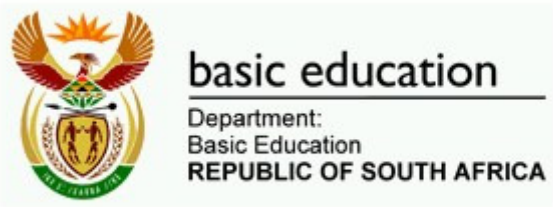
Second detailed indicator report for basic education sector



16 June 2014

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1 Introduction

This report expands on a previous report titled *Detailed indicator report for basic education sector* and dated September 2013. That report is in the public domain. Essentially this report presents further analysis using the same 2011 School Monitoring Survey (SMS) data used for the earlier report. The aim here is to plug further gaps with respect to key sector indicators. Details in the earlier report, such as those relating to the data collection process, which are relevant for this report, are not repeated here. The reader is urged to consult the earlier report in this regard.

The original 2011 School Monitoring Survey report of the data collection service provider is also in the public domain. That report is titled *Report on the national School Monitoring Survey*. That report is referred to as 'the original SMS report' here. Part of the aim in the sections that follow is to expand on the analysis of the original SMS report, to contextualise values published in that report, and to warn against misinterpretation of indicator values.

Throughout this report the relevant weights in the SMS dataset were used for calculations.

2 Indicator on the filling of educator posts

Wording of the official indicator: *The percentage of schools where allocated teaching posts are all filled*.

An indicator that is close to the official one, but does not reflect it exactly, results in a 2011 value of 90% of schools having all posts filled (see Table 1). The proxy indicator differs from the official one mainly insofar as it excludes the 28% of schools which have both publicly paid and school governing body-employed educators. Coverage for all schools was not possible due to data problems. The proxy indicator thus concentrates on historically more disadvantaged schools, in other words schools which are of particular concern for policymakers. Moreover, this proxy indicator considers an educator post occupied by an educator employed through a temporary contract as a filled post. The indicator thus focuses on the basic functioning of the school: ideally, every post in the school should be occupied by a 'warm body' for the school to function as it should. However, if one applies the much more stringent criterion that every post should be filled by an educator with a *permanent* contract, then at least 37% of schools have vacant, or non-filled, posts.

The data suggest that on the whole less advantaged schools are provided with more educators, relative to enrolments, and that thus the intentions of the post provisioning policy are being fulfilled in broad terms. However, it should be a concern that Eastern Cape is a province which is clearly unable to maintain a pro-poor distribution of educators in schools.

A few important anomalies in the School Monitoring Survey are discussed, and suggestions are made for better data in future. This is a critical monitoring area and one that is especially in need of more attention, which includes closer monitoring of the operational data of provinces.

The 2011 School Monitoring Survey asked the principal to specify 'Total number of state-employed educator posts allocated to your school and the total number of vacant state-employed posts in your school this year'. An explanation adds: 'Vacant posts are posts which are currently allocated to a school but which are not currently filled'. The two responses are broken down by four commonly used rank categories: school principal, deputy principal, head of department and teachers. It should be noted that the last category is referred to as 'educators' in the questionnaire, though it should be clear enough from the form that this category excludes the first three categories. What is also noteworthy is that the fourth category is defined as including 'Grade R practitioners'. Given that Grade R may or may not

have posts allocated to it in the manner of grades 1 to 12, and given that in certain respects Grade R practitioners may not be fully qualified educators, the analysis that follows was in many instances conducted with and without schools offering Grade R in order to see whether there were any significant differences.

In one important respect the SMS questionnaire is ambiguous. If allocated posts are *temporarily* filled, then those posts may or may not be reported as being vacant. The principal could respond, say, that one post is vacant when a temporary educator is in fact employed within that post. The key thing one wants to monitor is whether schools are suffering a shortfall of teachers relative to their post establishments. Thus a vacancy understood as the absence of a *permanently* employed educator when an educator has been employed on a *temporary* basis is a relatively non-serious problem in terms of service delivery, at least relative to there being no 'warm body' at all (the term 'warm body' is used here, as it often is in the policy debates, to refer to an actual educator, as opposed to just an educator post). There do not seem to be other questions in the questionnaire that could easily resolve the ambiguity of whether 'vacancy' means no educator at all or no permanently employed educator. In particular, there is no question on the number of temporary state-paid teachers or a question that asks about the total number of educators in the school *and* that differentiates educators paid by the school governing body (SGB). There is, however, a question in the principal questionnaire asking about the total number of educators in the school (where this includes Grade R practitioners).

Patterns in the data suggest strongly that the questionnaire ambiguity referred to above did result in different ways of responding to the vacancy questions. What is not possible to extract reliably from the data is which schools understood 'vacant post' as meaning one thing and which ones understood it to mean another.

Despite the data problems, there seem to be a few indicators that have policy relevance that could be calculated using the available SMS data. None are exactly in line with the official indicator referred to above but they do all throw light on the issue of the filling of posts. Three indicators were calculated for this analysis:

- **Indicator 1.** The number of educators employed in the school as a percentage of educator posts allocated to the school. This indicator is only meaningful in the case of schools where there are no SGB-employed educators. This sub-set of schools was identified through analysis of the 2011 Snap Survey data[1].

- **Indicator 2.** The percentage of posts allocated to the school which are non-vacant, according to the questionnaire table where respondents had to provide number of publicly employed educator posts and number of these posts which were vacant. Because of the problem whereby certain schools understood 'vacant' to mean no-one employed at all and other schools understood 'vacant' as meaning no *permanent* educator employed (which could mean a temporary educator had been employed), the indicator 2 values must be seen as indicating a limit. Specifically, the actual percentage of posts filled with *any* educator (permanent or temporary) would have to be *higher* than the indicator 2 value. The actual percentage of posts filled with a *permanent* educator would have to *lower* than the indicator 2 value.

[1] One anomaly encountered during the calculation of this indicator was that in the case of 206 sampled schools (counting only schools without SGB-paid educators) the number of employed educators, according to the SMS questionnaire, was lower than the number of educator posts minus vacancies. There is no obvious logical explanation for this. In these schools, the number of employed educators was adjusted upwards to equal educator posts minus vacancies. A look at the microdata suggested that much of the problem arose because respondents had counted just teachers when asked about the 'total number of educators employed', without counting the principal, deputy principal or heads of department.

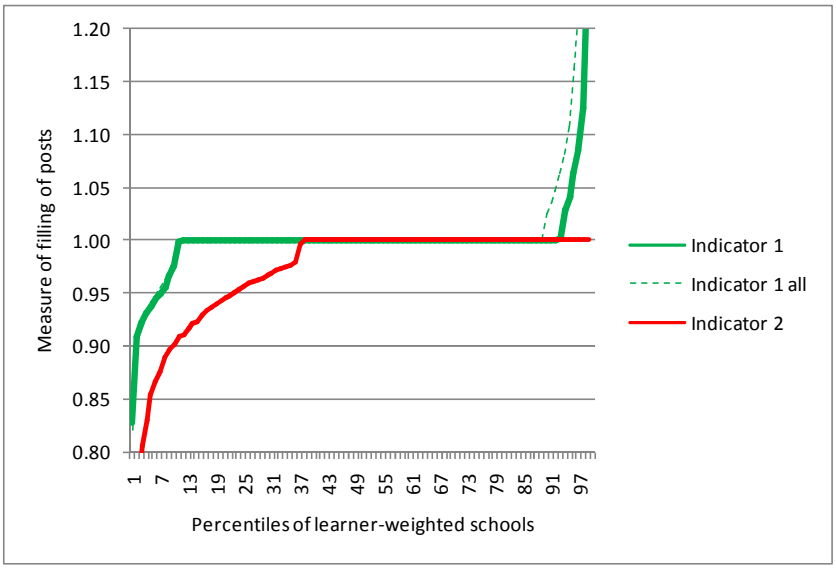
- **Indicator 3.** Whether a school has a permanently employed school principal. With respect to the school principal, even having a temporary person employed would be problematic for the management of the school. In the case of the school principal, it is unlikely that a respondent would have said there was no vacancy if there was no permanently employed person, in other words if there was just a person occupying the principal's post on a temporary basis. In the case the school principal's post, the ambiguity relating to temporary appointments discussed above is probably not an issue. This is largely because a completely empty post in the case of the school principal is an impossibility according to the existing rules: there must always be at least an acting school principal.

A further set of questions in the principal questionnaire asks whether the school experiences vacancies in specific subjects in each of the four phases. For this, there are 50 yes-no questions. Patterns revealed by these data are also described below.

Figure 1 below illustrates the distribution of the values of the first two indicators listed above. All curves were tested with the exclusion of schools offering Grade R. In no case did this exclusion noticeably alter the pattern. The 'Indicator 1' curve is all employed educators divided by allocated posts in schools which, according to the Snap 2011 data, had no SGB-employed educators. The latter filter results in 21% of schools being excluded, or 28% of learner-weighted schools (schools with SGB-employed educators tend to be larger schools). The left-hand end of the 'Indicator 1' curve suggests that 10% of schools experience a clear under-supply of teachers in the sense that educators employed is less than posts allocated (this is why the green curve dips below the 1.0 level, where 1.0 means that there are as many posts as 'warm bodies' in the school). The provincial breakdown for the percentage of schools which do *not* experience this under-supply appears in the first column of Table 1. The right-hand end of the curve indicates that 9% of schools have *more* educators than what appears in the post establishment, probably because there are excess educators at the school. The 'Indicator 1 all' curve includes schools with SGB-employed educators. As one would expect, a larger percentage of schools have educators additional to the official post establishment when all schools are considered.

The 'Indicator 2' curve shows that 37% of schools report having vacant posts. However, as discussed above, to a fairly large degree schools would have counted posts with temporary educators as being vacant. The difference between the 'Indicator 1' and 'Indicator 2' curves confirms this. 'Indicator 1' can be considered a better measure of a shortfall of 'warm bodies', relative to posts, within schools. As seen in column A of Table 1, this indicator suggests that 90% of schools have 'warm bodies' corresponding to the number of posts in the school (or 'warm bodies' in excess of posts, as illustrated at the right-hand side of the graph). This can be compared to the 95% figure reported in the 2011 Action Plan, a figure derived from the school visits of 'IQMS monitors' employed by the national department.

Figure 1: Distribution of educator shortfall indicators



Note: If schools are not weighted by learners, the proportion of schools with values less than 1.00 drops, meaning a more favourable situation emerges. Larger schools thus experience proportionally larger vacancy problems compared to smaller schools. Specifically, if no weights are used, the percentage of schools with Indicator 1 below 1.00 drops from 10% to 8%, and the percentage of schools with Indicator 2 below 1.00 drops from 37% to 28%.

The data on which the curves in the above graph are based had few missing values. For example, 'Indicator 1' draws from data where only two schools (out of 1,521 with no SGB-employed educators) had missing indicator values.

It might be tempting to use the indicator 1 curve from the previous graph, specifically the part rising above 1.0 on the vertical axis, to estimate the extent of 'double parking' in educator posts. This phenomenon is said to exist when certain schools gain additional posts, due to enrolment shifts, whilst other schools lose posts, and it is not possible to move all excess educators into the new posts in other schools. The 'double parking' phenomenon occurs because empty posts are filled with temporary educators, instead of permanent excess educators from other schools. It is true that schools with more publicly employed educators than posts (the 9% of schools on the right-hand end of the above graph) are likely to have excess educators which could not be moved to other schools. However, these excess educators would not represent the full extent of 'double parking' as it is possible for a school to have both excess educators and empty posts. For example, a school may have a vacant head of department post, whilst at the same time it has one teacher who is in excess. Clearly, even in schools where the total number of publicly employed educators did *not* exceed the number of posts, there could be excess teachers. Unfortunately, the SMS data do not allow us to monitor the full extent of 'double parking', largely because there was no question asking about the number of educators in the school declared to be 'in excess'.

The following breakdown by province indicates a couple of key things. The provinces KN, NC and WC appear to be more successful than EC and FS when it comes to ensuring that posts are filled. For instance, in 15% of schools (learner-weighed) in EC, there were fewer 'warm bodies' than educators in the official post establishment. Where schools did not have all the 'warm bodies' they should have, the shortfall in percentage terms did not differ that much across provinces. The worst figure here is that of WC, where on average 9% of posts were not filled (100% minus the 91% seen in column B). Column C indicates that the indicator 1 values for GP and WC but even FS need to be read with much caution, because

such a large proportion of schools with SGB-employed educators had to be excluded[2]. Yet even for these three provinces the indicator 1 values are relevant as they do reflect the situation in less socio-economically advantaged schools. The values in column D are considerably lower than the values in column A because of the ambiguities relating to temporary teachers noted above. Lastly, indicator 3 suggests that GP and WC are particularly good at protecting the management integrity of schools by ensuring that school principal posts are filled with permanent employees.

Table 1: Post vacancy statistics by province

	Indicator 1 (employed over posts)			Indicator 2 (non-vacant over posts)		
	A % with indicator value ≥1	B Mean indicator value (%) where <1	C % of schools excluded for this indicator as they had SGB-employed educators	D % with indicator value equal to 1	E Mean indicator value (%) where <1	Indicator 3: % of schools with a permanently appointed school principal
EC	85	93	19	61	89	94
FS	82	94	50	51	94	95
GP	86	95	41	58	94	97
KN	95	93	22	66	92	94
LP	93	92	8	72	90	95
MP	89	96	17	66	95	95
NC	95	94	28	83	83	96
NW	91	94	28	53	90	89
WC	95	91	68	66	92	99
SA	90	94	28	63	92	95

Note: Statistics are all weighted by the number of learners.

The values in column A above are arguably the closest one can get to the official indicator values using the 2011 SMS data, and hence it is these values which are entered in the summary table at the end of this report.

The official indicator on the filling of educator posts is important largely because there is a concern that schools should not have too few educators relative to learners. The analysis would be incomplete without some consideration of the relationship between posts, vacancies, school type and enrolment. Specifically, it would be good to examine two questions using the data. Firstly, do the post establishments of the schools in the various provinces in fact represent an equitable distribution of posts? In other words, is the benchmark against which one is gauging the problem of vacant posts a good one? Secondly, which kinds of schools are most affected by vacant posts? Is it, as one might expect, poorer and more rural schools? The first question could not be conclusively answered using the SMS data due to the data problems already discussed. The second question was easier to address.

The breakdown of the Table 1 statistics by quintile in the following table assists in answering the second question. The breakdown reveals the nature and magnitude of the problems experienced by schools serving poorer communities. In quintile 1, 88% of schools have fewer educators than posts, against 93% in quintile 5 (counting just schools with no SGB-employed educators, but note from column C that this leaves very few quintile 5 schools to analyse).

[2] The high exclusion in FS is striking, but closer analysis of the Snap Survey data indicates that this is due to the fact that to a large extent Grade R teachers are entered as SGB employees in the case of FS.

Table 2: Post vacancy statistics by quintile

	Indicator 1 (employed over posts)			Indicator 2 (non-vacant over posts)		
	A % with indicator value ≥1	B Mean indicator value (%) where <1	C % of schools excluded for this indicator as they had SGB-employed educators	D % with indicator value equal to 1	E Mean indicator value (%) where <1	Indicator 3: % of schools with a permanently appointed school principal
Quintile 1	88	94	13	65	91	94
Quintile 2	90	93	15	62	92	94
Quintile 3	92	93	16	64	92	94
Quintile 4	90	94	40	57	93	95
Quintile 5	93	94	81	71	93	97
SA	90	94	28	64	92	95

Note: Statistics are all weighted by the number of learners.

The question of whether actual 'warm bodied' educators are inequitably distributed is such an important question that this was explored using an alternative dataset, the 2011 Snap Survey dataset, given the limitations of the SMS dataset. The value of the Snap Survey data lies largely in the fact that it is possible to distinguish state-paid from SGB-paid educators. In order to avoid the complexities of subjects at the grades 10 to 12 level, only public ordinary schools without these three grades were examined. A regression model that we can think of as a rough simulation of the actual post provisioning formula was run. In this model, a number of variables one would expect to influence the number of publicly employed educators were entered as explanatory (input) variables, and the number of publicly paid educators was considered the dependent (output) variable. Results appear in Table 3 below. Here we see that quintile 5 schools are exceptional in the sense that they have fewer warm bodies after one has controlled for school size and other factors such as province. The difference is not large: the model predicts that a quintile 5 school will on average have 0.28 fewer educators, compared to quintile 1 schools. The distribution of educators is thus slightly pro-poor. Whether the degree of pro-poorness is what the post provisioning policy requires, is not possible to establish using this model. For such a monitoring exercise, it would be necessary to have data for all public schools, and all the variables required in the official model, including the number of languages of instruction used in the school, and enrolments in all grades 10 to 12 non-language subjects.

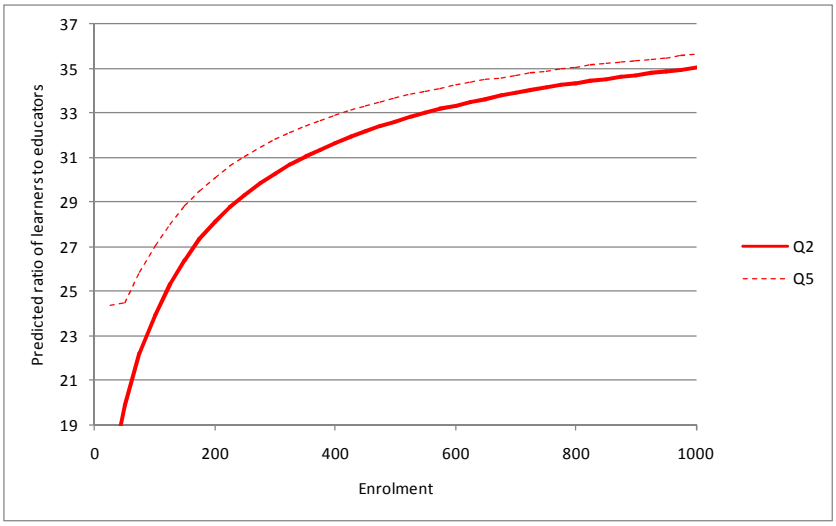
Table 3: Regression of public employees on explanatory factors

Explanatory variable	Slope coefficient	p-value
Enrolment	0.0257***	0.00
Natural logarithm of enrolment	0.5367***	0.00
Has grades 8 or 9	0.5853***	0.00
Is in quintile 1	Reference category, no statistic	
Is in quintile 2	0.1932***	0.00
Is in quintile 3	0.2786***	0.00
Is in quintile 4	0.1623**	0.02
Is in quintile 5	-0.2821***	0.00
Is in EC	1.1171***	0.00
Is in FS	1.6405***	0.00
Is in GP	-0.2608***	0.01
Is in KN	0.7676***	0.00
Is in LP	1.6717***	0.00
Is in MP	1.1925***	0.00
Is in NC	0.4028***	0.00
Is in NW	0.5671***	0.00
Is in WC	Reference category, no statistic	
Constant	-1.4641***	0.00
Adjusted R squared		0.926
Number of observations		18016

*Note: Dependent variable is number of publicly employed educators, permanent and temporary, according to the 2011 Snap Survey. Only schools not offering grades 10 to 12 were included in the analysis. Enrolment considered was in the range Grade 1 to Grade 9. *** indicates that the estimate is significant at the 1% level of significance, ** at the 5% level, and * at the 10% level.*

The following graph represents the patterns revealed by the model in Table 3.

