Economic and Implementation Evaluation of the Incremental Investment in Forensic Services

planning, monitoring & evaluation

Department:
Planning, Monitoring & Evaluation
REPUBLIC OF SOUTH AFRICA

2030 NDP

Policy summary

The South African Police Services (SAPS) and Department of Planning, Monitoring and Evaluation (DPME) have commissioned an evaluation of the Incremental Investment in Forensic Services (IIFS). Through the IIFS, the SAPS received an additional R6.2 billion in funding between 2009/10 and 2014/15. This funding was made available to recruit forensic personnel, train existing staff, purchase specialised equipment, modernise systems, and fund the operations of the Division: Forensic Services.

The IIFS is one of the interventions under the Seven-Point Plan approved by Cabinet in 2007. The Seven-Point Plan seeks to build capacity in the Criminal Justice System (CJS) to tackle the high levels of crime in South Africa. Forensic Services was chosen as the focal point for the additional funding because it influences the effectiveness of subsequent investigations, prosecutions, and judicial proceedings within the CJS. The main findings from this evaluation are as follows:

- Although crime levels have declined from their peaks in the mid-2000s, they remain unacceptably high. In 2014/15, the crime rate per 100 000 population stood at 4 086. Crime in South Africa is also particularly violent, with the country ranking among the ten countries with the highest homicide rates in the world.

- At the time of the Seven-Point Plan, there were critical shortages in the capacity of SAPS to attend crime scenes and collect forensic evidence. Furthermore, SAPS' limited capacity to analyse forensic evidence and produce timely criminal records inhibited investigations, delayed court proceedings, and hampered sentencing.

- The IIFS has addressed many of these operational constraints. The additional funding allocated through the IIFS has allowed SAPS to expand the reach of crime scene services, and improve crime scene attendance and the quality of crime scene evidence. It has also improved the availability, timeliness and quality of forensic analysis.

- As a result of the IIFS, there has been a considerable improvement in the efficiency of forensic services. Turnaround times have improved, and backlogged cases have almost been eradicated. Prosecutors also report substantial improvements in the quality of forensic evidence submitted to courts.
- Although many of these improvements are commendable, various problems and challenges have plagued the implementation of the IIFS. Weaknesses in supply chain management have delayed implementation and led to frequent stock-outs. There are also questions around whether the IIFS achieved value for money in regard to the R5.3 billion spent on goods and services between 2009/10 and 2014/15.
- The evaluation also reveals that the IIFS was not well planned and monitored. Plans focused mostly on activities, with little attention given to the detailed measurement of outcomes and impacts. Moreover, the Division: Forensic Services changed its targets and target definitions three times over the five-year period. These frequent changes not only make it harder to explain the performance of the Division, but also create uncertainty for programme managers who must strive to achieve these targets.
- Nevertheless, there are early indications that the IIFS is having a positive impact on the CJS. Across a sample of 11 crime types, the evaluation finds that the use of forensic evidence has increased in almost all crime categories. Furthermore, the evidence suggests that prosecutors are more likely to bring charges in cases where forensic evidence is present.
- Crucially, the analysis shows that the percentage of cases with forensic evidence resulting in a guilty verdict has increased. This is especially so in respect of priority crimes such as murder and rape and suggests that forensic evidence now play a major role in securing justice outcomes.

In general, the IIFS has made real progress towards improving the efficiency and effectiveness of forensic services. That said, improvements in a few areas would greatly enhance the performance and delivery of the IIFS, and hence the main recommendations from this evaluation are as follows:

R.1 The SAPS and DOJ&CD must coordinate their planning and strengthen their monitoring systems to realise the benefits of the IIFS.

R.2 The SAPS must improve its financial management processes and supply chain management practices to achieve better value for money.

R.3 Although the IIFS has made a major contribution to the performance of forensic services, the SAPS should consider providing additional funding to sustain these gains and cope with the increasing demand for forensic services.

R.4 The SAPS and the SITA must work together to integrate information technology systems necessary for the forensic services programme to operate efficiently.

