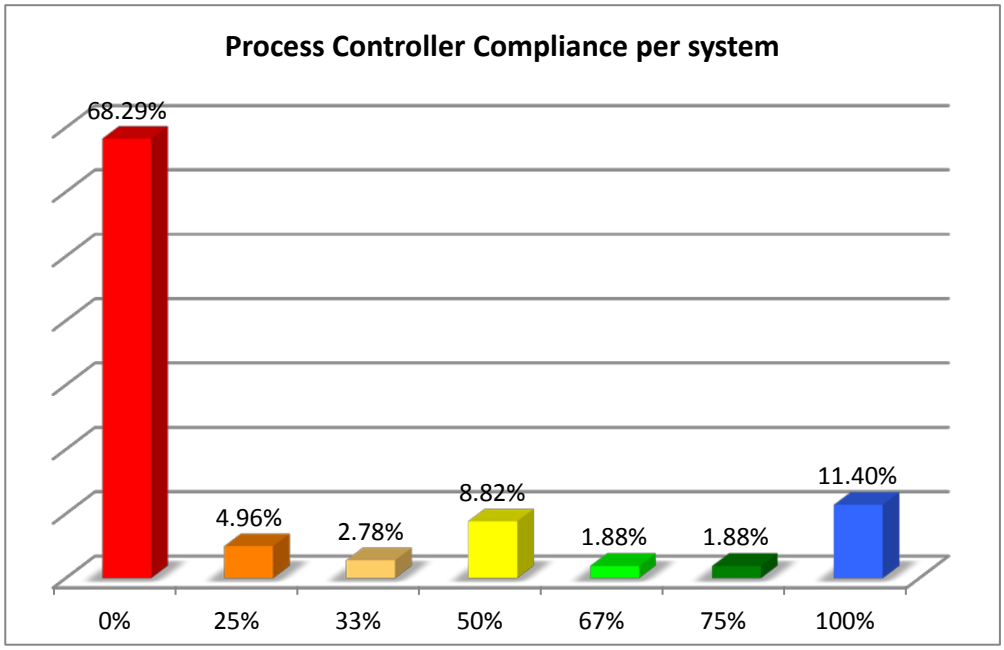

Figure 3: National Process Controller compliance

The water quality risk is also influenced by the treatment capacity available to produce safe water. The current assessment indicated that more than 30% of the systems operated at more than 75% of design capacity (See Table 8). In these systems very little space is available, even for competent Process Controllers, to do maintenance and to deal with technical challenges

Table 8: Available operational capacity in Mpumalanga

Operational Capacity		
Category (%)	**Number**	**%**
< = 75	705	70%
> 75	304	30%
	1009	**100%**

Given all the critical issues mention above, one would expect a high level of Water Safety Planning as introduced by the Department a few years ago. This is unfortunately not the case. Figure 4 clearly indicates that only 13 % of the systems have active Water Safety Planning processes in place. An alarming 52% of systems don't have any water safety planning activities in place.

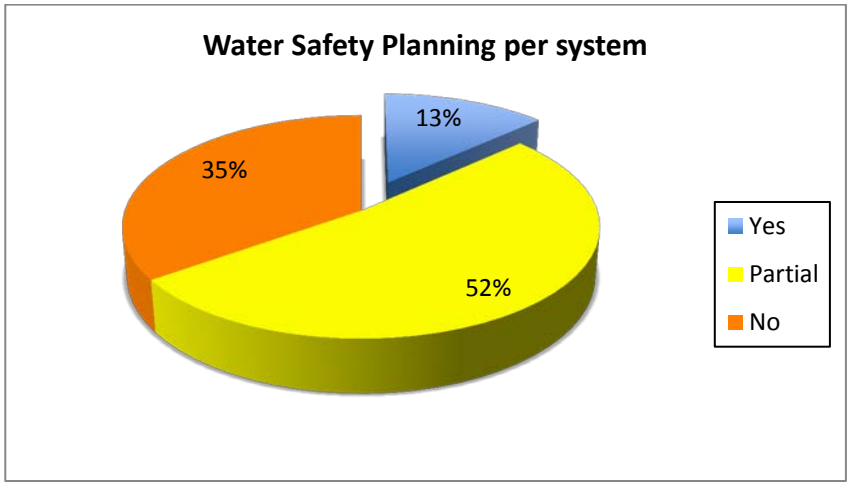

Figure 4: The national Water Safety Planning status

From Figure 5 it is also evident that risks programmes of only 9% of the systems are informed by full SANS241 analysis and a Risk Defined Monitoring programmes. A concern to the Department is that 62% of the systems have no full SANS241 and or Risk-defined monitoring activities.

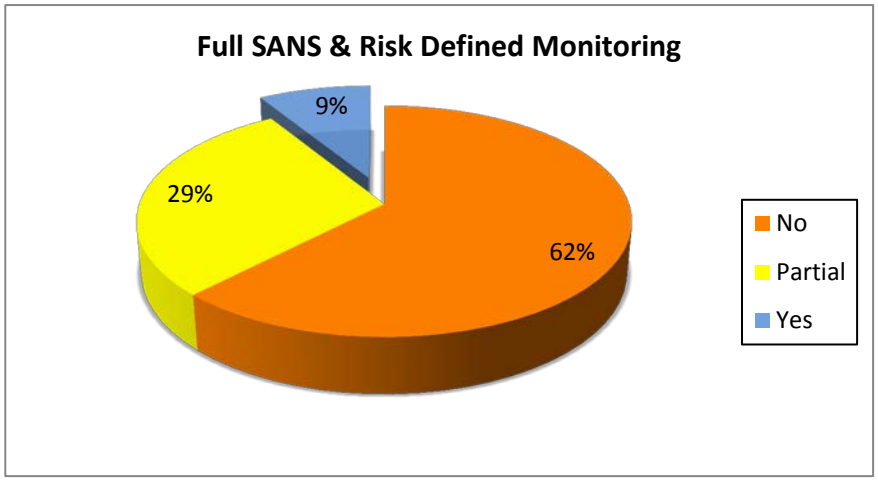

Figure 5: Full SANS241 analysis and Risk Defined Monitoring status in South Africa

Because these processes form the basis of any institutional risk management programme, the absence or poor performance in terms of water business risk management, is a serious concern for

the Department. This information further clarifies distribution of systems in the risk categories (See Figure 1 and Table 2/3).

4 RECOMMENDATIONS

The Risk level associated with the drinking water services in South Africa can be regarded as serious. The situation can be turned around if WSA management commits to the following:

- A suitably qualified and competent Supervisor, will significantly reduce the risk rating with 10%. The Supervisory compliance can be obtained by focused training of staff or an application for "Recognition of prior learning". Several of the risks associated with the absence of a supervisor, can be mitigated by doing things differently, for example using professionals, professional organisations and Water Boards to assist in some or other way until the supervisory function complies.

- Commitment from the WSA Executive to dedicated Water Safety Planning. Process, planning, execution and monitoring of risk reduction mitigation plans are of paramount importance.

- Associated with active Water Safety Planning should be continuous evaluation of water quality data obtained from the full SANS241: 2011 analysis during high risk conditions in the value chain. The information gathered can then be used to compile, manage and update a Water Quality Risk Defined monitoring programme.

With dedication, skills and passion, the water services provided to the citizens of South Africa, can improve significantly by reducing the related risks.