Figure 2: Predicted learner to educator ratios



If nine separate regression analyses are run, for the nine provinces, using the Snap Survey data, important patterns emerge. One province, namely EC, clearly does provide more 'warm body' educators to quintile 5 schools than other schools. In fact, the pattern in EC is for more warm bodies to be employed, relative to enrolments, the less poor the quintile. A part of the explanation would be that it is difficult to attract teachers to remote rural areas. The next table also indicates that three provinces, LP, NW and WC, display a clearly pro-poor distribution in the sense that quintile 5 schools have fewer publicly employed educators. Again, it should be emphasised that the model used here is intended to point to broad patterns. It cannot confirm that, for instance, MP is or is not implementing a pro-poor distribution of 'warm bodies'. Such confirmation would only be possible with a far more ambitious and extensive analysis than what is provided here.

Table 4: Selected regression outputs at the province level ('warm bodies')

	With Gr R?	Quintile 2	Quintile 3	Quintile 4	Quintile 5
EC	No	0.3***	0.8***	1.1***	1.4***
	Yes	0.3***	0.7***	1.0***	1.6***
FS	No	0.7***	0.7***		0.6*
	Yes	0.9***	0.8***	0.6*	1.0***
GP	No				-0.5**
	Yes				
KN	No		-0.2*		
	Yes		-0.2*	0.2*	0.6***
LP	No	-0.3**			-1.5***
	Yes	-0.3**			-0.9**
MP	No				
	Yes				
NC	No				
	Yes				
NW	No				-1.1***
	Yes		0.3**		-0.9**
WC	No				-1.3***
	Yes		0.4**		-1.2***

*Note: The above are coefficients from provincial versions of the national model shown in Table 3. Here a scenario with Grade R enrolment data is also presented. Only schools not offering grades 10 to 12 were included in the analysis. Enrolment considered was in the range Grade 1 to Grade 9. *** indicates that the estimate is significant at the 1% level of significance, ** at the 5% level, and * at the 10% level.*

As mentioned above, the 2011 SMS asks schools to indicate whether they experience vacancies with respect to specific phases in the school and subjects. As has already been emphasised, it is not clear from the data the exact extent to which schools have counted the presence of a temporary educators as a 'vacancy'. Table 5 provides details with respect to the 50 questions asked in the survey. We see, for instance, that as many as 51% of schools offering grades 10 to 12 have at least one 'yes' response with regard to the existence of a subject-specific vacancy. The figure for grades below Grade 10 is around 35% of schools. A very interesting pattern relates to mathematics vacancies. The figures do not support the notion that shortages of mathematics teachers are more serious, to a large degree, than shortages in all other subjects. Mathematics tends to be the subject with the highest vacancy statistics, but not by a large degree. For instance, 16% of schools offering grades 4 to 6 report that they have a mathematics vacancy, but figures for other subjects, even life orientation, are almost has high (the figure is 12% for life orientation). In grades 10 to 12, 21% of schools report a mathematics vacancy, but the figures are similarly high for a number of other subjects, in particular languages (19% to 20%), life sciences (20%), physical sciences (21%) and accounting (19%).

Table 5: Vacancies by grade and subject

Subject	% of schools with this phase reporting a vacancy	% of schools with this phase saying yes or no
Grades 1 to 3 (36% of schools said 'yes' to at least one subject)		
Literacy	19	100
Numeracy	19	99
Life Skills	18	99
Grades 4 to 6 (35% of schools said 'yes' to at least one subject)		
Home Language (Subjects taught at HL level)	14	99
First Additional Language (Subjects taught at FAL level)	14	99
Mathematics	16	99
Natural Science	15	99
Social Sciences	13	99
Technology	12	99
Economic and Management Sciences	12	98
Life Orientation	12	99
Arts and Culture	12	98
Grades 7 to 9 (38% of schools said 'yes' to at least one subject)		
Home Language (Subjects taught at HL level)	12	97
First Additional Language (Subjects taught at FAL level)	13	98
Mathematics	16	99
Natural Science	13	99
Social Sciences	12	99
Technology	13	98
Economic and Management Sciences	11	98
Life Orientation	13	98
Arts and Culture	11	97
Grades 10 to 12 (51% of schools said 'yes' to at least one subject)		
Home Language (Subjects taught at HL level)	19	93
First Additional Language (Subjects taught at FAL level)	20	93
Mathematics	21	92
Mathematical Literacy	16	91
Agricultural Management Practices	2	49
Agricultural Sciences	11	66
Agricultural Technology	1	48
Civil Technology	4	53
Computer Applications Technology	10	60
Consumer Studies	9	57
Dance Studies	2	47
Design	3	48
Dramatic Arts	1	48
Electrical Technology	4	50
Engineering Graphics and Design	6	54
Hospitality Studies	2	52
Information Technology	6	53
Life Sciences	20	89
Mechanical Technology	4	49
Music	4	51
Physical Sciences	21	87
Visual Arts	5	52
Accounting	19	88
Business Studies	18	87
Economics	17	80
Religious Studies	2	49
Geography	17	86
History	13	74
Tourism	10	66

Note: All figures refer to the percentage of learner-weighted schools.

The following provincial breakdown of key statistics from the previous table suggests that at the grades 10 to 12 level three provinces, FS, MP and NC, experience particularly serious problems in filling posts in the three identified key subjects: first additional language (mainly

English), mathematics and accounting. Below Grade 10, it is FS which stands out as experiencing particularly serious vacancy problems (but even the aggregate statistic for grades 10 to 12 in the case of FS points to a dire situation).

Table 6: Vacancies by grade and province

	Gr 1 to 3	Gr 4 to 6	Gr 7 to 9	Gr 10 to 12	Gr 10 to 12 first additional language	Gr 10 to 12 math-ematics	Gr 10 to 12 account-ing
EC	36	34	35	48	19	20	17
FS	64	63	59	78	33	31	40
GP	48	46	43	43	14	14	11
KN	26	26	36	55	23	18	20
LP	24	24	27	34	11	16	14
MP	31	30	38	58	39	42	41
NC	30	30	38	52	44	48	25
NW	43	44	43	53	14	29	12
WC	37	37	45	65	17	22	12
SA	36	35	38	51	20	21	19

Note: Statistics refer to learner-weighted schools reporting at least one vacancy.

3 Indicator on time spent on professional development

Wording of the official indicator: *The average hours per year spent by teachers on professional development activities*.

A feasible set of values for this indicator produces a national average in 2011 of 39 hours per educator (see Table 7). However, some very high values push this average up considerably. The median is only 12 hours per educator. Patterns in the data point to considerable differences across provinces in the quantity of department-initiated professional development. Limpopo stands out as a province with an exceptionally low quantity and quality of professional development for educators.

As part of the School Monitoring Survey of 2011, ten educators per school were selected randomly, or all educators were selected in the case of there being ten or fewer educators, and each educator was asked to complete a five-page questionnaire dealing with professional development and support provided by districts. It seems as if questionnaires were handed straight to fieldworkers, and were not seen by school principals, an important matter given that one question dealt with the value of professional development activities initiated by the school, which could be activities planned by the school principal.

The teacher questionnaire refers to three categories of professional development: 'self-initiated', 'school-initiated' and 'externally initiated'. For each of the three categories, the educator was required to indicate the 'estimated number of hours' spent during 2011. Responses would not include all of 2011 as fieldworker visits occurred during the period 11 October to 24 November of 2011, the median date being 1 November. However, responses would be close to what one would expect for the entire year.

Some 10% of educators (weighted) did not provide any responses to the professional development hours question. A further 13% indicated that that zero hours was spent across all three categories of activities. There were some very high values: the sum across the three categories came to more than 1,000 hours for 1% of educators. Spending 1,000 hours in a year amounts to just under 20 hours a week, an ambitious but feasible level of effort for someone engaged in intensive part-time studies. However, it was decided to regard all values producing a sum exceeding 1,000 hours as problematic in the calculations. In the third column of Table 7, observations where the sum of hours exceeded 1,000 were excluded from the calculation,

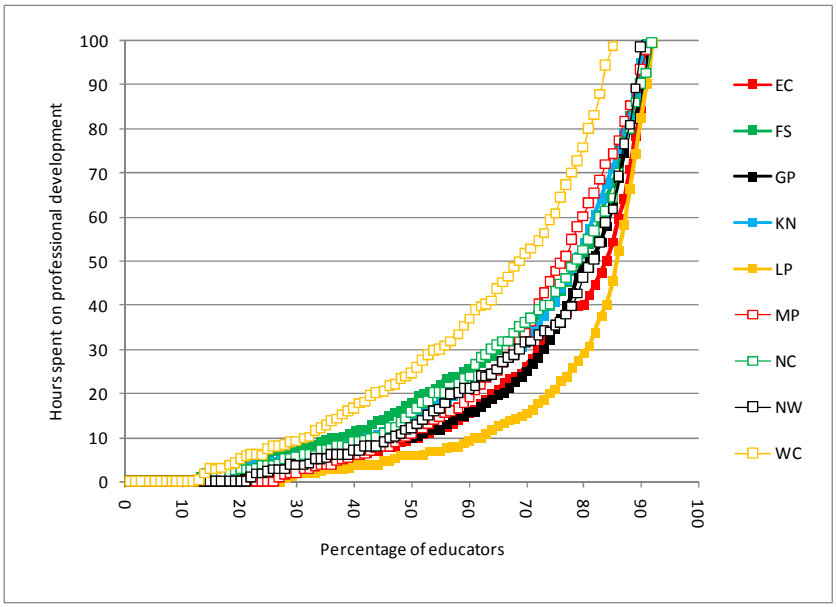
producing a national mean of 39 hours. In the fourth column, values above 1,000 were converted to 1,000, producing a mean of 48. If no adjustment occurred, a national mean of 61 was produced. Clearly, the indicator values were very sensitive to the way high values were treated. The values in the third column are very similar to final values proposed by the original SMS report. This fact, combined with the fact that the provincial rankings seen in the third column are consistent with other rankings presented below, suggested that these were figures one could use as final indicator values. The median values in the final column provide an important indication of how low the level of professional development of many educators is, and thus how deceptive the mean can be.

Table 7: Hours spent on professional development

	% of educators with missing values	% of educators with just zero	Mean with values greater than 1,000 excluded	Mean with values greater than 1,000 truncated	Median
EC	10	17	36	54	10
FS	10	8	40	40	19
GP	11	11	34	39	10
KN	10	9	46	50	15
LP	7	22	30	50	6
MP	8	19	37	42	11
NC	17	7	39	49	16
NW	11	12	40	48	13
WC	11	6	55	58	25
SA	10	13	39	48	12

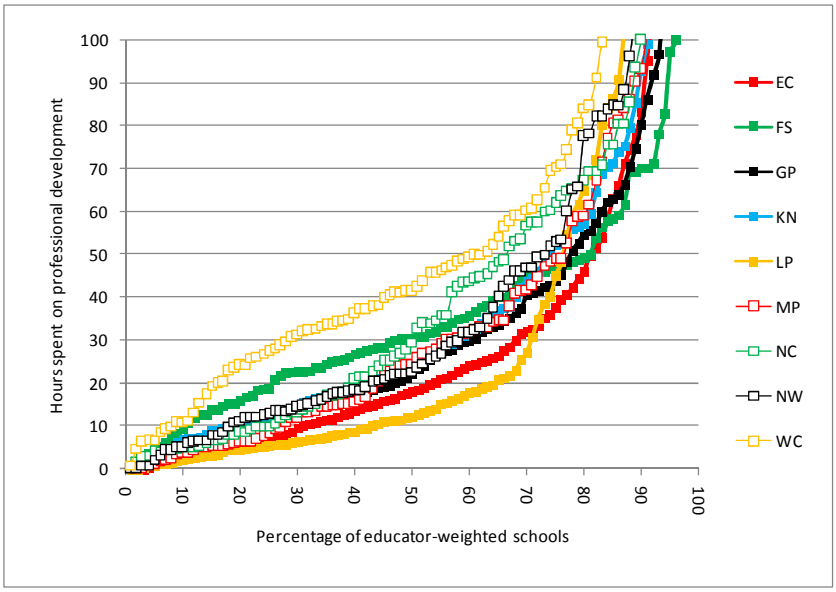
What is reassuring (at least from a measurement perspective, if not from a service delivery perspective), is that the values in the third column above are close to those derived from the 2007 Grade 3 Systemic Evaluation and reported in the 2011 Action Plan. Yet it seems especially important in the case of this indicator to illustrate the distribution. This is done below by province. Clearly, values in LP are especially low, whilst those in WC are especially high. It is also noteworthy that GP does not display particularly good values, despite the fact that GP is often amongst the better performing provinces with respect to basic education indicators. In the 2007 Systemic Evaluation figures, LP did also stand out as having a particularly low value, whilst the GP value equalled the national average. Provincial differences must be treated with some caution. It is possible that different provincial systems (if they exist) obliging educators to report on their professional development hours could influence the way educators estimate their number of hours.

Figure 3: Distribution of professional development hours (educators)



In monitoring time spent on professional development, it is important to consider that this might vary greatly from year to year. A teacher may spend a large amount of time in one year, perhaps because she has enrolled in a formal programme, and then spend very little time in the following year, perhaps to compensate for private activities forfeited during the previous year. It is not necessarily problematic if some educators spend very little time during a specific year on professional development, because these same educators may have been busy with professional development in a previous year. One way of gauging whether there is a problem is to examine average statistics by school. If one finds many schools where all educators spend little time on their development, this is likely to be a problem. It is unlikely that all the educators in such schools would be 'taking a break'. It is more likely that the school principal does not insist on professional development and that the general school culture is not geared towards this activity. The next graph is like the previous one, except it groups educators by school. In general, values are better than in the previous graph. For instance, the WC median (value at point 50 on the horizontal axis) is 41 hours here against 24 in the previous graph. To put it simply, what this indicates is that educators with high hours are relatively evenly spread across schools. The general pattern of WC on top and LP at the bottom remains. In LP a part of the problem is that in a large proportion of schools, virtually all teachers spend little time on professional development. For instance, in 50% of schools in this province the average time spent in a year is just six hours.

Figure 4: Distribution of professional development hours (schools)



The breakdown according to the three types of professional development is important, because the category 'externally initiated', and to some extent the category 'school-initiated', are likely to be particularly sensitive to what provincial departments do, or do not do. The following table indicates what one might expect, namely that the first two categories vary considerably across provinces, whilst the category 'self-initiated' does not. According to the coefficients of variation, inequality across provinces with respect to the first two columns is twice what it is for 'self-initiated'. The inequalities across provinces seen in the previous graph are thus largely the result of provincial policies and actions (or inactions).

Table 8: Professional development hours by initiation category

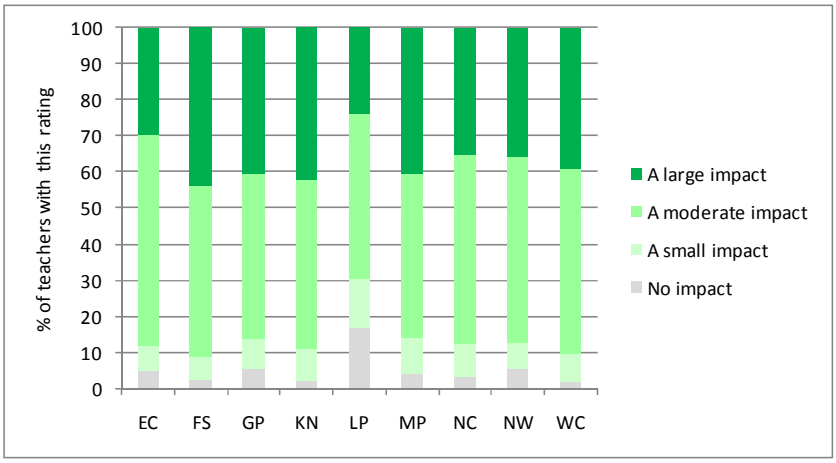
	Externally initiated	School-initiated	Self-initiated
EC	12	8	16
FS	17	11	12
GP	12	8	15
KN	12	16	17
LP	7	8	15
MP	10	10	17
NC	17	9	12
NW	15	9	16
WC	21	15	19
SA	12	11	16
Coefficient of variation (across provinces)	0.31	0.29	0.14

Note: Hour values are means, using the method for the third column of Table 7, meaning values exceeding 1,000 are excluded.

Respondents to the questionnaires were asked to rate the professional development they experienced in 2011 according to the four-level scale shown in the next graph. This graph illustrates the statistics for the categories 'externally initiated' and 'school-initiated' combined. LP fares poorly not just in terms of the quantity of professional development, but also its quality, it seems. The patterns in the graph remain very similar if one examines the two categories separately. If educators are weighted according to the number of hours, the picture remains more or less the same. What is noteworthy is that even 'self-initiated' professional development displays more or less the pattern seen in Figure 5. This seems important. Had the perceived value of self-initiated activities been particularly positive, this

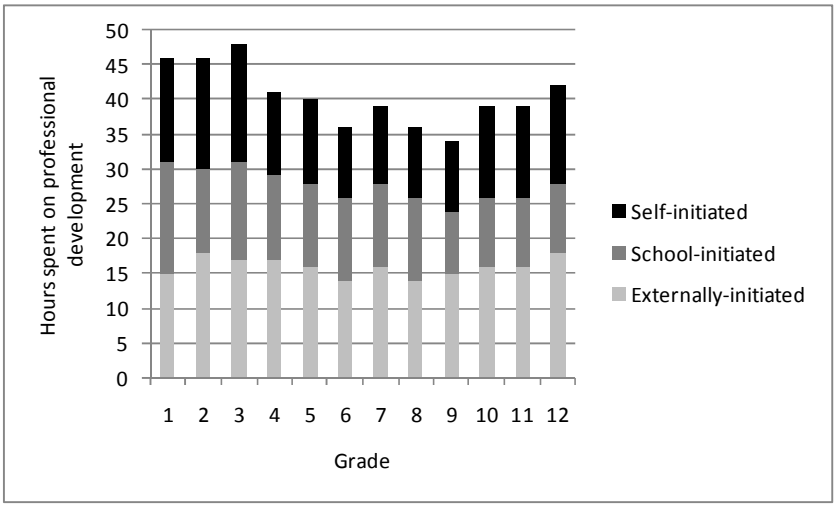
would have suggested that the policy focus ought to be on incentivising more self-initiated learning, as opposed to providing this learning through departmental initiatives. Incentives can certainly play a role, but the data do not point to any exceptional opportunities in this regard.

