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IN THE EQUALITY COURT
(HIGH COURT, CAPE TOWN)

Case number: EC 03/2016
LRC

In the matter between:

SOCIAL JUSTICE COALITION

First Applicant

EQUAL EDUCATION

Second Applicant

and

MINISTER OF POLICE

First Respondent

NATIONAL COMMISSIONER OF POLICE

Second Respondent

WESTERN CAPE POLICE COMMISSIONER

Third Respondent

MINISTER FOR COMMUNITY SAFETY, WESTERN CAPE

Fourth Respondent

EXPERT AFFIDAVIT

I, the undersigned

JEAN FRANÇOISE REDPATH

state as follows under oath:

I INTRODUCTION

1. I am an adult female researcher currently employed as a researcher at the University of the Western Cape's Dullah Omar Institute (formerly Community Law Centre).

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2. I obtained a Bachelor of Science degree (majoring in Chemistry and Mathematics) in 1992 and a Bachelor of Laws degree in 1995 from the University of Cape Town. I was admitted as an attorney of the High Court in March 1998. I have worked as researcher in the criminal justice sector since September 1999. I have a particular interest in data analysis which informs public policy, and the majority of my work in the sector has been in this vein. I attach my curriculum vitae as annexure **JR1**.

3. The facts contained within this affidavit are, unless otherwise indicated, within my personal knowledge and to the best of my knowledge true and correct. I am qualified to provide expert opinion on the matters dealt with in this affidavit.

4. In this affidavit, I deal with the following issues:

- 4.1. My evidence before the Khayelitsha Commission;
- 4.2. The new analysis I have been requested to do by the Applicants; and
- 4.3. An analysis of some data concerning KwaZulu-Natal.

II KHAYELITSHA COMMISSION EVIDENCE

5. In this Part, I summarise my involvement in the Khayelitsha Commission as follows:

- 5.1. The reports I prepared;
- 5.2. The actual allocation of police resources by population;
- 5.3. The allocation of police resources by crime rate;
- 5.4. The Theoretical Determination; and
- 5.5. A proposed alternative method for allocating resources.

The Reports

6. I prepared two reports for the Khayelitsha Commission.
7. First, during the early months of the commencement of the Khayelitsha Commission I was asked by the Secretary of the Commission, along with a number of other research experts, to provide expert evidence on crime trends in Khayelitsha during the first round of evidence. I gave evidence in which I testified that the available data suggested that crime was significantly under-reported in Khayelitsha and that the three policing areas concerned demonstrated exceptionally high rates of murder, which in turn indicates a high level of actual violent crime. I attach a copy of that report as annexure **JR2**.
8. Second, during the course of the Commission evidence was heard that the three policing areas suffered from a lack of human resources which affected the ability of the police to carry out their mandate. The Commission wished to understand the extent to which this lack of human resources was a general problem pertinent to the whole country or province, or whether the problem was particular to the three Khayelitsha policing areas.
9. Accordingly the Secretary of the Commission obtained limited human resource data from the SAPS on a document labelled A3.39.1 which purported to show the "granted" SAPS Resource Allocation Guides (RAGS) for 2009-2011 in respect of personnel, vehicles and computers, for the police stations of Camps Bay, Durbanville, Grassy Park, Kensington, Mitchells Plain, Muizenberg, Nyanga, Philippi and Sea Point. This data was provided to me.
10. I was also provided with documents annexed to a letter from Major General Jephtha dated 13 May 2013 (Jephtha's letter). The document annexed to this letter purports to

show the total population in each policing area for all police stations in the Western Cape.

11. I should pause briefly to note difficulties in determining the precise population of each policing area. The total population in each policing area is calculated using Census 2011. Census 2011 publishes data for discrete areas known as "enumerator areas" and "small areas". By summing the population of each small area which is contained within the geographical borders of a policing area, the population of a policing area can be calculated.
12. Because the borders of Census enumerator and small areas do not always coincide exactly with the borders of policing areas there may be slight discrepancies between different analysts' estimates of population size in policing areas. This is because estimates must be made of how much of an enumerator areas population falls within a particular policing area whenever borders do not coincide exactly.
13. Consequently I sought to check whether the population estimates by the SAPS accorded with other estimates. I independently obtained estimated population numbers for the nine police stations indicated in paragraph 9 above as well as the populations of the three Khayelitsha policing areas, which were calculated using Census 2011 population figures.
14. I found these independent estimates to be very close to the SAPS estimates for these 9 areas save in the case of Lingeletu-West (20000 persons or 31% discrepancy) and Mitchells Plain (87000 persons or 44% discrepancy). It is unclear what accounts for the difference in these population estimates.
15. Subsequently the Secretary of the Commission obtained data on the number of operational personnel, the total population, and the "ratio" for all policing areas in the Western Cape, in a letter from Lt. Gen. Arno Lamoer on behalf of the Provincial

Commissioner, dated 22 October 2013. This letter was provided to me and I was asked to analyse the data for the Commission.

- 16. It was of some concern to me that in the data submitted in this letter, the final column in the data submitted was labelled "police personnel per population". It was clear however from the magnitude of the figures concerned that the column in fact indicated the population per police person. This suggests the ratio had been inverted. It is unclear whether the SAPS believed the inverted figures to be the correct figures, or whether this was an oversight in this letter alone.
- 17. Using the number of personnel for each policing area provided in the Lamoer letter and using independent population estimates for policing areas, I calculated the number of police personnel for every 100 000 of the population in each policing area of the Western Cape. This ratio (as opposed to simple police:population) is more widely used and I use it throughout. I attach a copy of the Report I prepared for the Commission as annexure **JR3**. I also attach my testimony when I testified to the Commission as **JR4**.

Allocation by Population

- 18. I ranked the resultant figures from "most" resourced to "least resourced", that is, from a high number of personnel per 100 000 people to a low number of personnel per 100 000, and also calculated the average number of police personnel per 100 000.
- 19. I found that the average was 283 police personnel per 100 000 of the population. The most resourced was 2636 per 100 000 in the policing area Table Bay Harbour, and the least resourced area 111 per 100 000 in Harare.
- 20. All three Khayelitsha policing areas demonstrated less than the average allocation, with Khayelitsha at 190 per 100 000 and Lingeletu-West at 275 per 100 000. In the

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case of Lingeletu-West, had I used SAPS population figures, an even lower ratio would have pertained.