R.5 The SAPS must take steps to build skills, competencies, and capacity among forensic personnel, and to improve staff welfare and morale.

R.6 The SAPS must train Visible Policing and detective services to secure crime scenes and safeguard forensic evidence. Visible Policing must monitor the implementation of crime scene procedures and national instructions.

R.7 The NPA and SAPS must interrogate the high levels of withdrawn charges in cases where forensics is present, and develop plans to reverse this trend where appropriate.

Executive summary

1. Introduction and background

By international standards, crimes levels in South Africa are unacceptably high and particularly violent. South Africa has among the highest homicide rates in the world. Although crime levels have declined since their peak in the mid-2000s, most households surveyed were of the view that crime has increased in their neighbourhoods. Whereas crime levels have dropped, the nature of the offences is also changing. Drug crime is on the rise, and sophisticated syndicates with the resources to evade detection run trio crimes, which include car hijacking, business, and house robberies.

In 2006, concerned with the high levels of crime, the government and big business established a working group to review the Criminal Justice System (CJS). The CJS review found that the CJS was characterised by marked dysfunction, fragmentation, blockages and obstacles. Systemic problems such as a lack of accountability, coordination, misallocation of resources and weak performance management hindered the functioning of the system. Personnel shortages in key areas such as forensic services and detection exacerbated the problems faced by the CJS. Finally, efforts to arrest and prosecute perpetrators were hindered by the lack of an enabling legislative framework that would allow the police to use fingerprints and DNA to detect offenders.

Background to the intervention

In 2007, Cabinet adopted the Seven-Point Plan. This plan outlines several reforms that can improve the efficiency of the CJS and address the blockages that prevent the system from "combating crime and reversing the unacceptable crime trends in South Africa". Interventions contained in the Seven-Point Plan cut across three main government departments: the South African Police Services (SAPS), the Department of Justice and Constitutional Development (DOJ&CD) and the Department of Correctional Services (DCS).

Although it was adopted in 2007, the Seven-Point Plan remains relevant and underpins the interventions set out in the Medium-Term Strategy Framework. It also contributes to Outcome 3, which aspires to a country where "all people in South Africa are and feel safe" by creating a CJS that can deliver justice for citizens.

Background to the evaluation

To support the implementation of the Seven-Point Plan, the National Treasury earmarked funding for SAPS, a significant proportion of which was received by the Division: Forensic Services. This supplemental funding became known as the "Incremental Investment in Forensic Services" (IIFS).

Between 2009/10 and 2014/15, about R6.2 billion of additional funding was allocated and spent on forensic services. Of this amount, about R2.9 billion was for technology upgrades, automation and equipment. Another R2.4 billion was spent on building capacity in the criminal records and crime scene management, forensic science laboratories, and quality management functions. The Division: Forensic Services also received R868.9 million to recruit additional forensic analysts, crime scene examiners, and other forensic personnel.

2. Purpose of the evaluation

This evaluation assesses the extent to which the IIFS has built capacity within the forensic services programme, and whether these changes have resulted in meaningful improvements in performance within the CJS. The Terms of Reference set out the following Key Evaluation Questions (KEQ):

1. To what extent are the intended benefits of the incremental annual investment into the SAPS Forensic Services achieved?
2. Overall, how cost-effective is the incremental annual investment into the SAPS Forensic Services?
3. What is working, and what is not working, in terms of the additional investment into the SAPS Forensic Services? Specifically, what are the operational constraints and challenges during implementation of the intervention (such IT, HR, procurement, etc.?)
4. How can the effectiveness of the incremental investment in SAPS Forensic Services be improved, and what are the implications for the design of the intervention?

This evaluation covers the period from 2009/10 to 2014/15, and examines the effects of the IIFS across four provinces: Gauteng, Eastern Cape, Western Cape and Limpopo. These provinces were selected for this evaluation as they benefited from a significant proportion of the IIFS.