Figure 5: Educators' rating of external and school professional development



Lastly, teachers were asked which grade(s) they taught. This allows for the grade-specific breakdown seen in the following graph. What is broken down here is the statistics from the third column of Table 7 (where the mean was 39 hours). What appears to be happening is that Foundation Phase teachers are engaged to a relatively high degree in professional development activities. If there is a level that requires an especially strong focus, it is grades 8 to 9, not just because these grades display relatively low values, but also because these grades involve important adaptation for many learners to a different institutional environment, namely that of the secondary school. The breakdown of the perceived impact of professional development across grades is not shown here as patterns vary rather little across grades. If there are differences in the quality of professional development across the levels of the system, these are not picked up by the data.

Figure 6: Professional development hours by grade



4 Indicator on teacher absenteeism

Wording of the official indicator: *The percentage of teachers absent from school on an average day.*

A feasible national value for this indicator is 8% (see the second column of Table 9). The School Monitoring Survey of 2011 allowed for two key calculation methods, one based on data collected by the fieldworker from the educator attendance register, and the other on information obtained from an interview with the school principal. Different calculation methods provide national statistics for the indicator which are always in the range of 8% to 12%.

There are five different values for the above indicator that can be extracted per school from the data of the School Monitoring Survey of 2011. The five options, and their risks as far as distortions are concerned, are as follows. The possible distortions are informed by what was seen in the data. Means were calculated after any values greater than 100% had been truncated to 100%. Means are weighted by school enrolment in order to avoid a bias towards the situation in small schools.

- **Measure 1.** This is the blank spaces in the educator attendance register for the day of the fieldworker visit, divided by all educators listed in the register. Here 'blank space' means the absence of a signature against a name. Measure 1 values were somewhat high, compared to the measure 2 and 3 values described below, suggesting that measure 1 could over-estimate the problem as some educators may only sign later in the day, perhaps as they get ready to leave the school. Mean was 12%.

- **Measure 2.** This is like measure 1, except the day a week before the visit was analysed. Mean was 9%.

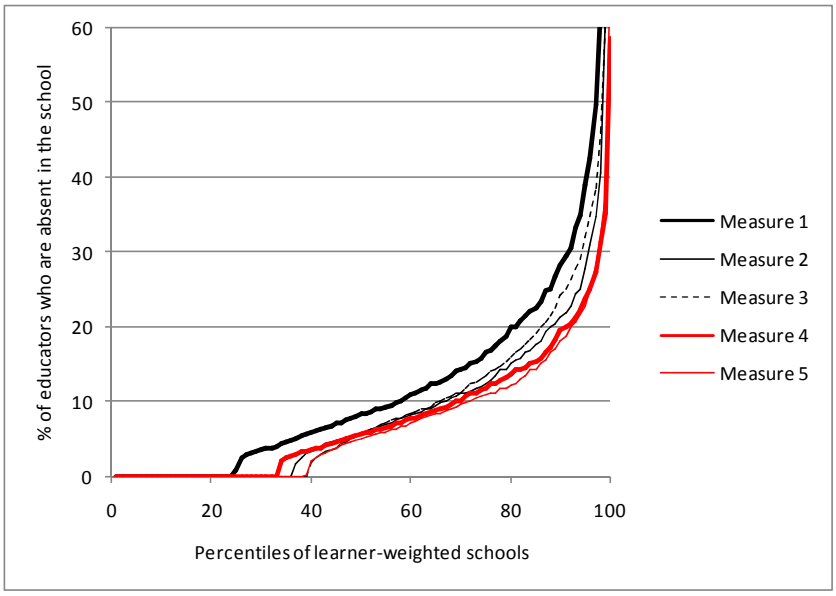
- **Measure 3.** This is like measure 1, except the previous Friday was analysed. Measure 2 and 3 values were consistent with each other, suggesting they may be more reliable than the measure 1 values. Mean was 9%.

- **Measure 4.** During the interview with the school principal, the principal was asked to mention the number of educators absent today by reason for absence, where the list of reasons consisted of eight categories, one of which was 'other'. One reason was 'Have not signed in yet'. This category was excluded when counting the number of absent educators. Mean was 11%.

- **Measure 5.** This is like measure 4, except the principal was asked about the day a week before the school visit. Mean was 8%.

The following graph illustrates the distributions across schools of the five measures. Schools were weighted by enrolment.

Figure 7: Different measures of educator absenteeism



The five measures do not point towards completely different pictures. For instance, the percentage of schools with zero absent educators on one day, according to the above graph, comes to between 25% and 40% of schools. Measures 2 and 4, both seemingly fairly unproblematic measures, one relying on the attendance register and the other on the principal's verbal account of the situation on the day of the visit, were broken down by province. The resultant means, calculated in the same way as the national means described earlier, are seen in the following table.

Table 9: Average daily teacher absenteeism by province

	Measure 2 (attendance register)	Measure 4 (principal verbal description)
EC	12	8
FS	7	6
GP	9	7
KN	12	10
LP	6	9
MP	8	7
NC	6	6
NW	9	6
WC	5	4
SA	9	8

Given problems with the integrity of the attendance registers discussed in section 6 below, which could result in over- or under-estimates of educator absenteeism for a school, depending on the kinds of practices, measure 4 will be considered a preferable measure for obtaining reliable provincial statistics. Moreover, measure 4 uses data that is useful insofar as it allows for a breakdown according to reason for absence. This breakdown is shown below. At the national level, the reason 'Have not signed in yet' (not shown in the table below) accounts for 2.9% of all educators. What is unfortunate is that the questionnaire does not differentiate between educators who are at the school already and have not signed the register yet, and educators who have not arrived at the school yet, and have therefore not signed the register.

Table 10: Average daily teacher absenteeism by province

	Maternity leave	Sick/ temporary incapacity leave	Annual / compass-ionate / family respons-ibility leave	Study leave	School excursion / Extra curricula activities with learners	Official work (e.g. visit to district office, training prog-ramme, meeting, collection of post, etc.)	Other
EC	0.5	2.7	1.2	1.2	0.1	1.6	1.2
FS	0.2	3.1	0.5	1.4	0.0	0.3	0.4
GP	0.4	2.6	0.6	1.9	0.3	0.3	1.2
KN	0.3	3.6	0.7	2.4	0.0	1.9	1.3
LP	0.3	2.3	0.7	1.8	0.0	2.4	1.2
MP	0.3	2.4	0.9	1.8	0.1	0.8	0.5
NC	0.3	2.9	0.4	1.1	0.0	0.4	0.4
NW	0.4	2.5	1.2	0.7	0.1	0.6	0.7
WC	0.2	2.5	0.3	0.5	0.1	0.1	0.7
SA	0.3	2.8	0.7	1.7	0.1	1.2	1.0

5 Indicator on access to libraries and multimedia centres

Wording of the official indicator: *The percentage of learners in schools with a library or multimedia centre fulfilling certain minimum standards.*

A feasible set of values for this indicator points to the fact that in 2011, 40% of learners were in schools a library (third column of Table 15). In this calculation, classroom libraries are not counted, though mobile libraries are. Excluding mobile libraries would reduce the national figure to 37%. The data indicate that larger schools are more likely to have libraries. Where one places new libraries going forward has a large influence on the indicator value. Though over 17,000 new libraries are needed if every school is to have one, if one prioritises large schools one could increase the percentage of schools with a permanent library from 37% to 80% through adding just 6,800 libraries. The School Monitoring Survey confirms a worrying trend found in earlier data, namely that access to libraries in Limpopo schools is exceptionally low.

The School Monitoring Survey of 2011 required fieldworkers to look at library facilities at the school and to indicate in a questionnaire whether the school had access to the three types of libraries listed in the next table. It was only necessary for the fieldworker to view one classroom library for each of grades 3, 6, 9 and 12, if such facilities existed, and if the grades existed in the school. What is not too clear from the instrument used by the fieldworker is what was filled in if some grades had classroom libraries whilst others did not. It is also not too clear if the fieldworker could mark 'Yes' for a mobile library if the library was not visiting the school at the same time as the fieldworkers. Notwithstanding these problems, the data seem valuable and probably provide a clearer picture of access to school library facilities than any previous survey. Only 1% of schools had to be left out of the calculation due to missing data. The category 'primary' in Table 11 refers to any school offering Grade 3, whilst 'secondary' would be any school offering Grade 9 (a few schools would belong to both categories).

Table 11: Learner exposure to libraries

Classroom library?	Central school library?	Mobile library?	% of learners in schools with this combination		
			All	Primary	Secondary
N	N	N	42	40	49
N	Y	N	28	24	32
Y	N	N	17	21	11
Y	Y	N	8	8	5
N	N	Y	2	3	1
N	Y	Y	1	1	1
Y	Y	Y	1	1	0
Y	N	Y	1	1	0
Total			100	100	100
% with classroom library			26	31	16
% with central school library			37	35	39
% with mobile library			5	6	3
% with any yes			58	60	51

The above statistics are broadly in line with statistics derived from the 2007 Systemic Evaluation and referred to in the 2011 Action Plan[3]. What the above statistics point to is, for instance, that secondary schools have slightly better access to central libraries than primary schools, and that classroom libraries are far more common at the primary level than the secondary level. These patterns are not surprising. The penetration of mobile libraries seems low – 5% of learners have access to this resource – though the statistics in the table could be under-estimates given the ambiguities around the mobile classroom question discussed above.

Where a school had a central library, the fieldworker had to check for the presence of 14 items, listed in the next table. Libraries in primary and secondary schools do not appear to differ much with respect to the availability of items. It is noteworthy that around a half of the central school libraries visited had internet access.

Table 12: Resources found in central libraries

	Learners with access to a specific resource as a % of learners with access to a central library		
	All	Primary	Secondary
Reference material	84	83	83
Fiction books	92	92	90
Non-fiction books	92	94	91
Any of the first three	96	96	97
Magazines	57	59	56
Newspapers	55	53	58
Posters	72	76	66
Charts	67	74	60
Three-dimensional models	40	45	34
CDs	59	57	59
DVDs	56	53	59
Computer software	57	56	58
Internet access	48	48	46
Online databases other	43	43	41
Audio-visual equipment	62	62	62

The typical apartheid-era inequities are still visible in the 2011 data, as seen in the next table. Historically white and Indian schools had a relatively high presence of school libraries in 2011, though even here access was not universal. Amongst historically African schools, more urban schools were less disadvantaged than more rural schools. These patterns underline the

[3] *Action plan to 2014: Towards the realisation of Schooling 2025.*

need to pay special attention to the establishment of school libraries in rural and historically African (and to some extent coloured) schools. Importantly, statistics for some of the smaller categories should be interpreted with caution as the confidence intervals for these statistics would be wide. For instance, the 10% statistic for Gazankulu has a confidence interval (at the 95% certainty level) of zero to 20%, meaning one can be 95% certain that the true statistic lies between zero and 20%.

Table 13: Access to library by pre-1994 department

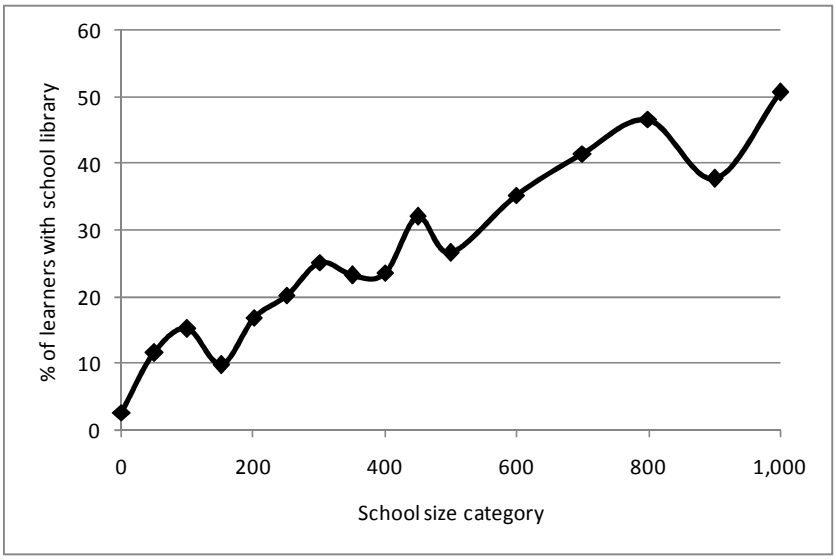
Historical category	All schools in sample	% of learners with a central school library in their school		
		All	Primary	Secondary
White	167	80	87	69
Indian	38	81	78	91
Coloured	189	51	52	47
Urban African (DET)	535	47	36	64
Bophuthatswana	89	33	28	44
Ciskei	53	28	20	48
Gazankulu	32	10	14	0
KaNgwane	37	38	37	37
KwaZulu	216	19	18	19
Lebowa	155	7	4	11
Ndebele	20	35	34	26
Transkei	202	11	13	12
Venda	43	2	4	0
Other	199	34	35	34
Total	1,975	37	35	39

There is an important relationship between school size and the feasibility of having a well-stocked school library. Smaller schools would generally find it more difficult to obtain the resources to establish such a library. At the same time, establishing a library in a large school means impacting on more learners than if one established the library in a small school. Small schools may in fact best be serviced by mobile libraries. The following displays the situation for schools of different sizes. The last column of the graph is illustrated along the vertical axis of Figure 8. There is a steady improvement in the probability of there being a library in a school, the larger the school.

Table 14: Library availability by school size

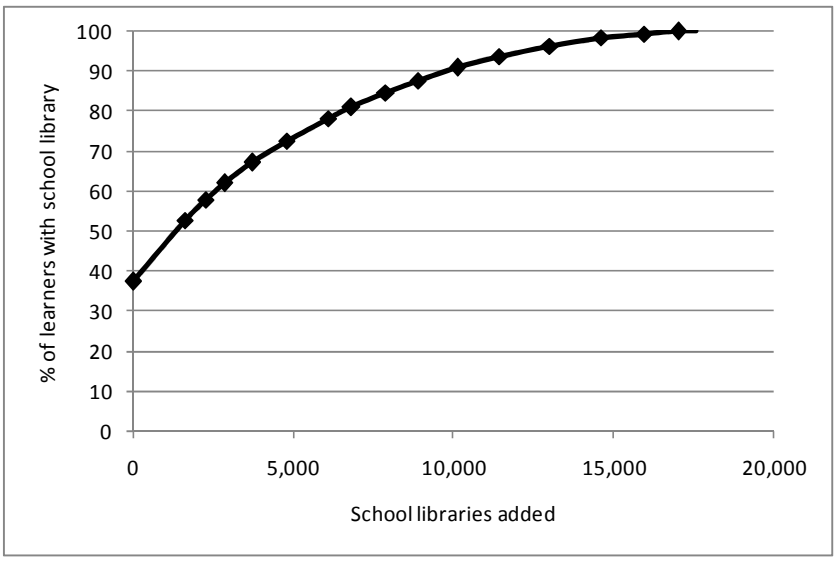
School enrolment range	Number of schools	Number of learners	Number of libraries	% of learners with access to a school library
1-24	525	7,465	8	3
25-74	1,239	61,149	140	12
75-124	1,590	158,252	240	15
125-174	1,756	260,632	173	10
175-224	1,896	378,700	307	17
225-274	1,614	403,533	336	20
275-324	1,705	524,661	439	25
325-374	1,293	453,598	303	23
375-424	1,412	561,553	329	24
425-474	1,065	473,379	354	32
475-549	1,785	913,767	481	27
550-649	1,674	1,005,598	599	35
650-749	1,466	1,024,550	611	41
750-849	1,123	893,611	529	47
850-949	1,077	974,266	408	38
950+	3,146	3,709,353	1,559	51
	24,365	11,804,066	6,819	37

Figure 8: Relationship between school size and library availability



One way of accelerating access amongst learners to libraries is to pay special attention to larger schools. The next graph illustrates a fairly radical scenario, where schools are prioritised from largest to smallest, mainly to show the kind of effect school size has. From Table 14 it is clear that 17,546 libraries would need to be added to the system if every school were to have its own library (24,365 schools minus 6,819 existing libraries). However, by adding just another 6,800 libraries approximately, in other words doubling the existing number, would increase the percentage of learners with access to a school library from the current 37% to 80%. This is if one always added libraries to the largest existing schools.

Figure 9: Adding libraries and its impact on learner access



The 2012 national school library guidelines include criteria relating to staffing and numbers of books in the establishment of minimum benchmarks. The SMS data do not allow for this level of detail. For the purposes of the official library indicator, he best possible with the SMS data is perhaps to count any learner in a school with a central library or access to a mobile library as fulfilling the access requirements of the indicator. Using this definition, we can arrive at the following provincial indicator values.

Table 15: Provincial indicator values for library access

	% of learners with access to...		
	school library	mobile library but not school library	either school or mobile library
EC	20	2	22
FS	65	2	67
GP	63	5	69
KN	31	3	34
LP	7	1	8
MP	43	8	50
NC	37	5	42
NW	37	2	38
WC	71	1	72
SA	37	3	40

The particularly poor level of access in LP was also seen in the preliminary indicator values published in the 2011 Action Plan, which used the 2007 Grade 3 Systemic Evaluation as its data source.

6 Indicator on the availability of school management documents

Wording of the official indicator: *The percentage of schools producing the minimum set of management documents at a required standard, for instance a school budget, a school improvement plan, an annual report, attendance registers and a record of learner marks.*

A feasible set of values for this indicator points to 52% of schools being able to show external inspectors a full set of 11 essential management documents (see Table 17). Provincial values range from 40% in the case of Eastern Cape to 70% for Gauteng. With the currently available data, the best that can be achieved is indicator values for just the presence of the documents. There is very little in the 2011 School Monitoring Survey dataset that assists in understanding the quality of the documents. One possible exception is a part of the dataset dealing with the proper use of the educator attendance register. Fieldworkers found that in 9% of schools nationally (the maximum being 18% for North West), educators had signed for attendance in future days (see Table 18). This represents a clear sign of mismanagement.