21. Indeed I noticed that a number of areas which to my knowledge are similar to Khayelitsha in that they have large informal settlements and/or serious violent crime, also demonstrated figures which were much lower than the average. Indeed most areas with fewer than 200 police per 100 000 people appeared to be such areas. The 20 areas with fewer than 200 police per 100 000 were

- 21.1. Harare (111.32);
- 21.2. Lwandle (128.94);
- 21.3. Belhar (131.96);
- 21.4. Nyanga (143.82);
- 21.5. Ocean View (146.07);
- 21.6. Delft (149.58);
- 21.7. Cloetesville (152.37);
- 21.8. Kraaifontein (160.05);
- 21.9. Mfuleni (160.63);
- 21.10. Strandfontein (162.79);
- 21.11. Kleinvlei (171.86);
- 21.12. Gugulethu (172.55);
- 21.13. De Doorns (173.78);
- 21.14. Grassy Park (178.27);
- 21.15. Table View (190.21);
- 21.16. Khayelitsha (190.46);

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- 21.17. Muizenberg (193.25);
- 21.18. Paarl East (194.77);
- 21.19. Macassar (196.97); and
- 21.20. Prince Alfred Hamlet (197.43).

Allocation by Crime

- 22. I then sought to understand how SAPS arrives at these figures and whether there is a rational basis for these figures. As a starting point I calculated the number of police personnel per 100 reported crimes.
- 23. SAPS publishes on a yearly basis the number of crimes reported per policing area for 20 crimes. The crime categories reported on by SAPS are: murder; total sexual crimes; attempted murder; assault with the intent to inflict grievous bodily harm; common assault; common robbery; robbery with aggravating circumstances; arson; malicious damage to property; burglary at non-residential premises; burglary at residential premises; theft of motor vehicle and motorcycle; theft out of or from motor vehicle; stock-theft; illegal possession of firearms and ammunition; drug-related crime; driving under the influence of alcohol or drugs; all theft not mentioned elsewhere; commercial crime; shoplifting, culpable homicide; crimen injuria; neglect and ill-treatment of children; and kidnapping.
- 24. The number for each category can be summed to obtain a figure for total crime for each area. These can then be compared to the police personnel in the area.
- 25. When police personnel is calculated per 100 of the 20 crimes published by the SAPS, then the range is from 1.9 police officials per 100 reported crimes to 37 police per 100 reported crimes, with an average of 3.4 police per 100 crimes per year.

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26. The problem with a resource allocation approach based solely on total reported crime is that areas where there is significant under-reporting of crime, will then be under-resourced in respect of the true crime rate (as opposed to reported crime rate).
27. Furthermore areas already over-supplied with human resources will continue to be over-resourced as they are likely to have better reporting rates. In other words the skewed allocation leads to skewed reporting trends which in turn leads to further skewed allocations.
28. Indeed on the reported crime measure, many areas where it is known significant under-reporting occurs, on the per 100 total reported crime measure, emerge with more police per 100 reported crimes than average.
29. However some of the policing areas less-resourced than average on the per 100 000 population basis are still less resourced than average on the per 100 reported crimes basis. Thus reported crime and the phenomenon of under-reported crime does not explain all the anomalies in human resource allocation observed.
30. Reported crime is nevertheless a rational basis on which to base allocations in relation to one component of the SAPS, the detective service. This is because the SAPS detective service can only investigate crimes reported to it. The actual burden of work faced by police detectives is determined only by reported crimes. However in relation to other components of the SAPS, such as visible policing and crime intelligence, the total population and the actual violent crime rate are better guides to resource needs. This is because the burden of work faced by, for example, sector teams and crime prevention officials is not determined primarily by reports of crime but by the size of the population they are required to patrol and the actual level of violence and crime occurring within the population they are required to patrol. While the risk is there that better detective services through better resources could lead to

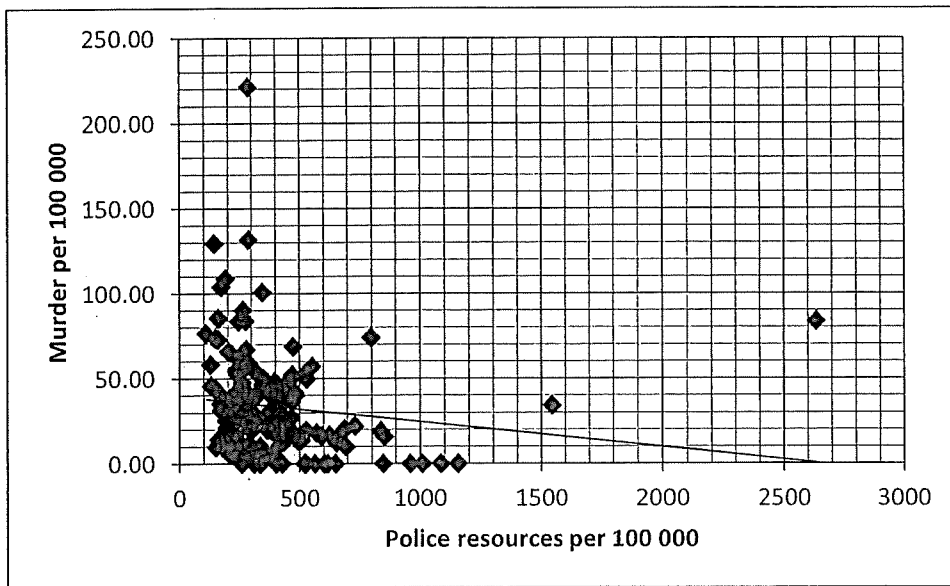
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better reporting, the formula must take account of the actual burden of detective work currently experienced.

- 31. One reported crime indicator which is not susceptible to reporting trends is murder. This is particularly robust indicator; checked against morgue data it does not appear to be suffering significant under-reporting: over 5 years the total variance is 1.7% for the Greater Khayelitsha area (comprising all three policing areas).
- 32. In areas where there are high reporting rates, murder tends to track serious violent crimes such aggravated robbery, and can be considered to be a proxy for such crimes and thus is frequently used as a proxy indicator for violent crime.
- 33. I initially therefore used the number of deaths by murder together with culpable homicide ("homicide") as proxy indicators of the actual violent crime rate in an area. Later I reverted to using murder alone as culpable homicide tends to refer only to motor-vehicle related incidents. However, because the trends tend to track each other (in other words when murder goes up so does culpable homicide), the analysis is not significantly altered with or without culpable homicide.
- 34. When the number of police personnel is calculated per murder, there is a high degree of similarity between the areas which are under-resourced on this measure, and those which are under-resourced on a per 100 000 people measure. The range is from 1 to 146 police personnel for each murder in an area (excluding those areas which reported no murders). In particular Nyanga, Harare, Guguletu, Khayelitsha and Mfuleni have two or fewer police persons per murder per year and occupy the bottom rungs of the rankings.rank from most to least resourced per murder homicide.