3. Methodology

This economic evaluation of the IIFS combines two evaluation methods: **an implementation evaluation** and **a cost-benefit analysis**. In general, an implementation evaluation examines whether an intervention has been implemented as planned, and identifies what aspects of the programme are working more or less well. The findings and recommendations from an implementation evaluation can strengthen the design of a programme, its efficiency, and its overall effectiveness. In contrast, the cost-benefit analysis examines the resources and costs used by a programme and compares them to its benefits. It is important to note that although the intention of the evaluation team was to do a full cost-benefit analysis, the lack of detailed and granular expenditure, performance and administrative data made this impossible. Instead, the evaluation team opted for a practical approach in the form of a "soft" cost-benefit analysis. This approach examines what the funding was spent on and tracks the benefits of the IIFS across the CJS value chain. The evaluation uses a combination of tools and instruments (including semi-structured interviews and surveys) to gather data . For the cost-benefit analysis, the evaluation team combined and analysed the CAS, CRIM and FSL databases across 11 crime categories.

Documentary and literature review

Empirical evidence shows that forensic evidence plays a significant and growing role in resolving criminal cases. In 1963, scientific evidence was utilised in only 1% of crimes; in contrast, almost all cases in some crime categories now see some form of forensic analysis. Evidence from the United States shows that forensic evidence on ballistics, material traces, biological and latent prints collected in 97% of homicides played a significant role in obtaining a conviction at trial, after witness testimony in non-stranger homicides. In the United Kingdom, the DNA Database has improved the ability of police services to investigate and resolve

crimes. The amount and types of evidence collected are linked to the kind of crime committed. Peterson et al. (2010) reveal that evidence is more likely to be gathered and analysed for serious offences such as murder and rape compared to less severe crimes. When compared to the United Kingdom, the United States, Australia, and Botswana, the South African forensics programme, subject to the new amendments brought about by the Fingerprint Act and DNA Act, is reasonably similar to comparator countries. The key difference appears to be around the extent of decentralisation. In the United States and Australia, crime scene examiners send forensic evidence to state and local forensic science laboratories. It is only where sophisticated or advanced analysis is required that evidence is sent to central or federal laboratories for analysis.

4. Key evaluation findings

The findings of this study are organised in terms of the following five evaluative criteria: relevance, effectiveness, efficiency, sustainability, and emerging impact.

Relevance

When evaluating the relevance of the programme, it is important to assess whether its objectives are consistent with the requirements of the country, needs of the beneficiaries and policy priorities. South Africa has among the highest crime levels in the world. Against this background, the government recognised the pressing need to build capacity within law

enforcement authorities. The SAPS is at the forefront of crime-fighting efforts, and at the time of the CJS review in 2007, it was apparent that SAPS lacked the capacity to detect and investigate the high volume of crimes committed against citizens.

Forensic services were seen as one of the major bottlenecks in the system, as a result of which many crimes went undetected and un-investigated. Thus, the timing and emphasis of the IIFS was particularly relevant at the time and remains so. By accelerating investment in the upstream parts of the CJS value chain that are severely under-capacitated, the IIFS improves the police services' ability to detect crime. The downstream parts of the CJS, that is, the prosecution authorities and courts, benefit from better-quality and more reliable forensic evidence, which they use to bring charges against perpetrators, pass judgement and determine sentences.

While the rationale and need for the IIFS are clear, a key question is whether the design of the programme would achieve the policy objectives set out in the Seven-Point Plan. Overall, the evaluation finds that the design of the IIFS was logical and reasonably clear, although the theory of change was not complete. The design of the IIFS focuses on forensic activities across the different disciplines. Its emphasis on activities is appropriate, as the production of forensic evidence is very much an activity-driven function.

That being said, the link between the outputs produced by the IIFS and the outcomes intended by the Seven-Point Plan are not well articulated. Part of the problem is that the Seven-Point Plan did not set measurable targets for the outcomes. Furthermore, as the design of the IIFS was left up to SAPS, with little input from other role-players in the CJS, less consideration was given to how forensic services would benefit the downstream parts of the CJS.