The 2011 School Monitoring Survey asks a number of interesting questions relating to the presence of and contents of key management documents at the school. The fieldworker was expected to see actual documents, not just accept assurances by, say, the school principal that the documents existed. Moreover, the fieldworker was expected to write down answers to questions about the contents of some of the documents. The questions were always about the presence of certain elements, for instance something on school safety in the school plan, or a signing off by an auditor within the financial statements. The questions did thus to require the fieldworker to make any complex judgements about the quality of the documents. Even so, one can expect the work of the fieldworker to have been substantial. As indicated in Table 16 below, 21 documents had to be at least ‘seen’ and there were 68 questions to be answered with respect to 12 of them. There were two fieldworkers present in each school for one day. One fieldworker would have concentrated on analysing documents, though that fieldworker would also have had other responsibilities.

Table 16: Management documents examined by the fieldworker

	Documents to be 'seen'	Analytical questions	Number of documents
*	School improvement plan (or school development plan)	9	1
	Academic improvement plan	0	1
*	Academic performance report (or term report) for three different terms	0	3
*	School budget	2	1
*	Financial statement for previous year	2	1
	Notification from the provincial education department about the school's financial allocation for three different years	5 × 3	3
	Notification from the provincial education department about the school's financial allocation or subsidy for Grade R	3	1
*	Class timetables, around two, depending on the grades offered in the school	±10 × ±2	±2
*	Educator attendance register	11	1
*	Class register	3	1
*	Non-textbook asset register	0	1
*	Learning and teaching support materials inventory	0	1
	School governing body minutes for three different quarters of the year	0	3
	School visitors' log book	3	1
	Total	±68	21

The indicator on school management in the 2011 Action Plan reads as follows: 'The percentage of schools producing the minimum set of management documents at a required standard, for instance a school budget, a school improvement plan, an annual report, attendance registers and a record of learner marks.' The original SMS report used data on the nine document types marked with asterisks in the above table in calculating values for this indicator.

The availability of the asterisked documents, plus the academic improvement plan and school governing body minutes, is reflected in the following table. Note that Table 17 refers to percentages of schools. If percentages of *learners* in schools with the relevant document are considered, then the values rise somewhat, by roughly four percentage points. This is because it is smaller schools which perform worse in terms of document availability. Statistics for schools offering primary schooling, or statistics for schools offering secondary schooling, are barely different from the statistics seen below.

Table 17: Percentage of schools with management documents

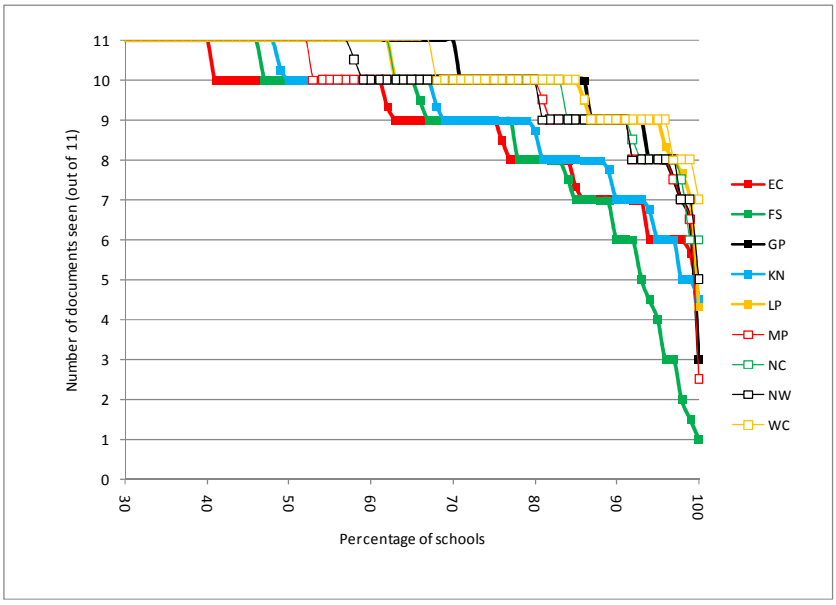
	EC	FS	GP	KN	LP	MP	NC	NW	WC	SA
School improvement plan	79	86	97	84	96	95	94	95	96	88
Academic improvement plan	65	82	93	75	84	84	89	74	92	78
Academic performance report	91	91	95	94	98	97	99	96	97	94
School budget	85	89	96	85	97	96	96	94	98	91
Financial statement	79	80	97	92	96	96	91	95	95	90
Class timetables	97	95	93	100	97	98	100	99	99	98
Educator attendance register	100	98	99	99	100	99	99	99	98	99
Class register	100	100	100	100	100	100	100	100	100	100
Non-textbook asset register	84	79	92	78	90	79	93	90	88	84
Learning materials inventory	81	68	95	75	91	83	87	88	85	83
School governing body minutes	96	89	94	97	96	98	91	94	98	94
% schools with all above	40	46	70	48	62	52	62	57	67	52
% learners with all above	46	54	73	53	65	56	62	62	68	59
Average score out of 11 (a)	9.5	9.3	10.4	9.7	10.4	10.1	10.3	10.2	10.5	9.9
Average score out of 11 (b)	9.8	10.1	10.4	9.9	10.5	10.3	10.3	10.3	10.5	10.2

Note: (a) means weighting is by school, whilst (b) means weighting is by learners. Shaded cells point to statistics that are more than 5 percentage points below the national statistic.

The statistics in the row '% of schools with all above' are similar to those seen in the original SMS report, though a few percentage points lower as here two additional documents have included (the school governing body minutes and the academic improvement plan). For instance, the national statistic in the original SMS report was 58%, against 52% above.

The following graph illustrates the distribution of document availability, without weighting by learners. Clearly, the percentage of schools in FS with fewer than half of the documents available is high. As the differences between the last two rows of the previous table suggest, this is largely due to problems associated with small schools in FS. Once schools are weighted by the number of learners, the average 'score' out of 11 for FS equals more or less the national average.

Figure 10: Distribution of document availability



When is the document availability situation a problem in a school? Presumably, non-problematic reasons could explain the non-presence of one or two documents. For instance, the school principal may have been studying the document and left it at home on the day of the fieldworker's visit. However, if more than just one or two documents are not available,

then this clearly points to problems in the basic functionality of the school, at least in terms of official policy. Of course it is not impossible that a school is well managed and achieves good learning outcomes even in the absence of the officially required documents. Yet, as pointed out in the 2011 Action Plan, the absence of key documents that the school should produce is probably an indication that the school is not delivering the required educational services.

The Action Plan indicator says that documents should be 'of a required standard'. People have a general sense of what this means, but clear standards for use with this indicator have not been formulated, and would not be easy to produce as they would partly be the result of subjective judgements. For instance, what is the right balance of aspirations and realism within the school development plan? How detailed do school governing body minutes need to be? What criteria should be used to judge good school timetabling practices? Of course certain documents are easier to evaluate, for instance attendance registers. The original SMS report used the available questions on the contents of the documents to evaluate whether documents were of the required standard. A look at these questions reveals that some of them are problematic. For instance, the fieldworker was required to check whether a 'strategy to improve basic school functionality' existed within the school development plan. This would be a very difficult question to answer, and responses are likely to be highly dependent on who the fieldworker was. The easier questions were those relating to less complex documents.

There is at least one apparently very useful question on the contents of a document, namely the question on whether the educator attendance register has 'been filled out on' a *future* date. If this happens, it suggests that the register is not taken seriously as a management tool. The next table suggests that this problem is rather prevalent in a number of provinces, in particular EC, GP, KN and (worst of all) NW. This should ring alarm bells for those monitoring schools. Clearly the provincial education departments need to insist that educator attendance registers are used properly.

Table 18: Irregular use of the educator attendance register

	% of schools where the educator attendance register had 'been filled out on any future days'
EC	11
FS	2
GP	13
KN	12
LP	5
MP	3
NC	4
NW	18
WC	7
SA	9

The above statistics are perhaps the only more qualitatively oriented statistics on school documents obtainable through the 2011 SMS. It seems difficult to justify the formulation of more qualitatively focussed indicator values on the basis of the available data. It is probably possible for the School Monitoring Survey to be improved in this area, though improvements would have to occur after careful investigation of samples of existing school management documents. It is perhaps not feasible to try and collect qualitative information on, for instance, the robustness of school plans and the optimality of timetables, from as many as 2,000 schools. For the qualitative assessment, it may be preferable to gather copies of the documents of a much smaller sample of schools and to assess those partly within the school (through interviews with the school principal, for instance) and partly as an exercise occurring after the school visits. For now, it seems best to report simply on the presence of documents and to commit to better qualitative evaluations in future.

7 Indicator on school governance

Wording of the official indicator: *The percentage of schools where the school governing body meets the minimum criteria in terms of effectiveness*.

A feasible set of values for this indicator points to 81% of schools having minimally effective school governing bodies (SGBs). This is one indicator where what lies behind the 'headline values' is far more informative than these final values. Assessing the effectiveness of the SGB is inevitably a very multi-faceted task involving the analysis of at least some subjective data. The 81% figure is based mostly on compliance with policies dealing with the composition of the SGB, meeting frequency and the fulfilment of key SGB tasks. The general picture that emerges is of relatively good compliance with the policy imperatives considered.

The indicator on the effectiveness of school governing bodies (SGBs) is clearly one of those indicators whose values will inevitably reflect considerable subjectivity, depending on the criteria used to define 'effectiveness' and depending on who provides the data used for the indicator. The 2011 School Monitoring Survey (SMS) included a number of questions which could take the monitoring of SGB effectiveness forward. But there is clearly room for improvement, and a need to combine survey-type data with more qualitative assessments. What should be avoided is a narrow compliance-oriented approach to monitoring SGBs. Whilst there is policy on, for instance, the number of times SGBs should meet each year, compliance with such policies is no guarantee of effectiveness, nor is non-compliance necessarily an indication that an SGB is not effective. It is possible that an SGB that meets less frequently than the four times per year stipulated by policy would be highly effective. Compliance with policies does need to be monitored, but the monitoring should not stop there.

All responses regarding SGB effectiveness in the SMS are in the school principal questionnaire. A set of four questions probes very directly the principal's opinion on the value added by the SGB. A set of nine questions asks whether the SGB has fulfilled certain roles it should have fulfilled according to policy, such as developing a mission statement for the school. Responses here are provided according to a simple yes-no or don't know structure. There are also factual questions on the number of SGB members, broken down by stakeholder group represented, on the number of meetings of the SGB in the current year and on whether SGB meetings have minutes. Responses from all questions are used in the analysis that follows. Special attention is given to what variables appear to capture SGB effectiveness well and what additional data might result in a better set of indicator values in future.

The principal was asked to rate the effectiveness of the SGB in the following areas.

Term used here	*Full wording from the principal questionnaire*
Overall value	The SGB has promoted the best interest of the school and strived to ensure its development through the provision of quality education at the school.
Professional support	The SGB has supported the principal, educators and other staff of the school in the performance of their professional functions.
Administration	The SGB has administered and controlled the school property, and buildings and grounds occupied by the school, including school hostels if applicable.
Voluntary services	The SGB has encouraged parents, learners, educators and other staff at the school to render voluntary services to the school.

Agreement with the above statements was elicited in terms of the four responses appearing as row headings in Table 19 below. The picture provided by the next table is consistent with the hypothesis that in general school principals are satisfied with the functioning of the SGB, but also that they would like the SGB to secure more voluntary services. The first of the four

statements is particularly useful, because it requires the principal to think in overall terms of the effectiveness of the SGB. The third statement, for instance, would produce responses that are more ambiguous. A school principal might disagree that the SGB has been involved in the school's administration, but at the same time be relatively content with this, because he or she does not believe that this is what the SGB should place much emphasis on. What is interesting is the high level of non-responses. Closer analysis of the data suggests that principals were reluctant to express a negative opinion and thus skipped this question. Response rates to questions immediately preceding and following the principal opinion question have response rates that are so high that they suggest that in over 90% of the cases of missing opinion data, reluctance to respond was the cause. This reluctance was slightly higher the poorer the school quintile. To illustrate, the 17% overall non-response rate compares with 19% in quintile 1 and 14% in quintile 5.

Table 19: Rating by principals of value of school governing body

	Overall value	Professional support	Administration	Voluntary services
Strongly agree	39	41	35	26
Agree	40	36	42	45
Disagree	2	3	4	8
Strongly disagree	2	3	2	3
Missing	17	17	17	17
Total	100	100	100	100

The following table confirms that in general responses were the same across the four statements, with one notable exception being that principals were relatively under-satisfied with the SGBs ability to get volunteers in the community involved in doing work for the school.

Table 20: Combinations of principal ratings

Overall value	Professional support	Administration	Voluntary services	% of learners
Agree	Agree	Agree	Agree	18
Missing	Missing	Missing	Missing	17
Strongly agree	Strongly agree	Strongly agree	Strongly agree	16
Strongly agree	Strongly agree	Strongly agree	Agree	7
Strongly agree	Strongly agree	Agree	Agree	5
Agree	Strongly agree	Agree	Agree	4
Other combinations				33
Total				100

Turning to who the members of the SGB are, the following table indicates that virtually all schools had SGBs with parent members. It can be taken as a given that the principal would be a member as well. The lower presence of non-teaching staff members can be explained by the fact that many schools do not have such staff (one reason why the original SMS report arrives at lower SGB effectiveness values than this report is that the original report assumes that all schools are able to have non-teaching staff on their SGB). The fact that under half of schools have learners on the SGB is due to the fact that this is a requirement at the secondary school level only.

Table 21: Members of governing bodies

Educators in the school	Non-teaching staff members at the school	Parents of learners at the school	Community members (not parents of learners at the school)	Learners (secondary schools)	% of learners
1	1	1	0	0	35
1	1	1	0	1	26
1	1	1	1	1	10
1	1	1	1	0	10
1	0	1	0	0	6
1	0	1	0	1	6
Other combinations					7
Total					100
% with this type of member (learner-weighted schools)					
99	83	97	24	45	
Median quantity of this member per school where not zero (learner-weighted schools)					
2	1	6	1	2	

What seems interesting from a school effectiveness angle is the fact that about a quarter of schools opt to have external community members on the SGB. There is virtually no difference in this statistic across quintiles, though as will be discussed below, there are interesting differences across provinces. A key policy question would be whether this enhances governance in the school. A further question is whether external members provide a marker of more dynamic SGBs.

Statistics from the next table point to the fact that in 90% of schools the SGB appeared to be meeting with sufficient frequency. It should meet four times a year, but considering the survey occurred in November, values of three and above can be considered an indication of compliance with the policy.

Table 22: Frequency of SGB meetings

Number of meeting in schools year (up to November)	% of schools (learner-weighted)
No meetings	0
1	2
2	8
3	14
4	15
>4	61
Missing	1
Total	100

The percentage of schools where SGB meeting minutes were kept was 99%, so here there is virtual full compliance with policy. The next table indicates the extent to which SGBs across the country had fulfilled certain tasks, according to school principal responses. Data completeness is rather good. The greatest part of the values in the last column of the table reflect missing data, as opposed to don't know. The high value in the last column for 'Determined the school fee' is due to the fact that many schools have been declared no fee schools.

Table 23: Fulfilment of SGB tasks

	% saying yes (relative to no)	Don't know and missing
Developed the mission statement of the school.*	95	2
Adopted a code of conduct for learners at the school.*	97	2
Determined the school's admission policy.*	96	2
Determined the school's language policy.	95	2
Adopted a constitution for the SGB.*	97	2
Determined times of the school day consistent with any applicable conditions of employment of staff at the school.	95	3
Determined the school fee (note: this is not applicable to no-fee schools).	58	38
Determined any other voluntary contributions (e.g. fees for excursions, etc.).	78	3
Recommended to the Provincial Department of Education the appointment of educators at the school, subject to the Employment of Educators Act.	94	2

Correlations between various statistics discussed so far were calculated to check for strong correlations between the general satisfaction of the school principal, quintile, whether a school had an external community member on the SGB and the completion of tasks listed in Table 23. No strikingly high levels of correlation were found.

Turning to differences across provinces, Table 24 below indicates the percentage of SGBs with external community members. If one considers that the confidence interval (at the 95% confidence level) for each statistic stretches about 5 percentage points either side of the mean reported here, then it is clear that some differences are real. For instance, external community members can be said to be more common in KN than LP. The SMS data do not allow for further exploration of this issue, yet it seems a matter worth pursuing in future qualitative research and data collection exercises.

Table 24: External community member presence by province

	% of learner-weighted schools with community members on the SGB who are not parents at the school
EC	25
FS	24
GP	20
KN	32
LP	16
MP	33
NC	22
NW	19
WC	19
SA	24

The next table attempts to build a case for the use of a particular set of values for the official indicator on SGB effectiveness. Columns A and B point to a high degree of compliance in all provinces with respect to the composition of the SGB (column B includes the criterion that learners should be present on the SGBs of schools offering grades 8 to 12). Column C indicates that in terms of meeting frequency, provinces also do relatively well, with the possible exception of KN and MP. Column D reflects fulfilment of the four tasks marked with asterisks (*) in Table 23. These four tasks are widely considered to be especially important. According to column E, principal satisfaction with the SGB, based on the overall

effectiveness question (first of the four statements discussed previously) is high, but lowest in NC. Column F introduces the assumption that a non-response to the overall satisfaction question in fact represents dissatisfaction. Using this approach we see that three provinces, FS, NC and WC, emerge as having especially low values.