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Figure 1: Western Cape, murder rate and police resources



The Theoretical Determination

- 35. The detail of the SAPS resource allocation process was described in evidence at the Commission by Brigadier Leon Rabie, section head in the Performance Management Section of the SAPS Organisational Development located in Pretoria.
- 36. The SAPS allocation is based on a "theoretical" requirement, calculated on the total time taken for all tasks done at a particular police station, as affected by a range of factors. These factors, such as the presence of gangs or daily influx of commuters, are recorded on an "Input Management Sheet". The total time is converted into numbers of people and this number is called the Theoretical Human Resource Requirement (THRR). Summing the THRR for every police station gives the national requirement for police stations in terms of numbers and rank levels. This is the SAPS estimate of the ideal number of personnel required for the whole of South Africa.
- 37. Unfortunately the THRR number is larger than the budget permits. The total fixed establishment which the SAPS budget is able to afford amounts to around 200 000

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personnel for the SAPS in 2013/2014, which implies, Rabie testified, that on average only 68% of the calculated THRR is available for each police station.

38. The SAPS' head office divisions (both national and provincial) receive a significant proportion (41%) of the total fixed establishment. The remaining 59%, which is the actual allocation available to be distributed amongst police stations, amounted to only 117 524 posts at the time of the Commission.
39. Once the total budgeted numbers are approved, a distribution per police station is issued, which contains the number of posts, and the rank of those posts, per police station, is issued, which as indicated above typically allocates around 68% of the calculated THRR for each police station. This budgeted allocation was previously referred to as the Resource Allocation Guide (RAG).
40. Thus the "fixed establishment" or RAG eventually arrived at is not the same as the THRR as it only reflects the number of posts which could be established in terms of the SAPS budget and medium-term expenditure framework.
41. The legislation does permit the Provincial Commissioner of the SAPS to make adjustments within the provincial allocation, but it appears this is seldom done.
42. Apart from the problem of budget constraints resulting in the THRR being unachievable, the SAPS THRR in my view itself has a number of flaws. Some of these will be considered here, to demonstrate how an apparently rigorous method can result in absurdity.
43. The factors in the Input Management Sheet used to inform the THRR purport to relate to the burden of policing in one of the following ways: they affect the burden in terms of difficulty and extent of policing (e.g. number of square kilometres, presence of schools, daily influx of commuters, number of gangs), including the actual incidence of crime; they affect the burden of police interaction with the courts and

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with prisons (e.g. proximity of courts and prisons) or they affect the burden of internal police bureaucracy (e.g. accounting station, services offered, etc.).

- 44. The first problem is that is impossible to take note of all relevant factors which impinge on the burden of policing. Counting some variables, but not all, will result in incorrectly estimating the policing burden.
- 45. Second, different factors may amount to counting the same thing, resulting in double-counting of some factors. For example, presence of schools and influx of commuters are to some extent reflected in each other; taking account of them both may imply double-counting.
- 46. Third, even assuming one could take account of all relevant factors without double-counting, the approach is highly dependent on accurate information being supplied. Incorrect estimates can result in large distortions. Indeed SAPS itself told the Commission that station commanders make misrepresentations that are designed to influence resource allocation in submitted evidence. In other cases, the misrepresentation is simply a result of the absence of adequate, easily-accessible data.
- 47. Fourth, even assuming one could take into account all relevant factors without double-counting, the issue of the weight which should be ascribed to each factor comes into play. While the total formula was not provided in evidence, some of the factors and their weightings were described in the evidence. The hundreds of factors taken into account are combined together in a formula composed of these factors with particular weights ascribed to them. These weights seem to have been arrived at in an arbitrary manner and without basis in any evidence.
- 48. For example, in relation to the factor "number of shopping malls with more than 100 shops" a 5% weight is applied to the sector team and crime prevention component of

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policing whenever one or more such malls is present in the policing area. There is no explanation of why 5% loading is applied and not 2% or 12%. It is also not clear that malls, which frequently have their own security, necessarily increase the burden of sector policing in a uniform manner, divorced from their context and in comparison to alternative forms of shopping.

49. The above briefly alludes to a few of the ways in which the THRR may introduce error. Ultimately, however, the best test of the SAPS' method is common-sense. Does the method accurately and fairly distribute resources on the basis of the burden of policing?
50. The reality is that the allocations result in township areas, known for their difficulty of policing, almost all demonstrating massive downward adjustment from what would be suggested by the size of their population only. Indeed not only is it the case that the adjustment is downward, but it is such that township areas with amongst the highest rates of homicide in the country are among the least resourced per capita despite being amongst the most difficult to police.
51. Unless the SAPS can demonstrate that the burden of policing is indeed lowest in Harare, Lwandle, Belhar and Nyanga, the per 100 000 population figures suggests flaws in either one or all the factors considered, their weighting, or the input data.

Suggested Method for Allocation

52. The Commission asked me to suggest a rational method of resource allocation. The method suggested is by no means definitive and is merely a demonstration of a possible alternative.
53. The first change would be to begin with the number of available human resources in contrast to what is done at present. In other words, begin with the 117 524 posts

available for allocation to police stations. This leaves aside the issue of whether 41% of the close to 200 000 available posts should be allocated to divisions and provincial offices.

- 54. The starting point is the size of the population. This means areas with larger populations should have proportionally more resources. However we know that policing burden is not determined only by population size. The question then arises as to what is a fair method of adjusting per 100 000 figures to take into account differing burdens of policing for different components of policing.
- 55. The Annual Report of the SAPS typically distinguishes between the number of human resources allocated to Administration, Visible Policing, Detective Service, Crime Intelligence, Protection and Security. The Protection and Security Services component of policing appears not to be relevant to policing at station level as this service apparently serves only dignitaries. For the purposes of national figures and formula calculations, these are presumably then not included in the 117 524 available posts. (A separate issue for consideration is whether the amount spent on this component, and thus on dignitaries, is justified.)
- 56. Determining the actual burden of policing on Detective Services is relatively straightforward. This can be directly measured by the incidence of crime reported at the police station, as a detective's burden is directly determined by the amount of crime reported. Assuming that the Detective Service conducts only reactive investigations (and that crime intelligence is thus responsible for pro-active investigations) the incidence of reported crime, in particular, serious reported crime, should be the primary determinant of relative resourcing in relation to detective services. (There is evidence to suggest serious violent crime does not suffer from the same degree of under-reporting that less serious crime suffers.)