Effectiveness

The objectives set out in the Seven-Point Plan are the yardsticks against which this study evaluates the effectiveness of the IIFS. The Seven-Point Plan essentially focused on two components of forensic services: criminal records and crime scene management, and forensic science laboratories. In relation to **Criminal Records and Crime Scene Management (CRCSM)**, the main challenges at the time of the CJS review were that:

- there were simply not enough crime scene examiners to attend to all crime scenes;
- the reliability of crime scene evidence was called into question in courts; and
- criminal records were not available when required by detectives, prosecutors and the courts.

Since then, the IIFS has made inroads in addressing some of these challenges. Increased personnel, equipment, and service points have expanded the reach of crime scene services and improved crime scene attendance. Between 2011/12 and 2014/15, the number of crime scene examiners grew from 759 to 1026. Of the four provinces selected for this evaluation, Limpopo experienced the highest increase in the number of crime scene examiners as part of SAPS' broader efforts to expand services to rural areas.

While the percentage of crime scenes attended rose from 52% in 2012/13 to 90% in 2014/15, this increase is mainly due to the changes in the policy on crime scene attendance. In 2014/15, the Division: Forensic Services removed certain offences such as shoplifting, common robbery, and malicious damage to property from the list of prescribed crimes that crime scene examiners had to attend. The effect of this change in policy is to reduce the time spent on collecting evidence from high-volume and low-value crime scenes and refocus the efforts of crime scene examiners on priority crime scenes.

Over the same period, the number of crime scene examiners certified as fingerprint experts declined by 0.6% across all provinces. The Western Cape has lost the most fingerprint experts, experiencing a decrease of 6.9% (31), followed by Gauteng with a decrease of 4.8% (19). The decline in fingerprint examiners merits concern, as their expert testimony in court raises the value of forensic evidence in judicial proceedings. The IIFS has also led to considerable improvements in the volume and quality of crime scene evidence collected. Crime scene examiners report that they collect about 18% more DNA evidence from crime scenes when

compared to the period before the IIFS started. Similarly, the turnaround time and availability of criminal records has improved considerably. By the end of 2014/15, 93% of all criminal records were generated within 15 days. Having up-to-date criminal records provides judges with the information they need to make the right bail and sentencing decisions.

Despite this overall improvement in crime scene management, there are still not enough crime scene examiners to cope with the volume of crimes committed. Crime scene examiners are overextended, and ration the amount of time they spend at crime scenes. Currently, crime scene examiners spend between 45 and 90 minutes at each crime scene, compared to an international norm of four hours. This trend is particularly worrying when it comes to priority crimes such a murder and rape, where a hastily processed crime scene can affect the quality and reliability of crime scene evidence.

With regard to the **Forensic Science Laboratories (FSL)**, the CJS review found that:

- laboratories were ill-equipped and used obsolete technology;
- there were not enough analysts to perform the forensic analysis; and
- certain types of analysis such as DNA analysis were carried out only on request from prosecutors.

To overcome these challenges, the Division: Forensic Services has used the IIFS to invest in recruiting additional staff, and in modernising the technology and equipment in laboratories. The scale of the investment in technology, equipment and systems is significant. About R2.4 billion of the IIFS was allocated and spent on the FSLs. Of this, the biology section received about 65% (R1.6 billion) followed by ballistics with 17% of the total. The biology section received the largest share of IIFS within the FSL to help it to prepare for the implementation of the “DNA Act”. This piece of legislation empowers SAPS to collect, use and store biological samples. In other words, it creates the legal basis to collect, analyse and profile DNA.

Internationally, the use of DNA evidence by law enforcement agencies has risen rapidly. The Division: Forensic Services has followed this trend, and since 2012 has made it compulsory for the FSLs to test and profile all biological samples collected. This decision has increased the number of entries received for DNA analysis from 54 042 in 2009/10 to 107 200 in 2014/15. Hence, it appears that the IIFS has enabled the Division: Forensic Services to expand its capacity for DNA analysis.