Table 25: Provincial statistics relating to SGB effectiveness

	Has educator and parent SGB members	Has educator, parent and learner SGB members	Held 3 or more meetings 2011	Has done 4 key tasks	Principal is positive	Principal is positive*	Index 1: B, C and D are yes	Index 2: B, C, D and E are yes
	A	B	C	D	E	F		
EC	97	93	94	93	95	76	83	81
FS	98	95	89	99	96	73	86	82
GP	98	97	96	93	91	75	88	84
KN	96	96	85	87	94	85	75	71
LP	97	97	91	92	95	80	82	79
MP	96	93	80	92	98	85	73	72
NC	95	93	92	92	88	53	83	78
NW	97	95	91	87	93	81	76	74
WC	96	94	98	97	97	65	90	88
SA	97	95	90	92	94	78	81	78

*Note: The second 'Principal is positive' measure, marked with *, considers those principals who did not wish to provide an opinion as being non-satisfied, or non-positive. Shaded cells point to statistics that are more than 5 percentage points below the national statistic.*

How should one build a composite index of SGB effectiveness using the data from the SMS? Index 1 in the above table is based just on three compliance factors: composition of the SGB, meeting frequency, and the fulfilment of key tasks. Index 2 is somewhat more qualitative insofar as it also considers the principal's opinion (column E). Index 1 and Index 2 produce very similar statistics. Given the uncertainties relating to the missing data problem in the case of the principal satisfaction responses, it was decided to use Index 1 for the final indicator table at the end of this report. In future, it might be good to explore alternative and less threatening opinion questions directed at the principal, or better ways of presenting the existing opinion questions. The SMS could in future years also include SGB questions within the teacher questionnaire.

The Index 1 values are substantially higher than the values put forward by the original SMS report, which arrived at a national value of 48% (against 81% for Index 1 above). The key reason for this difference is that behind the 48% figure is included whether the financial statements of the school are audited. Levels of financial auditing are in fact low in schools. Arguably, however, securing a financial auditor is not a minimum effectiveness factor of the SGB. Moreover, it is known that especially in remote areas, auditors are difficult to find. Conceivably, an SGB can be effective even if it is not successful at obtaining an auditor. On the whole, the SMS data do point to a relatively healthy system of SGBs, at least in terms of minimum functionality. A figure such as 81% seems to offer a relatively truthful indication of basic effectiveness.

8 Indicators on school funding

Wording of the two official indicators:

The percentage of learners in schools that are funded at the minimum level.

The percentage of schools that have acquired the full set of financial management responsibilities on the basis of an assessment of their financial management capacity.

A feasible set of values for the first indicator points to 79% of schools being funded at the minimum level in 2010, the most recent year for which data on the entire school year are available (see last column of Table 26). An important limitation of these values is that they do not reflect inefficiencies in the delivery of goods and services to schools where the provincial department spends a part of the school allocation on behalf of the school. But the 79% value does reflect (a) schools that were formally promised the correct policy-stipulated school allocation amount by the province, meaning schools had a basis for holding the provincial department accountable, and (b) schools which at least received the full amount intended as a cash transfer.

Values presented below for the second indicator include a national value of 76% (column 'All 3' of Table 30). An important caveat here is that the data suggest that even when management responsibilities are formally transferred to schools, the province will often impose limitations on how much can be spent on specific types of items, in contravention of policy. The indicator values seen below thus over-state the degree of management freedom that school principals in fact enjoy.

The analysis in this section uses data collected through a four-page section in the School Monitoring Survey (SMS) school principal questionnaire headed 'Financial management'. As will be seen, the data permit a relatively rich description of the school funding situation seen from the perspective of the school, though the fact that the data considered here are only from the school level makes it difficult to attach very reliable values to the first indicator mentioned above. Ideally, the first indicator should be calculated using a mix of school-level data and data from the provincial department, with the latter possibly being subjected to some special auditing.

The SMS principal questionnaire focussed on funding for the school years 2010, 2011 and 2012. The questionnaire was administered in November 2011, so the only year for which a comprehensive picture can be created for the actual (as opposed to projected) whole school year is 2010. For this reason, much of the emphasis falls on this year in the analysis presented here.

Table 26 presents statistics relating to the 2010 school year. Though 95% of learner-weighted schools indicated they did received a 'notification' from the provincial department stating what the school would be funded in 2010, only 39% of schools were able to provide an intended per learner funding amount for 2010 (see the first column). (Unless otherwise indicated, from this point onwards in this section any statistic is learner-weighted in order to ensure that aggregate statistics are not biased in favour of smaller schools.) The absence of a valid monetary amount is a problem especially in four provinces: EC, KN, LP and MP. It is possible that in these provinces poor filing systems are a part of the explanation: respondents were simply not able to find the letter. In 1% of schools it was clear that the amount inserted in the questionnaire was not a per learner amount, but the total amount of funding, in other words the per learner amount multiplied by enrolment. These total funding amounts were removed and the value was considered missing. But this was just 1% of schools, so the presence of a total funding amount is only a small part of the explanation for the missing per learner amount.

Columns B onwards in Table 26 consider only those schools with a valid per learner amount, in other words 39% of schools. Though this may seem problematic, other analyses of data of this kind suggest that it is unlikely that missing data (which is a problem above all in four provinces) point to especially unfavourable situations in schools. Given the dynamics of the schooling system, it is difficult for a provincial administration to deviate from policy for just a

few schools in a manner that disadvantages these schools, without there being major reaction from school principals, teacher unions and other stakeholders. When deviation from policy occurs in a province, it tends to be fairly evenly distributed.

From column B it is clear that nationally a fairly high percentage of these schools had per learner funding amounts which were adequate, in other words at least at the level given as a minimum in Government Notice 1052 of 2009. The only province which clearly does not conform to this pattern in FS. However, a closer analysis of the underlying figures suggests that in FS the intention was not to produce a general under-funding of schools. Instead, an unusual redistribution across quintiles appears to have occurred, presumably for good reason. Specifically, funds from quintiles 1 and 2 were diverted towards quintile 3 and 5, in other words from poorer to less poor quintiles. There was thus a slight flattening of the pro-poor funding slope, though in the end the slope was still pro-poor in this province.

Table 26: Basic school funding indicator values for 2010

	A: % of schools knowing intended allocation amount	B: % of these with intended amount complying with policy	C: % of those referred to in A paid full intended amount	D: % of A having policy-compliant full amount paid	E: % of those in column A not supposed to receive cash transfers	F: % of those in A also counted in E *not* exper-iencing incomplete delivery	D + F
EC	25	88	92	80	11	1	81
FS	84	47	88	39	27	2	41
GP	84	91	94	84	2	0	84
KN	19	86	90	76	6	1	77
LP	18	88	97	85	0	0	85
MP	7	95	99	93	4	1	94
NC	91	82	93	78	2	1	79
NW	83	75	89	68	0	0	68
WC	96	89	90	81	5	1	82
SA	39	85	93	78	6	1	79

Column C in Table 26 draws from responses to the following question: 'With respect to the actual transfer of funds to the school in 2010, which one of these apply?'. To be counted in column C, a principal had to select either one of the following two responses: 'The expected amount of money was transferred' or 'More money than was expected was transferred'. One other option stated less than the expected amount was received. Clearly a relatively high percentage of schools did receive at least the expected amount, specifically 93% did at the national level. Very few schools indicated they received *more* than the expected amount, in fact only 2% of schools counted in column A did (highest were the provinces NW and WC, with 4% each).

Very importantly, being counted in column C does not mean that all of the intended school allocation went to the school. It just means that the cash part of the allocation went to the school. For example, the intended per learner allocation might have been R641 in the case of a quintile 3 school, which means the school would be counted in column B, as the allocation would comply with the official minimum for quintile 3 for 2010 in the government notice. But the provincial department would typically state that a part of this allocation would be used for goods and services procured by the department, and a smaller amount than R641 would be specified as the cash per learner to be transferred to the school. Whether this small amount was transferred to the school is what is reflected in column C. The extent and efficiency of provincial procurement of goods and services is discussed below. Unfortunately the SMS data do not include what the smaller amount is in the case of each school.

Column D combines the previous two columns, so here schools whose intended funding amount was positive and who received the cash they were meant to receive, are indicated as a percentage of schools with a positive response in column A. Ideally, column D should be the product of multiplying the percentages in columns B and C. If one does this, one comes very close to the values seen in column D. The discrepancy, never greater than 2 percentage points, comes about because of missing data.

Column E reflects an important issue, namely the fact that some schools do not receive any cash transfer at all, because they have no South African Schools Act section 21 rights and the provincial department has the obligation to spend the entire school allocation on their behalf. According to column E, 6% of schools with a positive response in column A (so they were able to provide the intended funding amount) were schools without section 21 rights. In the case of these schools, responses to a set of questions focussing on the efficiency of deliveries of provincially procured goods were examined. Specifically, if a response appeared where 'X' appears in the following matrix, then it was concluded that the school in question did not receive its full allocation in the form of goods and services. As shown in column F, a small fraction of schools were non-section 21 schools and had *no* delivery problems. At the national level only 1% of the column A schools fell into this category, so one in six of the column E schools were in effect adequately funded. Column F, in a sense, thus indicates the extent of under-estimation of the indicator values in column D, because in column D the 1% of schools referred to in column F would not be counted.

	Never	Occasion-ally	Often	Always	Not applicable
Goods and services are not delivered.		X	X	X	
The goods and services are delivered on time.					
Incorrect goods and services are delivered.		X	X	X	
Insufficient number of goods and services are delivered		X	X	X	

Finally, the last column of Table 26 above presents what for the purposes of this report will be considered useful statistics for the first of the two indicators mentioned above. It is the sum of columns D and F. The limitations of these statistics are discussed below. To illustrate the smallness of the impact of using learner-weighted school, the national value of 79% seen in the last column becomes 78% if one does not weight schools.

In the following table, Table 27, the official minimum values for 2010 are given, as well as a breakdown by quintile of the values in columns A and D in the last table. What is worrying is that both statistics are biased in favour of better off higher quintile schools. Schools serving poorer communities have less information about the intended allocation and are more likely to report their actual funding is inadequate, either because the overall intended amount is too low or because they are not paid all the money they are owed. Of course this should be seen in the context of the fact that the official minimum amounts are far higher for poorer schools than non-poor schools.

Table 27: Details by province and quintile for 2010

	1	2	3	4	5	All
Minimum values according to Government Notice 1052 of 2009						
	855	784	641	428	147	
A: % of schools knowing intended allocation amount						
EC	10	25	32	52	40	25
FS	80	90	93	73	93	84
GP	80	82	90	80	84	84
KN	26	21	15	5	17	19
LP	20	15	19	20	50	18
MP	2	14	3	9	6	7
NC	89	97	86	83	89	91
NW	89	68	84	50	100	83
WC	80	100	100	100	98	96
SA	36	31	41	48	58	39
D: % of A having policy-compliant full amount paid						
EC	91	76	77	63	65	80
FS	7	32	85	90	77	39
GP	61	76	82	93	95	84
KN	66	75	88	88	92	76
LP	85	87	86	89	50	85
MP	97	87	100	88	100	93
NC	79	86	54	50	88	78
NW	66	91	63	50	75	68
WC	90	94	74	76	80	81
SA	73	80	81	82	84	78

In order to explore the efficiency of deliveries to schools, an indicator value was calculated for each school using the responses to the delivery questions reproduced in the matrix appearing above. This was done for the 73% of schools which had valid responses to all four questions (see the first column of Table 28 – a missing response might reflect that the school was not meant to receive goods delivered by the department). For each of the four questions a value in the range 0 to 3 was assigned, with 3 being the most favourable response. Of course the second question is different in the sense that 3 would be assigned to 'Always', whilst for the other three questions 3 would be assigned to 'Never'. Values were added, meaning the maximum possible for a school was 12, or a score of 3 for each of the four questions. The mean values broken down by quintile seen in Table 28 show that province-quintile averages for the school scores were in range of 5.5 to 9.3. Here we do not see a clear bias in favour of or against schools serving poorer communities. The provinces with the weakest overall averages are FS and MP. The provinces KN, NW and WC appear to have performed relatively well in 2010 with respect to the efficiency of deliveries.

Table 28: Indicator of delivery success by province and quintile

	% of schools with delivery feedback	1	2	3	4	5	All
EC	77	7.2	7.8	7.2	7.0	9.0	7.5
FS	65	6.6	7.7	6.1	5.5	7.5	6.6
GP	64	7.1	8.7	6.8	6.9	7.1	7.2
KN	77	8.0	7.8	8.3	8.4	6.8	8.0
LP	56	7.6	7.7	7.8	5.9	6.7	7.6
MP	76	6.9	6.5	7.5	6.4	7.2	6.9
NC	78	7.4	7.2	7.2	7.0	5.6	7.1
NW	82	8.0	7.9	8.0	9.0	9.3	8.0
WC	89	8.5	8.1	8.2	8.1	7.2	7.9
SA	73	7.5	7.7	7.6	7.4	7.4	7.6

An obvious question is what the indicator values in the last column of Table 26 would have looked like if one had added as a criterion the correct delivery of goods and services procured by the provincial department (avoidance of all 'X' cells in the matrix). Had one done this, values would have been much lower. The national figure of 79% would have become just 20%. Clearly there is a need to improve the efficiency of delivery systems, but also to consider shifting more procurement from the provincial level to the school, which would entail increasing the cash transfer. The statistics show that historically not transferring all the intended cash is a much smaller problem than not getting the delivery of all provincially procured goods right.

To sum up, what do the indicator values in the last column of Table 26 tell us, and what do they not tell us? Mainly, they reflect that the provincial department promised to spend the correct amount on each learner, something that is of obvious importance for accountability. Schools can hold the authorities accountable against a written obligation. And the indicator values reflect that the cash promised to the school was paid (though we cannot be sure from the data how high that cash amount was). As discussed, a key thing the indicator values do not reflect is the extent to which provincially procured goods and services reached the value of the non-cash part of the allocation. In fact, school principals themselves do not know this on the whole, because they have not been told explicitly what the monetary value of provincially procured goods and services was. The SMS data tell us that only 8% of schools receiving these goods and services know what their monetary value is. According to policy, they should always be told. The best provincial version of this 8% value is the 15% seen in NC, so even the best performing province here is not good at providing the required information to principals.

Up till now, the situation in 2010 has been examined. Importantly, the questions about the efficiency of deliveries were not year-specific, they were stated as if they applied to recent years in general. Some repetition of the 2010 analysis for the 2011 school year is attempted. The following table redoes columns A to D from Table 26, this time using 2011 responses. As indicated earlier, when responses were collected, the 2011 school year had not ended yet. What is striking about Table 29 is that the values in column C are much lower than they were in Table 26, suggesting that provincial departments still owed schools large amounts of money, though it was already November 2011. However, some of the explanation could lie in the fact that different questions were used for 2010 and 2011, unfortunately. In the case of 2011, the question informing column C was 'how much of your allocation have you received to date?' and response options were, for instance, '100% received' and '51%-99% received'. For 2010, response options were, for instance, 'expected amount of money was transferred'. This could have prompted principals to be more stringent in their 2011 responses than their 2010 responses. Obviously a school would only be counted in column C below if the response was '100% received'. Moreover, principals might have been more stringent because they were dealing with the current year, a year that would be at the top of their mind. It would have been useful if a response category such as '95%-99%' had existed. The '51%-99% received' range is extremely wide. If we do count this latter range in column C, the national value rises from 22% to 86%. To conclude, it is difficult to gain a good picture of the 2011 situation using the SMS data.

Table 29: Basic school funding indicator values (partial) for 2011

	A: % of schools knowing intended allocation amount	B: % of these with intended amount complying with policy	C: % of those referred to in A paid full intended amount	D: % of A having policy-compliant full amount paid
EC	27	86	23	20
FS	88	87	27	18
GP	87	93	35	32
KN	20	84	25	21
LP	49	74	10	8
MP	7	95	9	9
NC	94	63	12	9
NW	89	78	33	28
WC	96	90	21	19
SA	46	84	22	19

Turning to the second indicator, dealing with financial management responsibilities, there are three relevant questions in the SMS school principal questionnaire (italics do not appear in the questionnaire):

- Does the school use public funds transferred to it by the Provincial Education Department to maintain and improve the school's *property*, and building(s) and grounds occupied by the school (i.e. Section 21 (a) functions)?

- Does the school use public funds transferred to it by the Department to purchase its own textbooks, educational *materials* or equipment for the school (i.e. Section 21 (c) functions)?

- Does the school use public funds transferred to it by the Department to pay for *services* (e.g. telephone, electricity, water, etc.) provided to the school (i.e. Section 21 (d) functions)

The response rate for these questions was high, with 97% of schools providing valid responses for all three questions (lowest was FS with 95%, so still a high response rate). Of schools with valid responses, 76% reported they enjoyed all three functions, with the second-largest category (10%) being schools having just the first and third functions and the next largest category (7%) being schools with none of the three functions. Table 30 below provides provincial and quintile statistics. The 'All 3' column values, reflecting schools with responsibilities in all of the three areas, will be considered appropriate for the management responsibilities indicator. The national value, of 76%, is relatively high. However, an important caveat is illustrated in the last column of the table. These statistics draw from responses to the following question:

> With regards to the funding allocation provided by the Provincial Education Department to the school for each year, did the Provincial Education Department specify how much, or what percentage, of the allocation should be spent on each function?

There were yes/no options for each of the years 2010, 2011 and 2012. The percentages in the table (for instance 25% at the national level) refer to the percentage of schools with any function (counted under 'Any of 3') which did *not* experience any specification in any of the three years, in other words had no 'yes' response to the above question. So nationally, 25% of schools with section 21 functions were free to spend the money, as long as this occurred in line with policy, which specifies *what* the money may be spent on, but not *how much* should be spent on each type of item. The last column is important because it reflects a limitation, which actually contradicts the policy, in the financial management freedoms of schools. The

policy does permit guidelines set by the province, and can require schools to explain why they deviate from the guideline spending patterns, but it appears from the data as if guidelines are treated as hard rules. This could have implications for management efficiency in schools. Unfortunately, the SMS data do not include any information on the school principal's perception of the overall efficacy of the school funding system. Had such information existed, a more interesting set of conclusions could have been drawn around the possible benefits of increasing (or even reducing) management freedoms in certain areas.

Table 30: Percentage of schools with section 21 functions

	Property	Materials	Services	Any of 3	All 3	Free of any specification
EC	86	82	80	88	77	30
FS	68	58	66	71	55	49
GP	96	96	91	98	90	18
KN	91	82	88	94	75	13
LP	97	90	99	100	88	25
MP	88	37	93	96	35	23
NC	90	74	96	98	67	44
NW	98	90	97	100	86	20
WC	93	89	92	95	86	42
SA	90	81	89	93	76	25

An examination of management responsibilities across quintiles reveals no big differences, for instance the average number of functions (out of three) granted to schools is 2.6 over all quintiles, 2.6 in quintile 1 and 2.5 in quintile 5.