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- 57. By contrast, the work of Crime Intelligence should be directly related to the number of crimes, particularly serious violent crime, actually occurring in the area (actual incidence of crime), rather than reported crime. Crime Intelligence contributes to the neutralisation of crime by gathering, collating and analysing intelligence information which leads to actionable policing activity.
- 58. In the absence of any other indicator, the incidence of serious violent crime, should be indicated by proxy through the number of murders, and these should be the primary determinant of the relative resourcing of the crime intelligence component. Some areas, however, record no murders at all, even if averages over a number of years are used. In these areas, posts allocated to administration or management may need to take over this function.
- 59. Visible policing, however, should not only be about responding to crime, but about carrying out policing in a manner which prevents crime. Consequently it may be that visible policing functions carried out in currently relatively crime-free areas will cease to be crime-free areas if such resourcing is removed.
- 60. In other words, "the incidence of crime" should *not* replace "total population" as the determinant of allocation for visible policing, not least also because varying rates of reporting mean the actual incidence of crime is difficult to determine from area to area. For the same reason "reported crime" should not determine visible policing allocations.
- 61. This is even more so because "Visible Policing", in terms of the SAPS functions, does not predominantly involve "visible policing" as per a layperson's understanding. Visible policing has a range of functions many of which are to some degree office-based. Since demand for these additional functions is likely to be determined by population size, this further supports the argument that population size of the policing area should be the main determinant of the number of personnel allocated.

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- 62. Within the number allocated to visible policing, however, there should be room for individual police stations to tailor the command structure to meet unique needs. This could mean, for example, more people allocated to Sector Teams in Khayelitsha at the expense perhaps of fewer people for "General Enquires".
- 63. Consequently in relation to visible policing, it is recommended that the total population (the per capita measure) should remain the primary indicator of relative resourcing. This is particularly important as visible policing is the largest component of the SAPS.
- 64. There is an argument here that this is too conservative and that in fact the incidence of violent crime should be the primary determinant of visible policing. The counter-argument is that much violent crime, by contrast with the property crime, takes place in private spaces which are not affected by visible policing.
- 65. The primary indicator of the administrative burden should be the population of the area served; alternatively, the total size of the policing allocation already made.
- 66. When this suggested approach is applied, township areas occupy the middle band of resourcing. Allocation on this basis does not result in township areas occupying the bottom of the resource list on a per capita basis.
- 67. The reason township areas do not occupy the "most-resourced" slot at the top of the list is because of the relatively low rate of reported crime, compared to actual crime. However this can be justified on the basis that the detective service cannot investigate crimes not reported to it, and it is only the size of this component which is influenced by reported crime.
- 68. Most over-resourced on the proposed formula are those areas with high daytime populations, such as Cape Town and Wynberg. High daytime populations drive up the reporting of crime, and reported crime is a significant factor in this formula.

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Nevertheless their allocation would still need to reduce significantly in order to meet the proposed number, while Nyanga, for example, would need an additional 237 people on this formula.

69. In my view the pattern of unequal allocation of police resources between wealthy and poor suburbs inhabited predominantly by black people has not been adequately justified for rationality and fairness by SAPS. A method such as proposed above does justify adjustment away from allocations based on population alone. Obviously other methods may also pass this test.

70. The United Nations recommends a minimum of 220 police officers per 100 000 people. None of the three Khayelitsha areas meet this guideline. Indeed as many as 105 policing areas in KwaZulu-Natal do not meet this guideline and nor do 28 policing areas in the Western Cape. Using the proposed formula, all but five areas in the Western Cape meet the guideline.

71. Whatever method used to allocate human resources must be open and transparent, and subject to public comment and scrutiny.

72. Any allocations, which, when examined on a per 100 000 population basis reveal anomalies, must be *rationaly* explainable. In my view there is a pressing need to review the resource allocation process.

III KWAZULU-NATAL

73. Subsequently to the Commission the Natal Witness obtained data on the allocation of police resources in KwaZulu-Natal. I carried out a similar exercise with this data and found that 25 areas in this province had a range of police officials from only 57 per 100 000 to 105 per 100 000. Some 29 areas were less resourced than Harare.

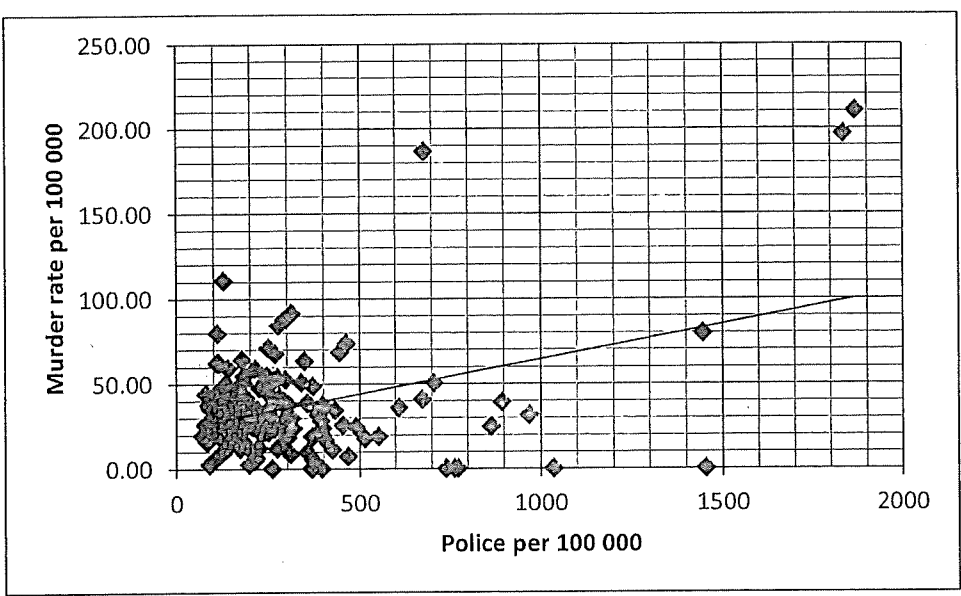
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Poorer Black areas, particularly rural areas, were amongst the least resourced. This suggests the problem of unequal resourcing is not confined to the Western Cape.

74. I attach as **Table 1**, a list of KwaZulu-Natal stations ranked according to police allocation.

75. KwaZulu-Natal did not however demonstrate the anomaly in respect of the murder rate. In this province as the murder rate increased so did the resourcing rate.

Figure 2: KwaZulu-Natal: Murder rate and police resources



76. That does not detract from the correlation between resourcing, poverty and race in KwaZulu-Natal. But it demonstrates that the Western Cape has the additional perverse correlation with increasing violent crime.

IV FURTHER EVIDENCE

77. I have been asked by the Applicants' legal representatives to consider certain further questions that I did not consider in my reports to the Commission. I was informed that the reason for this additional analysis was that the present application does not

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focus only on Khayelitsha, but on the Western Cape as a whole. The Applicants wanted to know whether there was a correlation between crime rates, race, poverty, and police allocations.