9 Indicator on school infrastructure

Wording of the official indicator: *The percentage of schools complying with a very basic level of school infrastructure.*

A national indicator value for 2011 of 46% is identified below, after extensive analysis of the School Monitoring Survey (SMS) data. This figure represents learner-weighted schools, or learners in schools with access to a basic level of infrastructure. If one calculates just the percentage of schools (so small schools and large schools are in a sense considered equal), then the 46% value rises to 49%, reflecting the fact that larger schools tend to experience more serious shortfalls. Arguably, the learner-weighted value is a more valid 'headline indicator' value as what should be of concern is what learners experience.

The composite indicator values arrived at below use data on four facilities: water, sanitation (toilets), classrooms and electricity. Complexities around measuring the sufficiency of classrooms in the school are discussed in some depth. Standards set in the 2013 infrastructure norms imply a number of calculation methods are possible. It is also argued that what is perhaps not clear enough in the 2013 norms is how the problem of general interruptions in the water supply, frequent in parts of the country, should be dealt with when monitoring progress and when planning the required water storage facilities.

It is emphasised in the discussion below that given data limitations and the large variety of standards in the new 2013 infrastructure norms, monitoring of infrastructure must be considered work-in-progress. More consistency in the methods used and better data will result in a more robust and comprehensive monitoring system.

The standards for infrastructure set in policy are obviously important for the calculation of the infrastructure indicator. Provisional norms and standards were made public in 2008[4], but these

[4] Government Notice 1439 of 2008.

have been superseded by Regulation 920 of 2013, titled 'norms and standards for school infrastructure'.

The 2013 regulation places much emphasis on the absence or presence of four basic features which are not specifically of an educational nature: sanitation (toilets), electricity, water, and 'electronic connectivity' (by which is meant 'some form of wired or wireless connectivity for purposes of communication'). There is also a strong emphasis on a few facilities with a specific educational purpose, in particular a library, a science laboratory and sports and recreation areas. A key set of standards are those relating to the number and sizes of classrooms a school should have. There should be a classroom for every 40 learners enrolled in the school in grades 1 to 12, and a classroom for every 30 Grade R learners. However, the norms also state that there should not be more than 40 learners in a classroom, something that is not possible to reconcile with the school-level maximum ratio of 40 learners per classroom as enrolments per grade do not come in neat packages of 40. This matter is discussed below.

A key recent infrastructure monitoring report of the DBE is a one titled 'NEIMS (National Education Infrastructure Management System) Reports May 2011'[5]. The statistics presented below complement and confirm the NEIMS statistics. Possible reasons for a few discrepancies are discussed.

The 2011 School Monitoring Survey (SMS) includes a number of questions relating to infrastructure in the 'school observation' questionnaire, meaning a fieldworker had to physically verify the existence of specific facilities. The fieldworker had to check for the presence of running water, a functioning electricity supply, a fence around the school, a library, and various categories of toilets. Moreover, the number of classrooms had to be counted, given specific definitions for what qualified as a classroom. The focus below falls on water, electricity, the fence, toilets and classrooms. Libraries are not dealt with here as they were dealt with under a separate indicator (see section 5).

Table 31 below provides provincial and national statistics from the 2011 SMS on water, electricity and fencing. Both the percentage of learners in schools with the facility in question, and the percentage of schools, are given. The largest gap between these statistics and the NEIMS statistics is in relation to water. According to NEIMS, 90% of schools had access to water in 2011, against 82% in the SMS. The gap is almost certainly due to the fact that in many schools visited by the SMS fieldworkers, the water infrastructure was in place, but there was a water cut. This is clear if one reads the comments of the fieldworkers within the data. The 82% statistic seen below is important insofar as schools need water to be available at all times, for instance for the washing of hands before meals are served. The 2013 infrastructure norms indicate that water should be available 'at all times'. Irregular water supply is a problem not unique to schools. The official Stats SA General Household Survey report for 2012 states that over 50% of households in MP and LP experienced serious water interruptions over a twelve month period, where a serious interruption was defined as an interruption lasting at least two days, or several interruptions adding up to 15 or more days[6]. The 2013 infrastructure norms do recognise this as a problem insofar as they indicate that water tanker supplies from municipalities, combined with storage tanks at schools, are necessary for certain schools.

[5] Available on the DBE website.
[6] See Stats SA statistical release P0318, dated 4 October 2013.

Table 31: Schools with water, electricity and fence

	% with running water		% with electricity		% with fence	
	Learners	Schools	Learners	Schools	Learners	Schools
EC	75	65	77	73	86	80
FS	96	84	99	86	95	77
GP	100	99	99	99	99	99
KN	86	78	87	80	94	89
LP	92	87	97	95	99	98
MP	90	87	96	90	88	81
NC	93	89	100	99	90	82
NW	86	89	98	95	92	88
WC	100	98	100	99	93	90
SA	89	82	92	86	94	88

The electricity and fencing statistics from the SMS are very close to those from NEIMS. In both the SMS and NEIMS 86% of schools had electricity in 2011. The 88% statistic for fencing in the SMS is virtually equal to the 89% seen in NEIMS. This seems to confirm the overall reliability of both data sources.

The next two tables reflect the data on toilets collected through the 2011 SMS. The percentage of learner-weighted schools with no learner toilets at all is 3% (this is the same as saying the percentage of learners without access to learner toilets), whilst the percentage of *schools* without any learner toilets is 6% (see Table 33). According to the 2011 SMS, in one-third of schools with no learner toilets, educator toilets existed. So 4% of schools had no toilets at all, either learner or educator toilets. This 4% value is also found in the 2011 NEIMS data. The 2011 SMS data also indicated that in 90% of schools with some kind of learner toilets, educators had their own separate toilets.

Table 32: Types of toilets for learners (learner-weighted)

	Flush toilets	Ventilated pit latrine and enviro-loo toilets	Other types of sanitation	No sanitation	Total
EC	26	60	4	9	100
FS	92	4	2	2	100
GP	97	2	1	0	100
KN	45	48	3	3	100
LP	23	50	24	3	100
MP	57	40	1	2	100
NC	78	20	0	1	100
NW	70	25	2	3	100
WC	99	0	0	0	100
SA	57	34	5	3	100

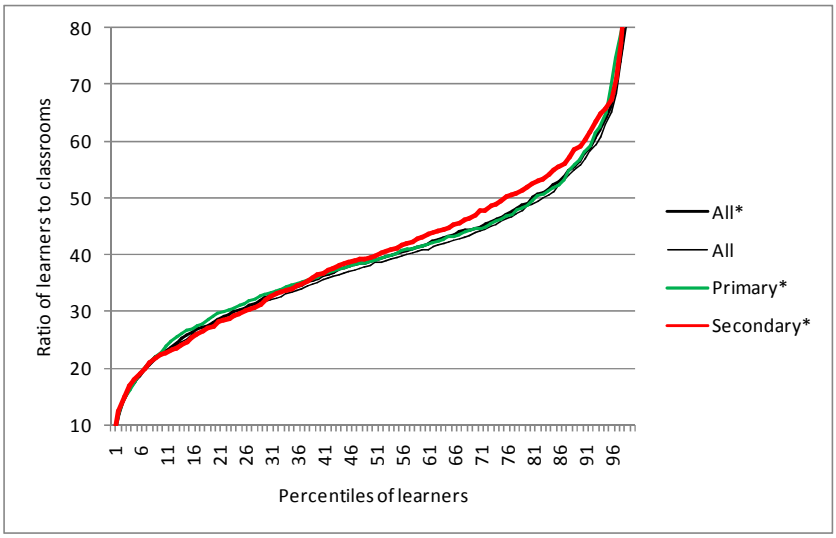
Table 33: Types of toilets for learners (school-weighted)

	Flush toilets	Ventilated pit latrine and enviro-loo toilets	Other types of sanitation	No sanitation	Total
EC	20	63	6	12	100
FS	64	24	5	6	100
GP	96	3	1	0	100
KN	30	59	4	6	100
LP	18	53	25	4	100
MP	46	49	2	4	100
NC	67	28	2	2	100
NW	57	34	4	6	100
WC	98	1	0	1	100
SA	41	46	7	6	100

Turning to classrooms, fieldworkers were told, and it is stated in the instructions of the school observation instrument, that what should be *excluded* in the classroom count should be 'Specialised classrooms such as workshops, laboratories, consumer rooms, etc'. Fieldworkers were also to exclude 'Other spaces where teaching may be taking place but which were not built for teaching, such as storerooms, kitchens, hallways, staffrooms, principal's office, or school hall'. They were told they *should* count 'Any rooms which were built for the purpose of a classroom but are being used for another purpose (e.g. classroom used as a storeroom)'. Moreover, it was stated that a classroom 'must also have space for the educator's furniture and space for the educator to use the writing board'. These last criteria could possibly confuse fieldworkers. If a classroom was so crowded that there was no space for the educator's desk, should the fieldworker exclude the classroom in the count? It is unlikely that a situation like this would have resulted in an exclusion, partly because the fieldworker instructions do not clearly state that lack of space in a classroom should lead to an exclusion and because the criteria are so vaguely stated (what constitutes the educator's 'furniture', for instance?). What is perhaps more problematic in the data collection process is that rooms such as workshops and laboratories were excluded, when in many senses such rooms serve the same purpose as a classroom.

One of the simplest ways of determining whether a school has enough classrooms, using the 2011 SMS data, is to divide total enrolment by the number of classrooms counted in the survey, and to see whether the resultant ratio is below 40. The threshold of 40 appears in the 2013 norms and standards, as discussed above. The curve 'All' in the next graph reflects a simple calculation of the ratio. The figures behind the curve indicate, for instance, that 51% of learners were in schools where the ratio was below 40. The 2011 NEIMS report did not include statistics on classroom access.

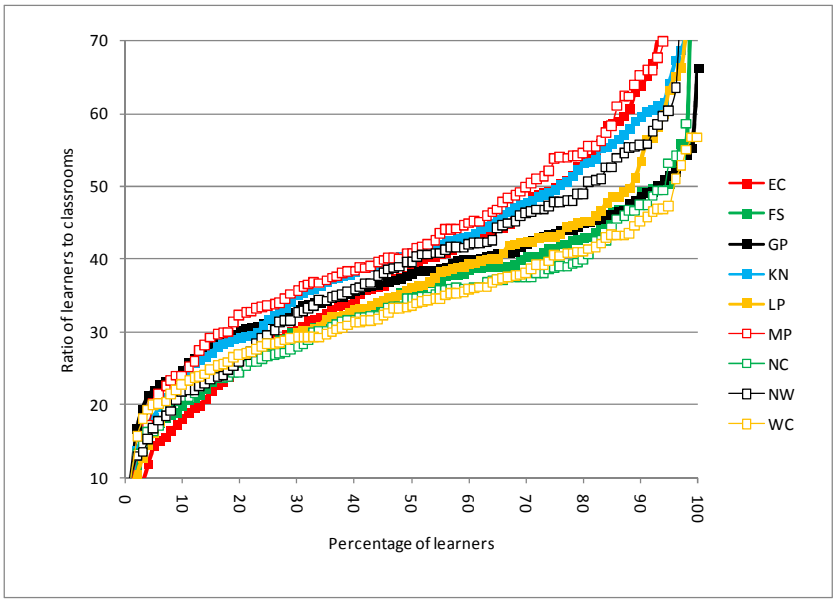
Figure 11: Distribution of learner to classroom ratio



The curve 'All*' in Figure 11 includes a Grade R adjustment. The 2013 norms state that the learner to classroom ratio should not exceed 30 in Grade R. In order equate the ratio for Grade R to the ratio for grades 1 to 12, Grade R enrolment was multiplied by 1.33 (40 divided by 30) before the ratio for the school as a whole was calculated. As can be seen from the graph, this adjustment had no noteworthy effect on the distribution of the ratio. Ratios were calculated separately for primary and secondary schools, where primary was taken to mean any school with Grade 3 and secondary was taken to mean any school with Grade 9 (the few schools offering both of these grades would have been included in both the primary and secondary calculations). The ratios are clearly somewhat worse for secondary schools than primary schools. This is not surprising if one considers that between 2000 and 2011 enrolment in public ordinary schools decreased by 3% at the grades R to 7 (despite large increases at the Grade R level) levels and increased by 9% at the grades 8 to 12 levels.

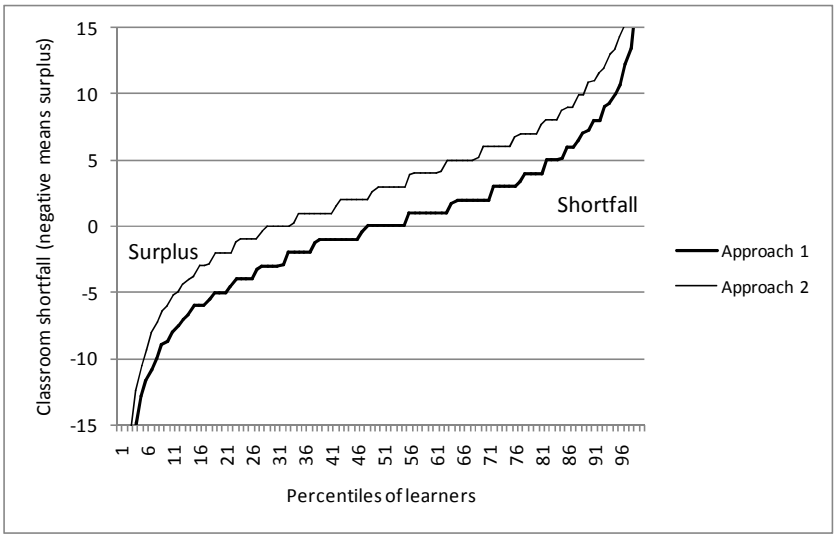
The following graph provides the 'All' curve from the previous graph broken down by province. Clearly four provinces, MP, EC, KN and NW, fare worse than the other five provinces. The four provinces all have 20% or more of their learners in schools where the ratio is higher (worse) than 50.

Figure 12: Distribution of learner to classroom ratio by province



An alternative way of viewing the classroom deficit is to subtract actual classrooms from needed classrooms to obtain the shortfall in terms of the number of classrooms in a school. Approach 1 in the following graph reflects the distribution of this shortfall. The curve also reflects classroom surpluses. The problem, however, with the method used so far of dividing enrolment by 40 to obtain classroom need is that learners per grade do not come in neat multiples of 40. A more realistic approach is called Approach 2 here. In this approach, the focus is on the requirement that no classroom should have more than 40 learners (or 30 in the case of Grade R). An Approach 2 need for classrooms per school was calculated by using Snap Survey 2011 enrolment by grade (the SMS data do not include enrolment by grade). If 20 or more learners were found in a grade, the enrolment of the grade was divided by 40 to obtain classrooms needed for the grade. Rounding up to the nearest integer occurred. If enrolment was less than 20, then it was assumed that multi-grade teaching should occur within one classroom. A fraction of a classroom was calculated by dividing enrolment by 40. For instance, if enrolment in Grade 3 was 10, then the classroom need was assumed to be 0.25 (10 divided by 40). Fractions within a curriculum phase were added up, and results were rounded up to the nearest integer. It was thus assumed that mixing of grades could occur within a classroom, but not mixing of curriculum phases. For example, for a school with 7 learners in each of grades R to 7, the result would be a need for three classrooms, one for each curriculum phase. Actual classrooms were subtracted from the Approach 2 need for classrooms to produce the Approach 2 distribution seen in Figure 13. As one would expect, the two approaches result in rather different distributions. For instance, using Approach 1 45% of learners are found to be in schools experiencing a classroom shortfall, whilst using Approach 2 the figure becomes 64% of learners.

Figure 13: Classroom shortages



The statistics allow one to calculate approximate total shortfalls and surpluses. In 2011 there were around 321,000 classrooms in existence. The shortfall using the more demanding, but also more realistic, Approach 2 is 64,000 classrooms, whilst Approach 1 produces a shortfall of 53,000 classrooms. The directorate in the DBE dealing with infrastructure estimated that in 2010, the national classroom shortfall was 63,000, a figure very close to the Approach 2 estimate. The surplus of classrooms using Approach 2 is 39,000.

How should an overall indicator of infrastructure adequacy per school be calculated? Both data limitations and the fact that the 2013 norms are so demanding that clearly only a small percentage of schools would currently comply with all standards dictate that monitoring must be multi-faceted and must be considered as work-in-progress. As data become more available and as the conditions in schools improve, more factors can be considered in the monitoring process and benchmarks for what a basic package of infrastructure can be raised. Moreover, methods used for any indicators should be clearly documented so that identical methods can be used for different points in time to measure progress. Importantly, whilst figures relating to the construction and upgrading of facilities through public investment programmes are important measures of progress, this is different from measuring the overall state of school facilities. This is so partly because facilities are lost due to wear and tear and factors such as natural disasters, and because some infrastructure development occurs outside of the ambit of the public programmes.

The emphasis here is on considering four very basic facilities: running water, toilets, electricity, and classrooms. Before any composite indicator values can be calculated, it is necessary to examine combinations of characteristics at the school level. For example, if the 18% of schools without running water are *different schools* from the 14% of schools without electricity (see Table 31), this has certain implications for understanding the problem and the solutions. On the other hand, if there is a strong overlap between the two shortages at the school level, this has different implications. Table 34 indicates the percentage of learners experiencing different combinations of the four facilities: 0 means the facility is not available, 1 means it is available. Classroom availability has been viewed using the less stringent approach described above, in other words the approach where classroom need is determined by simply dividing enrolment by 40 and then rounding upwards. Around 46% of learners have access to all four facilities, the remainder lack at least one of the four. Sorting of rows in the table occurred using the 0-1 values, meaning the order of the columns reflects assumptions around the 'basicness' of each resource. Water is considered most basic here, followed by toilets, classrooms and electricity. The higher up the row in the table, the greater the implied

seriousness of the shortfall. Clearly, schools with none of the four facilities are in the worst situation.

Table 34: Degrees of infrastructure inadequacy

Water	Toilets	Class-rooms	Electricity	% of learners
0	0	0	0	0.2
0	0	0	1	0.2
0	0	1	0	0.5
0	0	1	1	0.3
0	1	0	0	0.8
0	1	0	1	3.7
0	1	1	0	1.0
0	1	1	1	3.9
1	0	0	0	0.2
1	0	0	1	0.5
1	0	1	0	0.3
1	0	1	1	1.0
1	1	0	0	3.2
1	1	0	1	36.8
1	1	1	0	1.7
1	1	1	1	45.7
			Total	100.0

Two composite indicators will be calculated using Table 34 as a point of departure. Firstly, a more stringent method considers only the bottom row of the table as reflecting a basic level of adequacy. In this method, 45.7% of learner-weighted schools would be seen to pass the minimum threshold. Secondly, a less stringent method considers the last four rows as reflecting a basic level of adequacy. The last four rows add up to 84.2% of learners. A breakdown of the two indicators by province is provided in the next table.