78. Accordingly, I considered the following additional issues:

78.1. The relationship between the theoretical determination and the actual allocation of police resources;

78.2. An analysis that measures the correlation between crime figures and the allocation of resources; and

78.3. A measurement of the relationship between racial composition and indicators of poverty, and the allocation of resources.

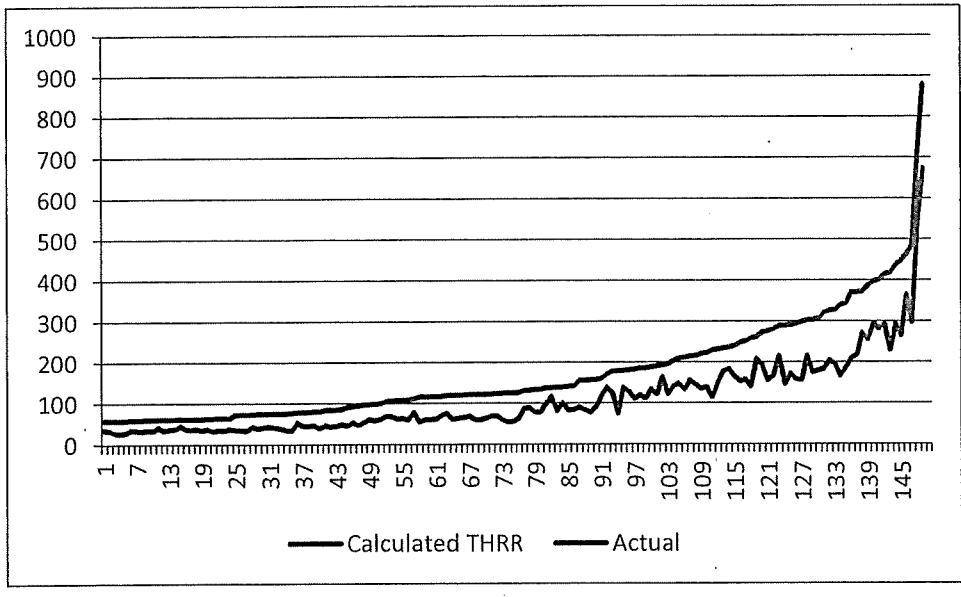
Comparison of THRR to actual for the Western Cape

79. The Applicants provided me with the THRR data for 2012/2013 – that is the theoretical determination of how many resources were needed in each police station. I compared that data to the actual figures on police human resourcing provided by Lamoer during the Khayelitsha Commission. I attach a table of the police stations ranked according to the THRR allocation as **Table 2**.

80. The analysis revealed that the actual figures ranged from 45% of the calculated THRR figures (in respect of the police precinct Elands Bay) to 77% of the calculated THRR figures (for Mitchell's Plain). While 16 237 were actually allocated, the THRR would require 26 035 police personnel. This suggests that the average allocation in the Western Cape is 62% of THRR figures (Rabie indicated a figure for South Africa as a whole of 68% in his testimony at the Commission).

81. But the discrepancy between THRR figures and actual figures is not consistent. Indeed the areas most prejudiced comparing THRR to actual (with less than 50% of THRR) appear to be small rural towns. Areas such as Khayelitsha are less prejudiced on the actual figures than they would be if the THRR figures were applied (Khayelitsha received 74% of THRR, Harare 70% of THRR). The difference between actual and calculated THRR numbers is illustrated below. The graphic shows that the THRR broadly guides the allocation of human resources but there is some deviation, always downward, and ranging from 45% to 77% of the THRR.

Figure 3: Calculated THRR and Actual Allocation



82. However, when we consider the police:100 000 people ratios for THRR and actual allocations, the discrimination against townships described above persists, despite the fact that these areas tend to receive a higher proportion of the THRR. The actual figures per 100 000 for the Western Cape ranges from Harare 111 to 2636 in Table

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Bay, with a median of 317 per 100 000. The 10 police precincts with the lowest actual allocation are predominantly black township areas and are listed below.

- 82.1. Harare;
- 82.2. Lwandle;
- 82.3. Belhar;
- 82.4. Nyanga;
- 82.5. Ocean View;
- 82.6. Delft;
- 82.7. Cloeteville;
- 82.8. Kraaifontein;
- 82.9. Mfuleni; and
- 82.10. Strandfontein.

83. In comparison, THRR figures per 100 000 persons range from 158 for Harare to 5230 for Table Bay, with a median (middle figure) of 566 (Pinelands). The 10 police precincts with the lowest THRR allocation are slightly different from the actual figures, but they remain predominantly black and township areas:

- 83.1. Harare;
- 83.2. Nyanga;
- 83.3. Paarl East;
- 83.4. Gugulethu;
- 83.5. Lwandle;
- 83.6. Khayelitsha;
- 83.7. Cloeteville;

- 83.8. Kraaifontein;
- 83.9. Delft; and
- 83.10. Ocean View.
84. I attach as Table 1, the list of police stations ordered from the highest police:100 000 people to the lowest.
85. The THRR figures, which guide the allocation of resources across the country, appear to prejudice township areas to an even greater extent than do actual figures and still leave black township areas at the bottom of the allocation of resources.

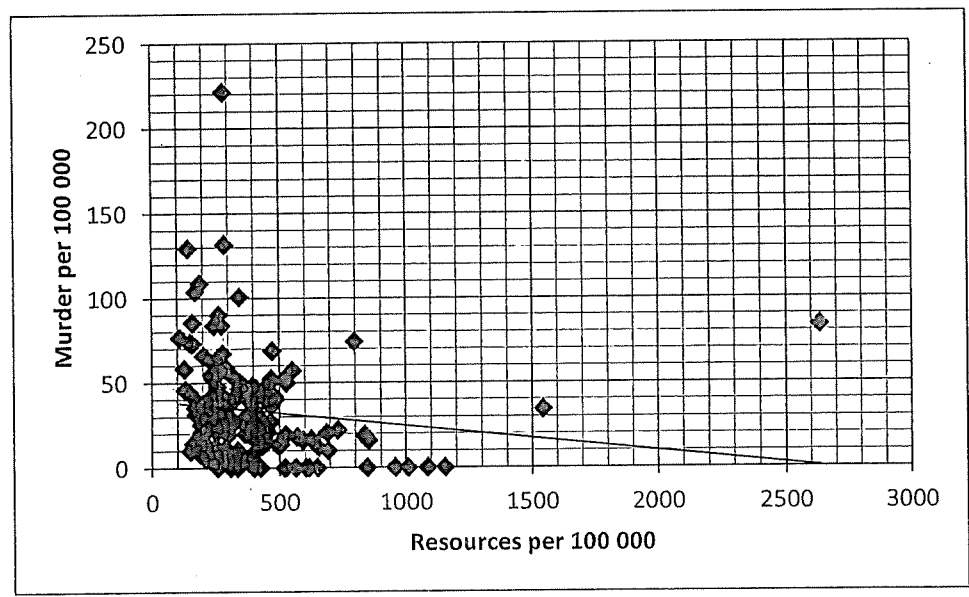
Analysis by crime figures

86. The following stations have the highest total number of murders in the Western Cape:
- 86.1. Nyanga (262);
- 86.2. Khayelitsha (168);
- 86.3. Harare (132);
- 86.4. Kraaifontein (121).
- 86.5. Gugulethu (129);
- 86.6. Delft (113); and
- 86.7. Mfuleni (99).
87. These stations not only have the highest number of total murders, they are also all in the 15 stations with the highest rates of murder by population. I attach as **Table 3** and **Table 4**, the ranked list of all the Western Cape police stations by both murder rates and total number of murders.
88. These seven stations are also some of the least resourced stations in the Western Cape, according to both the theoretical and the actual allocation.

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89. Indeed the relationship between the murder rate and police resourcing rate is statistically significant and negative, that is, as the police resources increase the rate of murder decreases. However the variables are not good predictors of each other. We can however infer that resources are not prioritised in terms of the murder rate, which is the best available indicator of the rate of violent crime.

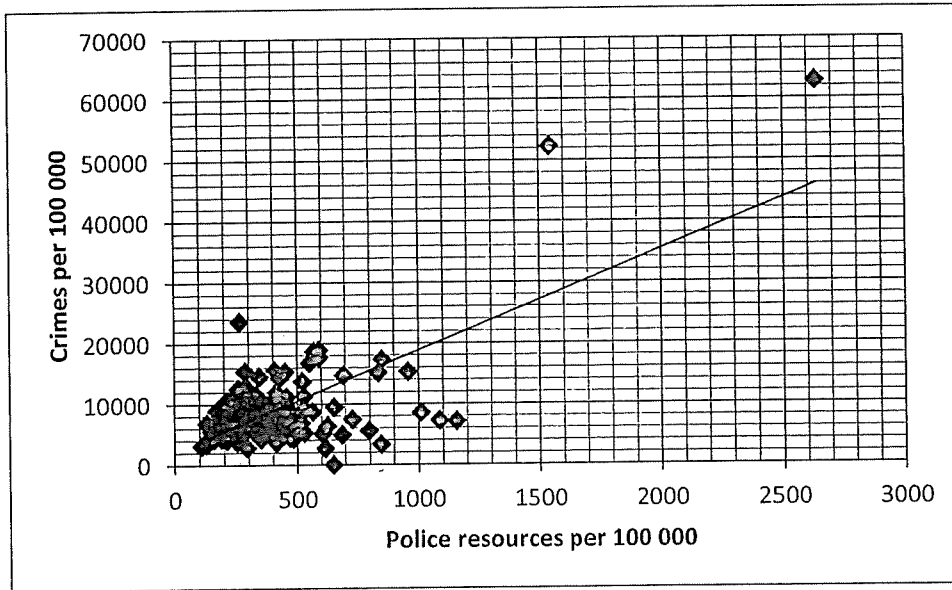
Figure 4: Western Cape: Murder rate and police resources



90. By contrast the total reported crime rate has statistically significant and positive relationship with resources. But for the reasons discussed at the Commission reporting rates are higher in formal areas which have better resources thus using total reported crime as a yardstick tends to reinforce the existing trends – i.e. better policing raises reported crime. As indicated in the discussion above on the proposed formula, reported crime is not a suitable primary indicator of the burden of policing in general. The burden is primarily influenced by population size and the actual level of crime present.

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Figure 5: Western Cape: Serious crimes and police resources



Analysis by service delivery variables

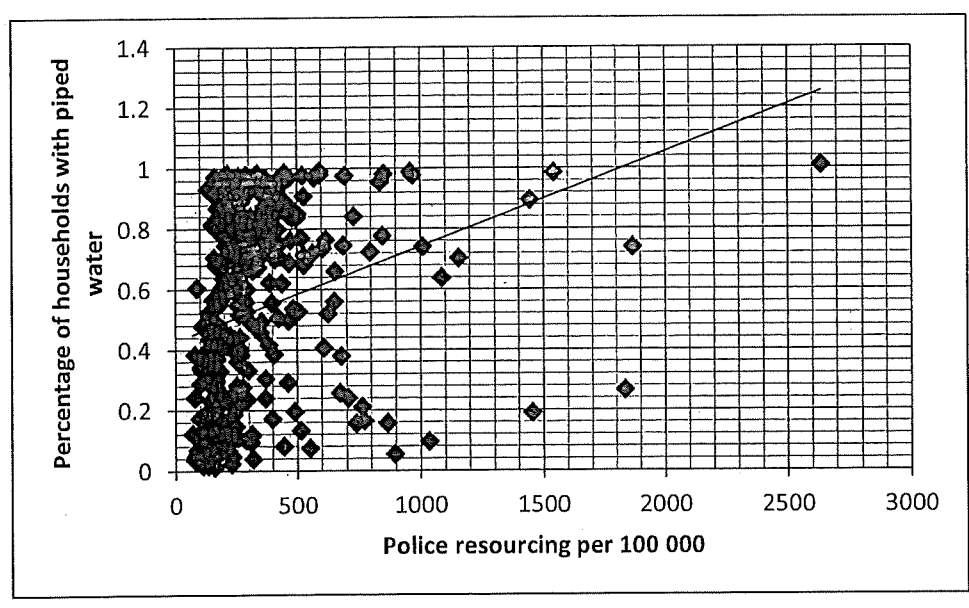
- 91. I was asked to compare police allocation to indicators of poverty and informal housing.
- 92. I did this by combining the data on actual numbers obtained for the Western Cape and KwaZulu-Natal, one can create a dataset comprising 333 police stations, which amounts to 29% of the police stations in the country.
- 93. Unfortunately data relating to housing and the racial composition of the population is available only at ward level. The boundaries relating to wards cannot be adequately mapped to the boundaries of police precincts for the purpose of analysis of the allocation of police resources by police precinct.
- 94. However, census data which is available at enumerator area level, such as that relating to total population and service provision, can be mapped adequately to police precincts. Service provision levels may be considered to be a proxy indicator for the level of formal housing. Areas with a high percentage of electricity availability per

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household and piped water per household are expected to have a high percentage of formal housing. Informal housing or rural housing is in turn indicated by lower levels of electricity and water provision.