Table 35: Percentage of schools with basic facilities

	More stringent approach	Less stringent approach
EC	29	63
FS	63	95
GP	58	100
KN	34	76
LP	52	90
MP	38	87
NC	70	92
NW	39	83
WC	73	99
SA	46	84

Note: The statistics refer to learner-weighted schools, which is the same as the percentage of learners in schools with basic facilities. The two national figures seen above become 49% and 76% if one considers simply the percentage of schools.

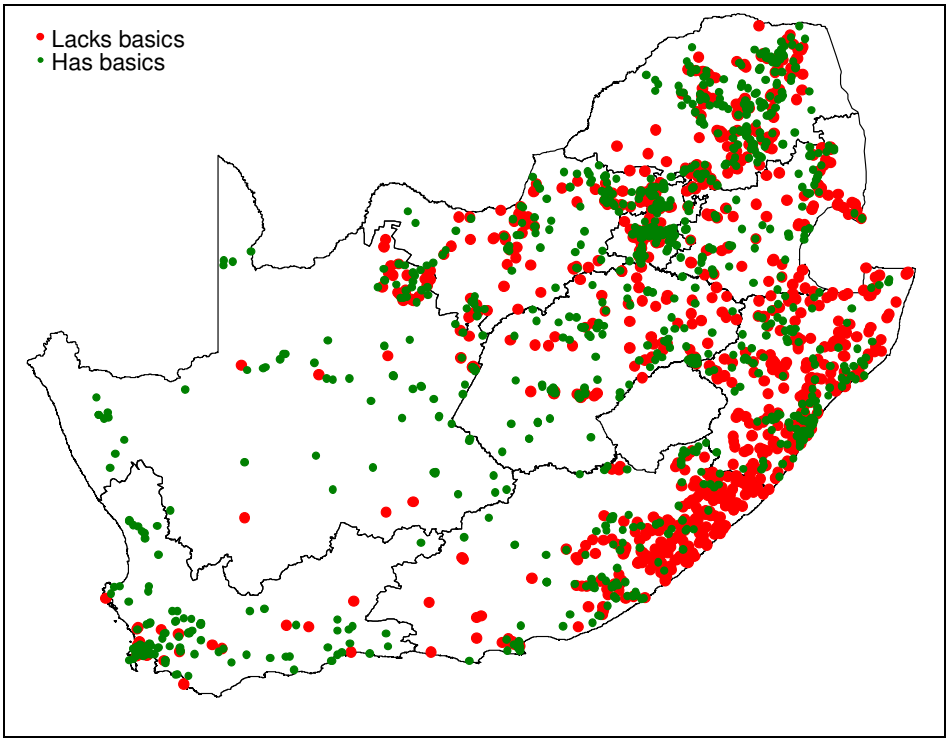
The 2011 Action Plan indicated that in 2009 nationally 77% of schools possessed basic infrastructure items. A key difference between the method behind this 77% figure and the 46% figure in Table 35 is that the former used less demanding criteria for classrooms. However the indicator of infrastructure adequacy is calculated, similar provincial rankings emerge. EC stands out as the most problematic province, by far, followed by KN and MP.

The more stringent approach reflected in the first column of Table 35 points roughly to what the 2013 regulations state should be achieved seven years from the publication of the norms,

in other words by 2020. This equivalence is rough because certain elements of the seven-year target were not covered by the 2011 SMS data, for instance electronic connectivity. However, the other elements are more likely to be found within the schools included in the 46% statistic seen above.

The following three maps illustrate the geographical distribution of particularly poor infrastructure, using the 2011 SMS data. The first map simply reflects schools sampled for the 2011 SMS, with the green dots representing 46% of the country's public school learners, meaning the more stringent figures from Table 35 are used.

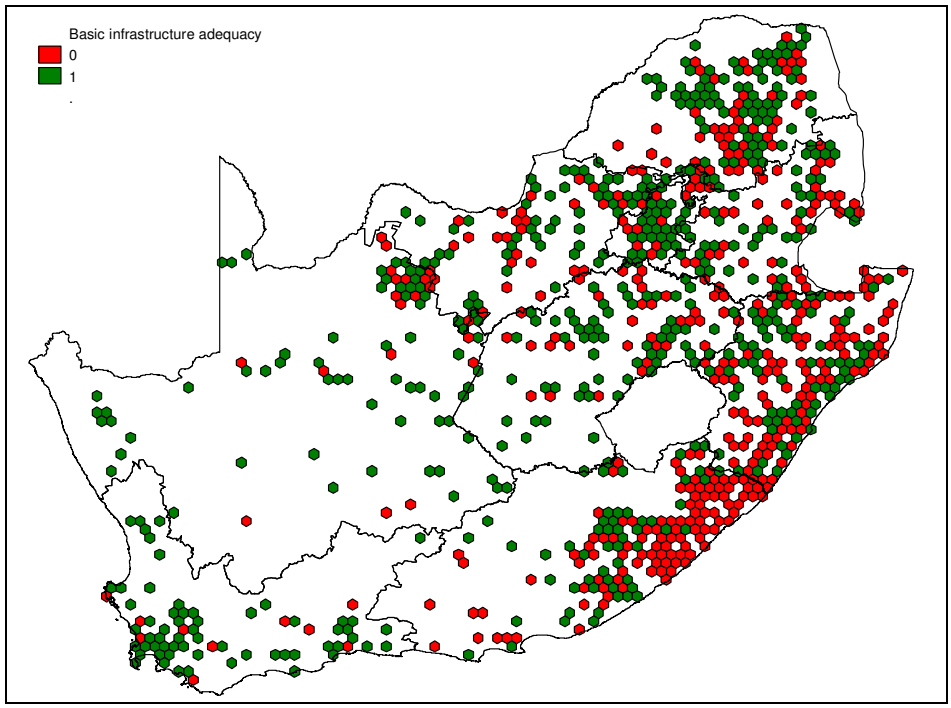
Figure 14: Location of basic infrastructure inadequacies (I)



Note: The map displays 1,983 schools from the School Monitoring Survey for which reliable geographical coordinates could be obtained.

The problem with the previous type of map is that it is difficult to see what the situation is in more densely populated areas because dots obscure each other. Figure 15 resolves this problem. Here the country is divided into equally sized hexagons. The colour of each hexagon reflects whether most schools within the hexagon are green (adequate) or red (inadequate). No hexagon means there were no SMS schools, generally because the area is a sparsely populated one.

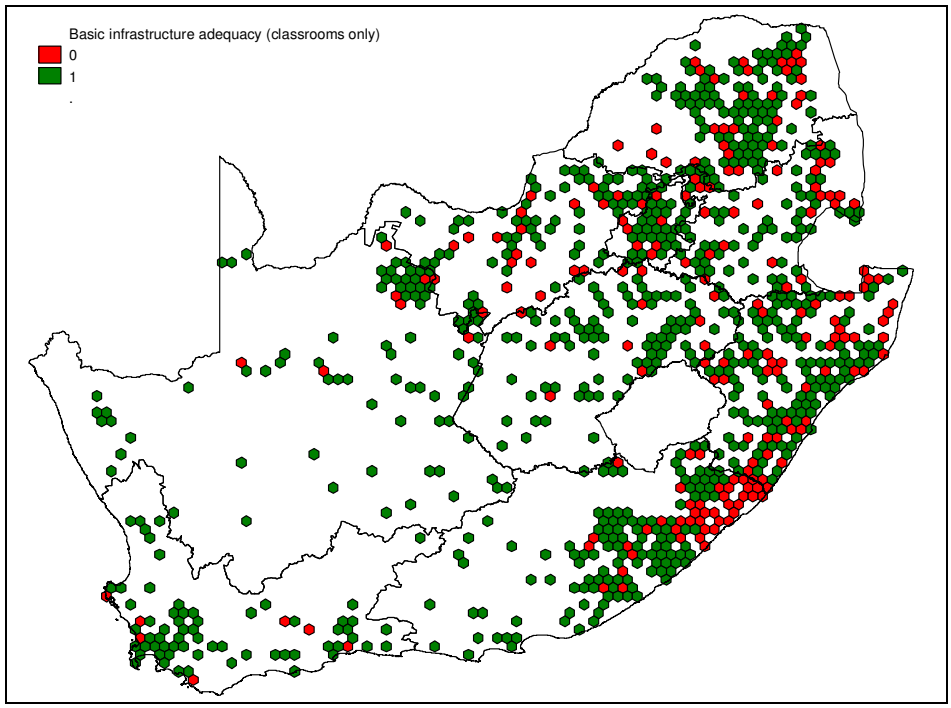
Figure 15: Location of basic infrastructure inadequacies (II)



Note: The map divides the country into hexagons and then colours hexagons in which schools are found according to whether most schools have an adequate or inadequate infrastructure, using the criteria for adequacy described previously.

In Figure 16 below, just the classroom part of the composite indicator has been used. This map is important insofar as it begins to answer questions around how the poor infrastructure legacy in rural areas interacts with another factor, the trend of population decline in rural areas. As populations decline, schools that were formerly inadequate in terms of their number of classrooms may become adequate (in terms of the number of classrooms). What is clear from the map is that despite urbanisation, there remain specific rural areas with high concentrations of classroom shortfalls. Specifically, one such area stands out, the far eastern and coastal sections of EC.

Figure 16: Location of basic classroom inadequacies (III)



10 Indicator on school meals

Wording of the official indicator: *The percentage of children who enjoy a publicly funded school lunch every school day.*

A national indicator value for 2011 of 70% is identified below, after extensive analysis of the School Monitoring Survey (SMS) data. The SMS statistics are broadly consistent with figures obtained from two other important sources, the General Household Survey and the DBE's official National School Nutrition Programme (NSNP) reports, which are based on figures obtained from provincial departments.

The analysis reveals a number of interesting patterns. Non-NSNP donor-funded school feeding is fairly widespread. Around 7% of schools experience this, though some of these schools are also NSNP schools, suggesting multiple modalities of provisioning are pursued in the same school. Policy emphasises NSNP coverage in the poorest three school quintiles. Whilst coverage in these quintiles is close to universal, there is also a fairly strong presence of the NSNP in quintiles 4 and 5. For instance, 28% of quintile 5 schools say they benefit from the NSNP. However, within these schools there appears to be targeting of learners from the poorest households. Disruptions to the NSNP are at a fairly low level. On average, on around 4% of days in the year there is no school feeding due to some disruption.

The 2011 School Monitoring Survey (SMS) required fieldworkers to speak to the 'person responsible for managing or championing the feeding programme at the school' in order to complete a special questionnaire dealing with school feeding. The response rate for this part of the SMS was high. Only 1% of schools had no data. In just over half of schools an 'educator' was the respondent, just under 10% of respondents were the school principal, and heads of department and school administrators constituted proportionally even smaller categories of respondents.

The data show that 89% of learner-weighted schools had a school feeding programme in 2011[7]. This figure becomes 93% if one does not weight schools. The figures for primary schools are 93% and 95% (weighted and unweighted), and for secondary schools 84% and 89%[8]. Clearly systematic school feeding gets close to covering the entire schooling system. The following table offers a breakdown of the global 89% figure according to the funding source of the school feeding programme. The question in the questionnaire was: 'What kind of feeding programme do you have in your school?' Two options were possible: 'National School Nutrition Programme' (abbreviated as NSNP in this analysis) and 'School-Initiated Feeding Programme'. 5% of schools said yes to both options. These schools were counted as NSNP in this analysis. The NSNP figure of 79% reflected below thus hides the full extent of non-NSNP initiatives. In the case of 10% of learner-weighted schools, only non-NSNP school feeding was reported to be happening. The non-NSNP source of funding was gathered in a separate question. Clearly the non-NSNP categories are not completely mutually exclusive. For instance, 'parent-funded' and 'school-funded' could refer to the same thing. What seems noteworthy is the relatively strong presence of donor funding of feeding programmes. In fact, if schools which also receive NSNP school feeding are counted, 7% of all learner-weighted schools in the system receive donor funding for feeding children.

Table 36: Sources of funding for school feeding

Funding source	Learner-weighted % of schools
NSNP	79
School-initiated - donor-funded	4
School-initiated - source not stated	3
School-initiated - parent-funded	1
School-initiated - school-funded	1
Total	89

Of the 11% of schools without any school feeding, some indicated that they needed it. Specifically 3% of all schools did not have school feeding but said there were at least some learners in the school in need of this service. Reasons why there was no school feeding were collected through an open-ended question. Responses varied, from failure on the part of the provincial department to meet agreements, to the school not qualifying for the NSNP due to its quintile, to funding constraints within the school. The problem was most extensive in GP and WC, where the percentage of schools without school feeding which believed they should have school feeding came to 6% and 8% of all schools respectively.

The next table pieces together information from several questions in order to portray the various facets of school feeding in 2011 (in other words, the 89% of schools referred to above are described here).

One question asked 'How frequently are learners fed per week?', the options being one to five days. Clearly the great majority of schools got close to offering five days of school feeding, with non-NSNP schools faring slightly worse.

Somewhat more conservative coverage figures were obtained through another question: 'Estimate the percentage of school days between 12 January 2011 and 31 September 2011

[7] Unless otherwise indicated, all percentages of schools in this section are percentages of *learner*-weighted schools. The problem with not weighting by learners is that the situation in extremely small schools tends to distort the aggregate statistics. In general, what matters most is the proportion of *learners* in schools with specific characteristics.

[8] In this analysis, primary schools are understood as any schools with grades 3 or 6, and secondary schools are schools with grades 9 or 12. Combined schools would be used for the statistics of both the primary and secondary levels. The data do not allow for the splitting of the primary and secondary levels within combined schools, at least not with respect to the school feeding issues discussed here.

where a school meal was not served?'. The options were 0%, <20%, 20-50%, 51-75% and >75%. To calculate the aggregate values seen in the second column of Table 37, the five categories were converted to five estimates of non-coverage: 0%, 10%, 35%, 63% and 88%. The table indicates the percentage of school days when a school meal *was* served, so non-coverage was converted to coverage. Even these more conservative figures resulted in a rather positive situation of 96% of school days being covered by school feeding within schools that had a school feeding programme. The data included open-ended responses on why certain schools were not succeeding in offering meals on 100% of days. The responses, in the case of NSNP schools, pointed mainly to funding problems, such as budget problems in the provincial department and no or late transfer of funds to the school, as well as problems with physical deliveries of food to schools by service providers.

The column 'Average % coverage' in the table uses data from the response to the question: 'How many learners benefit from the feeding programme?' The response was divided by the total enrolment of the school in order to obtain the level of learner coverage per school. 74% of NSNP schools had a level of learner coverage of 95% or more. Roughly speaking, a figure as high as 95% can be considered full coverage. One can expect the school feeding facilitator in the school to have estimated the school's total enrolment only roughly when responding to the question, in many instances. Even if one does apply this kind of flexibility in the analysis, it is clear that covering only certain learners in a school is fairly common. Amongst NSNP schools, 10% of schools had a level of learner coverage of less than 50%. This situation is not very different for the primary and secondary levels. Amongst non-NSNP schools with feeding programmes, the average coverage was 43% (shown in the table), and only 34% of schools had a learner coverage level of at least 95%. Clearly non-NSNP schools cover a smaller proportion of learners. The questionnaire did not gather information on how learners were selected for incomplete school feeding, for instance using grade and poverty as criteria.

Table 37: Overall characteristics of school feeding

	Days per week	% of days	Average % coverage	Average starting time	Median duration in minutes	Days cooked food	% using produce of garden	Average ... days a week			Satisfaction (out of 4)
								protein	starch	fruit or vegetable	
NSNP	5.0	96	90	10:14	40	4.9	46	4.5	4.8	3.9	3.3
Other	4.7	94	43	10:13	30	4.2	25	3.9	4.4	3.0	3.2
Total	5.0	96	85	10:14	40	4.8	44	4.5	4.8	3.9	3.3

The questionnaire asked at what time school feeding started and finished each day. The average starting time and median duration are indicated in Table 37. The question was: 'Please estimate the start and end time of the feeding programme'. This was probably taken to mean the start and end of activities of learners relating to eating, including queuing and actual eating. The median and not mean duration was used as a small group of schools reported figures which led to unbelievably high duration values spanning virtually the entire school day, probably because the school schedules different groups of learners at different times across the day. An alternative explanation would be that a few schools included cooking and washing up time. The extent of cooking was high, as indicated by the overall statistic of 4.8 days per week with a cooked meal. The use of fresh produce from a school vegetable garden was fairly common amongst NSNP schools, applying in almost half (or 46%) of these schools.

One table in the questionnaire asked whether three food types were served on each of the five days on the week. The wording for the three food types in the questionnaire was: protein; starch; fruit or vegetable(s). 94% of schools with feeding programmes had all three food types on every one of the five days. 3% of schools with feeding programmes had protein and starch, but no fruit or vegetable on any of the five days. This is a problem which needs to be addressed. Schools reporting they used produce from a school vegetable garden were in fact

as likely to have a fruit and vegetable deficit problem as schools without such gardens. This could be explained partly by the fact that school garden harvests would be seasonal and periodic.

Table 38 below provides basic statistics on the presence of school feeding by province. One thing that stands out is the exceptionally high proportion of school feeding not considered to be part of the NSNP in GP.

Table 38: Sources of funding for school feeding by province

	% of schools with school feeding	% of schools with NSNP	NSNP as a % of all school feeding
EC	92	86	94
FS	91	85	94
GP	85	66	77
KN	86	76	88
LP	97	92	95
MP	88	78	89
NC	92	88	96
NW	91	83	91
WC	83	73	87
SA	89	79	89

Note: All figures refer to percentages of learner-weighted schools, counting all schools in the public system.

What is clear in the following table is that although the policy emphasis is on implementing the NSNP in quintiles 1 to 3, a substantial portion of quintile 4 and even quintile 5 schools report being served by the programme. However, in quintile 5 just over half of the school feeding that occurred was non-NSNP.

Table 39: Sources of funding for school feeding by quintile

Quintile	% of schools with school feeding	% of schools with NSNP	NSNP as a % of all school feeding
1	100	95	95
2	99	96	97
3	96	90	94
4	70	57	81
5	60	28	46
SA	89	79	89

Note: All figures refer to percentages of learner-weighted schools.

The picture does not change much if one focuses only on primary schools, as is done in the next table.

Table 40: As for previous table, but only primary schools

Quintile	% of schools with school feeding	% of schools with NSNP	NSNP as a % of all school feeding
1	100	94	94
2	99	97	97
3	97	92	95
4	81	66	82
5	71	35	50
SA	93	83	90

Note: All figures refer to percentages of learner-weighted schools.

Table 41 below repeats the statistics of Table 37, except here a provincial breakdown is presented. What is noteworthy is that EC schools tend to start the school feeding process slightly later than other schools, and that the median duration is particularly long in this province. If one looks at the mean instead of the median, and excludes high-end outlier values, EC has a duration figure of 58 minutes, against 47 minutes for the other eight provinces, so although EC does appear to spend more of the school day on school feeding than other provinces, the median figures seen below exaggerate the difference. NC and WC stand out as provinces that begin school feeding earlier than other provinces. The relatively low use of school gardens in WC and FS also stands out. EC and to some extent MP are two provinces which do not experience the fruit and vegetable shortage problem discussed above.

Table 41: Overall characteristics of school feeding by province

	Days per week	% of days	Average % coverage	Average starting time	Median duration in minutes	Days cooked food	% using produce of garden	Average ... days a week			Satisfaction (out of 4)
								protein	starch	fruit or vegetable	
EC	5.0	92	93	10:25	60	4.8	47	4.3	4.6	4.3	3.2
FS	5.0	96	87	10:16	30	4.4	29	4.2	4.8	3.2	3.3
GP	5.0	97	62	10:22	40	4.7	40	4.5	4.8	3.7	3.2
KN	5.0	95	90	10:17	35	5.0	41	4.4	4.8	3.6	3.5
LP	5.0	98	97	10:11	40	5.0	59	4.6	5.0	3.9	3.2
MP	5.0	97	87	10:18	45	4.9	53	5.0	5.0	4.5	2.9
NC	5.0	98	97	9:36	40	4.3	50	4.6	4.7	3.3	3.9
NW	4.9	93	91	10:10	45	4.8	47	4.7	4.8	3.9	3.0
WC	4.9	97	57	9:39	30	4.7	18	4.7	4.8	3.8	3.7

The breakdown by quintile seen in the next table confirms what is frequently reported, namely that better off quintile 4 and 5 schools apply school feeding selectively, with a focus on poorer learners. In quintile 5 schools with school feeding, for instance, on average only around a quarter of learners within the school are fed.

Table 42: Overall characteristics of school feeding by quintile

Quintile	Days per week	% of days	Average % coverage	Average starting time	Median duration in minutes	Days cooked food	% using produce of garden	Average ... days a week			Satisfaction (out of 4)
								protein	starch	fruit or vegetable	
1	5.0	95	95	10:16	40	4.9	51	4.6	4.8	3.9	3.2
2	5.0	97	94	10:20	40	4.9	50	4.5	4.9	3.8	3.3
3	5.0	96	92	10:13	45	4.9	44	4.6	4.8	3.9	3.5
4	4.9	98	67	10:07	40	4.8	39	4.5	4.8	4.0	3.0
5	4.8	92	27	10:01	30	4.3	13	3.9	4.3	3.1	3.2

The next table presents what will be considered preferred indicator values, plus other values that contextualise the indicator values. If learner coverage within each school is multiplied by the school's enrolment, and one ignores the fact that school feeding may not occur on every day of the year, the end result is a national statistic of 75% of learners in the public system who benefit from school feeding. This is seen in the first column of Table 43. Here, as elsewhere in this analysis, Grade R learners are counted as part of the school's enrolment. If only NSNP school feeding is considered, the national figure becomes not 75% but 71% of learners being beneficiaries (fourth column). The 2011 General Household Survey (GHS) of Statistics South Africa produces a corresponding figure of 73%, which is close enough to the School Monitoring Survey figures for one to conclude that at least at the national level all figures appear more or less correct. The GHS asks whether 'food is given as part of the school feeding scheme/ Government nutrition program'. The GHS figure is likely to include any school feeding, whether NSNP or not, as household respondents are unlikely to distinguish between the NSNP and school-initiated services. Because the school feeding occurs in a public school, households are likely to think of the service as a government service.

The important thing is not so much which column of values is chosen for the headline indicator, as that comparisons across years when further data are gathered should use similarly calculated values. Apples should be compared with apples. The indicator summary table at the end of this report contains the values from the sixth column of Table 37, where the national figure is 70%.

The 71% figure cannot be considered our best national indicator value, because the indicator is supposed to be about publicly funded lunches being served 'every school day'. Table 37 indicated that in the NSNP, coverage over time is relatively good. The average days of school feeding is 5.0, and on average during 96% of the year school feeding happens. However, a deeper analysis of the data reveals that one in five NSNP schools do not succeed in maintaining the service on 100% of days in the year. If we exclude NSNP schools not attaining 100% of school days, we arrive at the national statistic of 57% seen in Table 43 (fifth column). A less stringent approach would be to consider coverage over time to be complete in any school where the SMS respondent indicated that five days were covered. It should be remembered that for this question, the respondent is likely to have been thinking of recent weeks, or months. Using this less stringent approach results in a national statistic of 70%. If both NSNP and non-NSNP school feeding are considered, the national figure becomes 74% (see the third column). Some comparison against the GHS is possible as the GHS asks household whether the learner receives a meal 'every day', as opposed to, for instance, 'a few times a week' and 'sometimes'. If 'every day' is a requirement, the GHS results in a national statistic of 68%. The GHS complete days value (68%) is thus 0.93 of the incomplete days value (73%). If one applies a similar 0.93 ratio to the NSNP values from the SMS data, one gets 66% (0.93 of 71%). The question was whether to use the complete days value of 57% from the SMS or the complete days value of 70% from the SMS. The fact that 70% was close to 66% than 57% prompted the use of the 70% value as the headline national indicator value, and thus values from the sixth column for provinces (the summary table at the end of this report). Of course this is somewhat arbitrary, but as already mentioned, the important thing is that comparisons over time should use the same statistics. Moreover, comparisons across provinces should of course use uniformly calculated indicator values.

Table 43: Indicator values for school feeding coverage

	School Monitoring Survey 2011: All school feeding % receiving meals...			School Monitoring Survey 2011: Just NSNP % receiving meals...			General Household Survey 2011 % receiving meals...	
	... at least some of the time	... every day (strict whole-year measure)	... every day (less strict five-day measure)	... at least some of the time	... every day (strict whole-year measure)	... every day (less strict five-day measure)	... at least some of the time	... meals every day (less strict five-day measure)
EC	85	46	84	82	44	82	84	81
FS	78	66	77	78	65	77	73	67
GP	53	48	53	50	47	50	47	36
KN	76	63	76	70	58	70	75	73
LP	92	84	92	88	79	88	95	94
MP	75	68	75	69	62	69	83	75
NC	89	69	89	85	65	85	86	79
NW	82	71	81	77	68	77	78	73
WC	48	40	48	45	37	45	51	39
SA	75	60	74	71	57	70	73	68

Official DBE reports on the NSNP have reflected figures which are broadly consistent with what is seen in the previous table. The DBE reports are generally based on independent monitoring performed by provincial departments, though there has been ongoing debate around whether use has occurred of unverified figures obtained directly from provincial service providers when figures are given from the provincial to national level. To illustrate the general consistency, the *National School Nutrition Programme (NSNP) annual report: 2011/2012* provides learner beneficiary figures which, when combined with official enrolment figures, result in a national coverage figure for 2011 of 74%. This is fairly close to what should be the equivalent 71% or 70% national statistics from Table 37. Thus across three different sources, the School Monitoring Survey, the General Household Survey, and the DBE's own NSNP reports, figures on school feeding that are generally consistent are found.

11 Indicator on special needs education

Wording of the official indicator: *The percentage of learners in schools with at least one educator who received specialised training in the identification and support of special needs.*

A national indicator value for 2011 of 91% is identified below, after some analysis of the School Monitoring Survey (SMS) data (see the second column of Table 48 below). The 91% figure is a high one, and thus promising. Clearly there is considerable capacity spread across schools to implement special needs support. Yet there are a number of caveats. The data suggest that teachers are most confident if they have a formal qualification and have also received some informal training. Only 63% of learners are in schools with at least one teacher with such a background. The data also suggest that in a substantial number of schools which appear to have the capacity to implement certain special needs steps, this work is not occurring. This could be because school principals have not fully bought into the idea of special needs support.

Free State, Gauteng and Western Cape fare relatively well with respect to this indicator, whilst Eastern Cape and Limpopo fare relatively poorly.

Information on special needs education is captured through both the principal and teacher questionnaires in the 2011 School Monitoring Survey (SMS). The teacher questionnaire is supposed to have reached ten teachers per school, or fewer for smaller schools. Data from the teacher questionnaire seem fairly complete. 46% of unweighted schools had data from a full set of ten teachers, 64% of schools had data from at least eight teachers, and 80% of schools

had data from at least five teachers. All schools had at least some teacher questionnaire data. Importantly, schools were asked to include at least one teacher who specialised in special needs education amongst the sample of teachers.

The school principal was asked the following question: 'Does your school have a school-based support team (SBST) or institutional-level support team (ILST) or any other structure to support learners with special education needs?'. 1% of principals indicated they did not know and for 3% of schools there was missing data. Of principals saying yes or no, 64% said yes. This is if learner weights are used. If school weights are used, the figure becomes 54%, indicating that the structure being referred to was more common in larger schools, which is to be expected.

One table in the principal questionnaire asks about the screening, identification and support of learners with respect to special needs. Table 44 below reproduces the structure of the table in the questionnaire. Statistics are calculated using learner weights. The high level of missing values is noteworthy. But so is the part of the main question saying 'without the help of district officials'. This seems strange, and may have confused respondents. One possible reason why screening emerges as less common than identification and support, is that some principals simply did not understand the term. As one might expect, there is a strong correlation in the response across the three categories. For instance, of the principals indicating that identification occurred, 92% also indicated that support was occurring.

Table 44: Principal responses on special needs support

Has your school (without the help of district officials) been able to undertake the following this year?					
... learners for special education needs↓	None of the learners	Some of the learners	Most of the learners	All of the learners	Missing
Screen	34	36	7	4	19
Identify	23	46	8	4	19
Support	25	43	8	5	19

Table 45 below indicates the categories that teacher respondents were given when asked about their formal qualifications. The response rate here was relatively high. 96% of teachers provided at least one yes-no response across the three questions. When the data are collapsed to the school level, 99% of schools have some valid data on formal qualifications. Table 45 presents two types of statistics per question: (1) the percentage of learners in a school with at least one teacher with the qualification in question, and (2) the average teachers per school with this qualification. The statistics are calculated using learner weights. Had school weights been used, values would have tended to be lower, for instance 71% instead of 81% at the national level for 'Any of previous three'. If median values instead of the average number of teachers per school had been used, the picture would not have changed much. For instance the national median value for 'Any of previous three' is three teachers. Overall, values seem promisingly high. The high values for FS stand out (one would have expected high values in GP and WC).

Table 45: Teacher responses on formal qualifications

	Tertiary (degree, post-matric diploma, post-graduate diploma) in special or remedial education		ACE in special or remedial education		Accredited Short Courses in special or remedial education		Any of previous three	
	% learners	Avg. teachers	% learners	Avg. teachers	% learners	Avg. teachers	% learners	Avg. teachers
EC	59	2.1	45	1.7	37	1.7	71	2.5
FS	85	2.1	58	1.9	60	1.7	92	3.0
GP	80	2.4	53	1.9	56	1.8	88	3.2
KN	75	2.5	50	1.6	52	2.0	84	3.1
LP	61	1.9	47	1.9	34	1.5	71	2.4
MP	66	1.8	53	1.7	39	1.6	78	2.5
NC	69	1.9	45	1.5	39	1.8	78	2.5
NW	67	1.9	40	1.3	48	1.4	84	2.4
WC	86	2.1	46	1.4	52	1.7	92	2.8
SA	71	2.2	49	1.7	46	1.7	81	2.8

Note: All statistics use learner weights. The '% learners' column indicates the percentage of learners in the system who have at least one educator with the qualification in question working at the school. The 'Avg. teachers' column indicates the average number of educators of this type per school.

The following table follows a format similar to that of the previous table. Table 46 focuses on teachers who have received informal training in special needs support. The patterns are similar to those seen in Table 45. Once again, the favourable values for FS stand out. Had school weights, instead of learner weights, been used for the 'Any of previous two' national percentage, a value of 74% and not 83% would have resulted.

Table 46: Teacher responses on informal training

	Have you received any "informal" training on identifying learners with special needs?		Have you received any "informal" training on supporting learners with special needs?		Any of previous two	
	% learners	Avg. teachers	% learners	Avg. teachers	% learners	Avg. teachers
EC	67	2.8	68	2.6	70	2.9
FS	94	5.1	94	5.0	94	5.5
GP	93	4.1	92	4.3	94	4.5
KN	85	3.5	82	3.5	86	3.7
LP	53	2.1	57	2.0	62	2.1
MP	85	3.5	85	3.5	85	3.8
NC	83	3.7	86	3.6	87	4.0
NW	85	3.2	87	3.2	89	3.4
WC	94	4.4	95	4.6	96	4.9
SA	80	3.6	80	3.5	83	3.8

The teacher questionnaire includes three apparently interesting questions dealing with more qualitative matters. The three questions are reproduced in Table 47 below. Statistics provided use teacher weights here, where a teacher weight is calculated to reflect the number of teachers in the population each surveyed teacher represents. The first two questions were answered by 37% of teachers, whilst 80% answered the third question. The first two questions are clearly linked to the earlier informal training question, whilst this is not the case with the third question, hence the higher response rate for this third question. Of those teachers who received informal training, the response rate for each of the three questions was at least 97%.

Table 47: Qualitative teacher responses

Rate the usefulness of the informal training you received?	
Not useful	4
Fairly useful	48
Very useful	48
Total	100
How often are you applying the skills or knowledge that you received from your informal training programme/s?	
Not at all	4
Sometimes	27
Often	40
All the time	30
Total	100
How confident are you in dealing with learners with special education needs?	
Not confident	21
Somewhat confident	54
Very confident	25
Total	100

What is interesting is the patterns that emerge if responses to the third question in Table 47 are broken down by whether a teacher has only informal training, only a formal qualification, or both. There were substantial numbers of teachers in each of the three training categories: of those with any training, 46% had just informal training, 17% had just a formal qualification, and 36% had both. Clearly the most confident teachers were those who had both. To illustrate, 50% of those who had both indicated they were 'very confident', against 27% for just informal training and 26% for just having a formal qualification. This makes intuitive sense. Teachers seem to require both the more theoretical training a formal qualification provides, plus what is probably the more practical orientation of informal training, before they feel properly equipped to deal with special needs learners.

The quality of training statistics (first question in Table 47) were broken down by province. No significant differences were found across provinces.

Table 48 below offers a number of possible sets of province-level indicator values. The first column uses values from the second-last column of Table 45. The second column below reflects the percentage of schools where there is either a formally qualified special needs teacher, or someone who has been on informal training (the latter was reflected in the second-last column of Table 46). Given the apparent importance of having both a formal qualification and some informal training, the third column in Table 48 reflects the percentage of schools with at least one educator who has experienced both types of development. The column 'B minus not confident' takes the method of column B with the difference that any teacher who said he or she was 'not confident' (see Table 47) was not counted. Clearly this change in the method does not make a large difference to the column B values. Lastly, the last column takes the column B method but teachers were not counted if the principal indicated that there was no special needs work occurring, with respect to *all* the three categories of screening, identification and support (see Table 44). The last column therefore reflects not just capacity to deal with special needs, but also whether actual work is occurring. Here values do drop substantially (relative to column B), suggesting that the challenge is not just one of capacity, but of getting existing capacity to implement special needs education.

Table 48: Final set of provincial values

	Formally qualified	A plus informally trained	Both formal and informal	B minus not confident	B minus no implementation
	A	B			
EC	71	80	48	79	62
FS	92	96	81	96	91
GP	88	97	75	94	91
KN	84	94	63	93	69
LP	71	80	46	76	39
MP	78	94	63	93	76
NC	78	92	68	90	73
NW	84	96	69	93	80
WC	92	99	78	99	94
SA	81	91	63	89	72

The values in column B above are used for the official indicator, but it is important that these values should be interpreted in the context of the various caveats raised in the foregoing analysis.

12 Summary of indicator values

Below, what can be considered final indicator values, at the provincial and national levels, per indicator discussed in this report, is provided.

Indicator (numbering is from the 2011 Action Plan)	*EC*	*FS*	*GP*	*KN*	*LP*	*MP*	*NC*	*NW*	*WC*	*SA*
15.2. The percentage of schools where allocated teaching posts are all filled. (Values from column A of Table 1 in this report.)	85	82	86	95	93	89	95	91	95	**90**
16.1. The average hours per year spent by teachers on professional development activities. (Values from Table 7 in this report.)	36	40	34	46	30	37	39	40	55	**39**
17. The percentage of teachers absent from school on an average day.	8	6	7	10	9	7	6	6	4	**8**
20. The percentage of learners in schools with a library or multimedia centre fulfilling certain minimum standards. (Values from Table 15 in this report.)	22	67	69	34	8	50	42	38	72	**40**
21. The percentage of schools producing the minimum set of management documents at a required standard, for instance a school budget, a school improvement plan, an annual report, attendance registers and a record of learner marks. (Values from Table 17 in this report.)	40	46	70	48	62	52	62	57	67	**52**
22. The percentage of schools where the school governing body meets the minimum criteria in terms of effectiveness. (Values from Table 25 of this report.)	83	86	88	75	82	73	83	76	90	**81**
23.1. The percentage of learners in schools that are funded at the minimum level. (Values from Table 26 of this report.)	81	41	84	77	85	94	79	68	82	**79**
23.2. The percentage of schools that have acquired the full set of financial management responsibilities on the basis of an assessment of their financial management capacity. (Values from Table 30 of this report.)	77	55	90	75	88	35	67	86	86	**76**
24. The percentage of schools complying with a very basic level of school infrastructure. (Values from Table 35 of this report.)	29	63	58	34	52	38	70	39	73	**46**
25. The percentage of children who enjoy a publicly funded school lunch every school day. (Values from Table 43 in this report.)	82	77	50	70	88	69	85	77	45	**70**
26. The percentage of learners in schools with at least one educator who received specialised training in the identification and support of special needs. (Values from Table 48 in this report.)	80	96	97	94	80	94	92	96	99	**91**