- 95. In South Africa it is also the case that poorer black people tend to live in areas where informal settlements are more prevalent. The service provision levels are therefore also a reliable indicator of the racial demographics of an area – the lower the levels of service provision, the higher the percentage of Black residents.
- 96. When comparing the trends relating to provision of police resources per 100 000 population to levels of service provision (percentage piped water and electricity) there is a statistically significant relationship between the variables. The p-value associated with the observed correlations is close to zero i.e. there is a close to 100% probability that there is a relationship between the variables.
- 97. Thus the data shows that lower levels of service provision are associated with lower levels of police resourcing in this dataset. This is demonstrated in the scatter plot below.

Figure 6: Western Cape and KwaZulu-Natal: water provision and police resources



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98. This association can also be demonstrated by comparing average service provision levels in each quintile of police resourcing.

98.1. The bottom 20% of police stations (in terms of police per 100 000) with 152 or fewer police persons per 100 000 have on average only 121 police persons per 100 000. The average piped water provision to these police precincts, expressed as a percentage of households with piped water, is only 22%, with electricity at 67%.

98.2. The next 20% of police stations with between 152 and 223 police persons per 100 000 have on average 184 police persons per 100 000. The average piped water provision to these police precincts, expressed as a percentage of households with piped water, increases to 48%, with electricity at 78%.

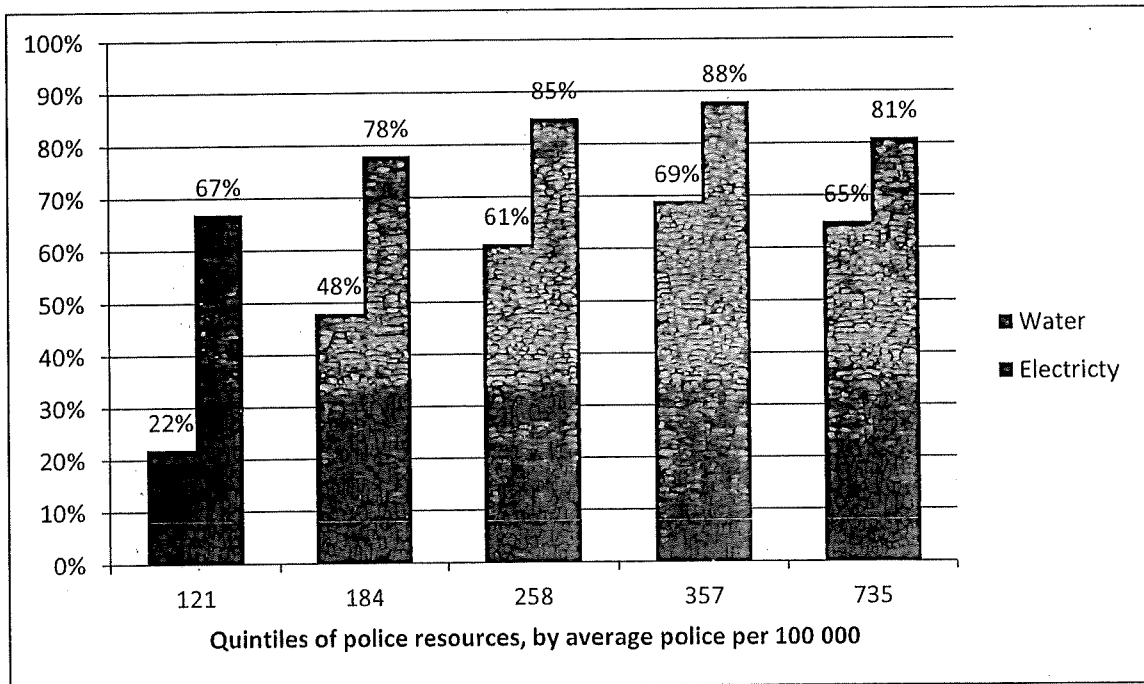
98.3. The next 20% of police stations with between 226 and 291 police persons per 100 000 have on average 258 police persons per 100 000. The average piped water provision to these police stations, expressed as a percentage of households with piped water, increases to 61%, with electricity at 85%.

98.4. The next 20% of police stations with between 293 and 427 police persons per 100 000 have on average 357 police persons per 100 000. The average piped water provision to these police stations, expressed as a percentage of households with piped water, increases to 69%, with electricity at 88%.

98.5. The top 20% of police stations with between 428 and 2636 police persons per 100 000, have on average 735 police persons per 100 000. The average piped water provision to these police stations, expressed as a percentage of households with piped water, is 65%, with electricity at 81%.

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Figure 7: Western Cape and KwaZulu-Natal: Percentage of households with piped water and electricity, by average police resources per 100 000



99. This last "top" category tends to comprise two types of precincts – city centres such as Pietermaritzburg and Cape Town with large numbers of police officers combined with small residential populations but high daytime traffic, as well as very small rural areas with small numbers of police offices and small populations, such as Normandien and Evatt, yet with a high per 100 000 figures. The vastly differing and competing characteristics of these two types of areas accounts for the slight change in trend relating to service provision for the top quintile. The overall trend is clear – higher levels of water and electricity service provision are associated with higher levels of police resourcing.

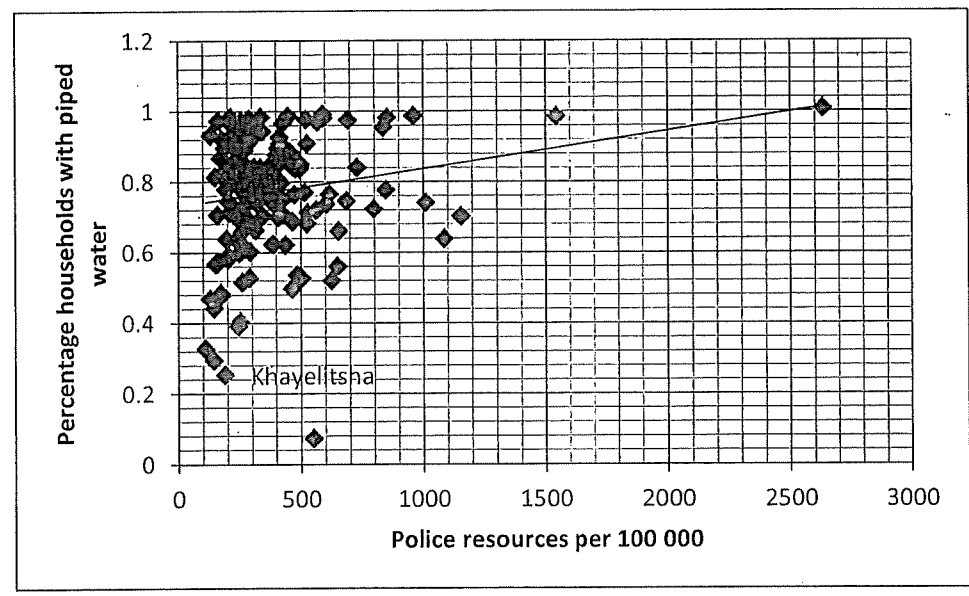
100. Thus lower levels of service provision in water and electricity are associated with lower levels of police resourcing in this dataset. From this can be inferred that informal or rural housing is associated with lower levels of police resourcing and in turn that areas with larger percentages of black people are associated with lower

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levels of police resourcing. (Similar strong correlations were present in relation to refuse removal and toilets in the home.)

101. The Western Cape has fewer deep rural areas than KwaZulu-Natal and thus generally higher levels of service provision. Nevertheless confining the analysis to the Western Cape still reveals a statistically significant relationship between lower levels of police resourcing and lower levels of service provision in piped water. This is illustrated in the scatter plot below of the Western Cape.

Figure 8: Western Cape: Piped water and police resources



102. This association can also be demonstrated by comparing average service provision levels in each quintile of police resourcing.

102.1. The bottom 20% with an average of 182 police per 100 000 has an average piped water percentage of 71%.

102.2. The next quintile with an average of 257 police per 100 000 has an average piped water percentage of 76%.

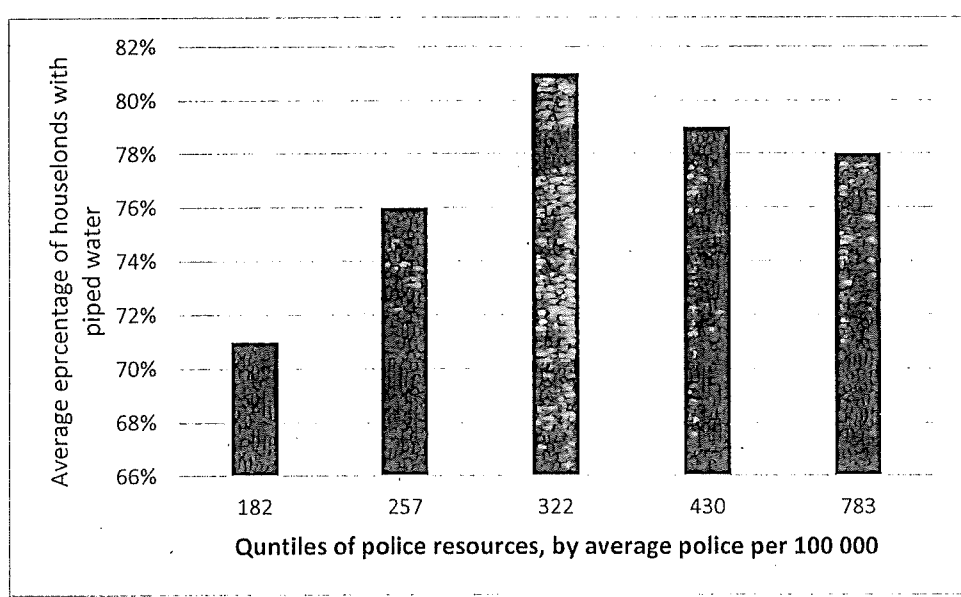
102.3. The next quintile with an average of 322 police per 100 000 has an average piped water percentage of 81%

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102.4. The next quintile with an average of 430 police per 100 000 has an average piped water percentage of 79%.

102.5. The top quintile with an average of 783 police per 100 000 has an average piped water percentage of 78%.

Figure 9: Western Cape: Police Allocation Quintiles and Piped Water



103. The top two quintiles demonstrate the competing trends observed in the larger dataset.

104. The data for the Western Cape can also be demonstrated in the other direction:

104.1. Looking at the bottom quintile of piped water provision, which has an average of 51% of households with piped water, their average police resourcing is 316 per 100 000.

104.2. In the next quintile which has an average of 72% of households with piped water, the average police resourcing is 457 per 100 000.

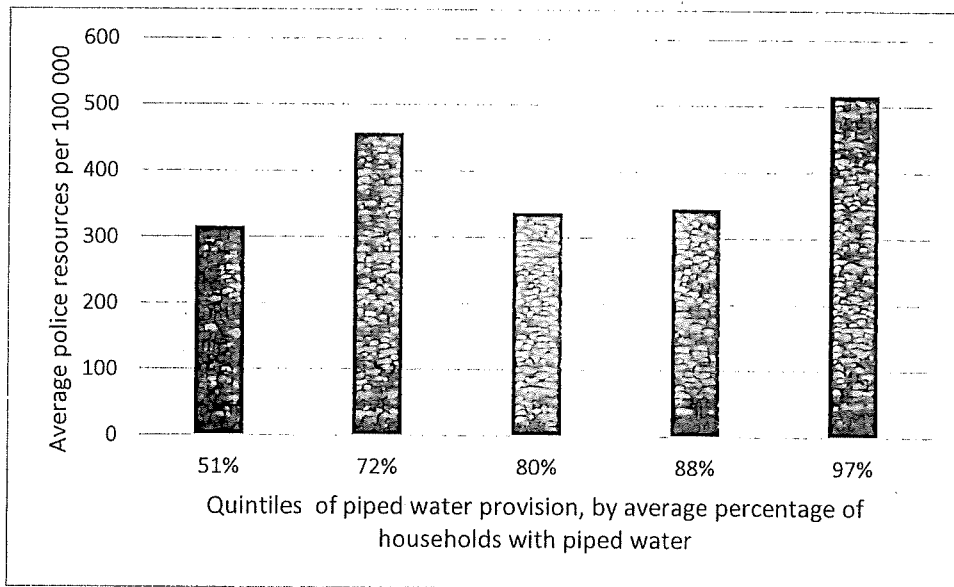
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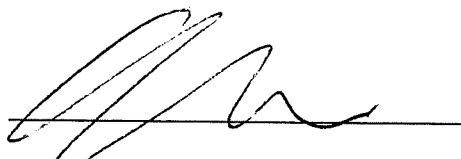
104.3. In the next quintile which has an average of 80% of households with piped water, the average police resourcing is 338 per 100 000

104.4. In the next quintile which has an average of 88% of households with piped water, the average police resourcing is 345 and

104.5. This compares to the top quintile with an average of 97% of households with piped water, which has an average police resourcing of 517 per 100 000.

Figure 10: Western Cape Piped Water Quintiles and Police Allocation




JEAN FRANÇOISE REDPATH

THUS SIGNED AND SWORN TO at CAPE TOWN on this 31st day of MARCH 2016 the deponent having acknowledged that the deponent knows and understands the contents of this affidavit, that the deponent has no objection to taking the prescribed oath, that the oath which the deponent has taken in respect thereof is binding on the deponent's conscience, and that the contents of this affidavit are both true and correct.



COMMISSIONER OF OATHS

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