The increase in DNA analysis has knock-on effects on the National Forensic DNA Database (NFDD). Between 2009/10 and 2014/15, the number of profiles loaded onto the NFDD rose from 207 190 to 514 859. Over this period, the NFDD has generated leads and had some early successes in detecting repeat and serial offenders.

In light of the high levels of firearm-related crime in South Africa, a key focus of the IIFS was on developing the FSLs’ capabilities for ballistic analysis. Before the IIFS, the technology used for ballistics analysis was outdated. By upgrading the Integrated Ballistics Identification System (IBIS), the IIFS has raised the identification rate from 2.4% in 2011/12 to 6.6% in 2014/15.

In relation to chemical analysis, the IIFS was well timed. Between 2009/10 and 2014/15, the volume of drug-related crime in South Africa increased by 2.5 times. Using the IIFS, the chemistry section has recruited additional personnel, and purchased additional equipment and consumables. Without the additional funding made available through the IIFS, the chemistry section would not have coped with the increasing volume of drug exhibits.

These improvements in forensic analysis have begun to benefit other parts of the CJS system. Among the prosecutors surveyed, the majority are pleased with the quality and timeliness of forensic evidence. About 73% of prosecutors said that there had been improvements in the efficiency with which exhibits are analysed in the FSL. Another 63% of respondents stated that the quality of forensic analysis has improved. When asked about the quality of forensic support and analysis provided by the FSLs, 71% of prosecutors surveyed indicated that the forensic analyses were both appropriate and sufficient. Another 76% of respondents thought that the analysis provided does stand up to legal scrutiny. When compared to six years ago, most prosecutors acknowledged there had been significant improvements in several aspects of forensic analysis. In contrast to the feedback provided by prosecutors, some of the detectives interviewed said that they do not have sufficient time and resources to use most of the forensic evidence they receive in the investigation of crime. Severe shortages in the number of detectives and the loss of skilled and experienced detectives within SAPS are likely to diminish the benefits of the IIFS within the CJS.

Efficiency

The efficiency criterion assesses whether the outputs of a programme have been delivered on time and in an economical manner. Much of the IIFS was used to procure systems, technology, and consumables. To put this in monetary terms, about R5.3 of the R6.2 billion of additional funding passed through the procurement systems. The evaluation found that the supply chain management processes were the source of major delays. First, current procurement regulations are not well-suited to the purchase of scientific equipment and consumables, which must be validated and tested before they are purchased. Second, there is not enough capacity within the SAPS to manage the higher volumes of transactions and complex procurement processes. For example, SAPS' limited capacity to forecast demand for consumables has led to frequent stock-outs that affect the work of crime scene examiners. About 30% of crime scene examiners surveyed reported that they did not have sufficient and appropriate consumables to process crime scenes. Third, procurement processes for the acquisition of technology are lengthy and time-consuming. Large and expensive purchases of technology must go through the SAPS and SITA procurement systems. These procurement systems are not well coordinated, and are the source of continued delays. Finally, interviewees and survey respondents have raised concerns around allegations of corruption associated with the IIFS. While it is not within the scope of this evaluation to interrogate issues relating to procurement irregularities, there is nonetheless a need for SAPS to examine why these problems have arisen.

Since the inception of the IIFS, the Division: Forensic Services has changed its turnaround time targets three times. Before 2010/11, the target was set in terms of calendar days, while from 2011/12 the indicator was framed in terms of working days. In 2014/15, the Division changed its target for turnaround times again, this time to differentiate between routine, non-routine and intelligence cases. This change brings the Division in line with good international practice where laboratories distinguish between the turn-around times for different categories of casework. There is considerable variation across sections in achieving turnaround times. In 2014/15, the chemistry section analysed 50% of all entries within the targeted time, compared to the scientific analysis unit where 76% of entries were processed.

Overall, the Division has done well in reducing backlogs. Between 2009/10 and 2014/15, backlogs dropped from 47 660 to 3 304. This reduction in the backlog is a notable accomplishment for the Division, considering that over the same period, the number of new entries received (and hence the workload of the Division) rose rapidly.

Sustainability

With regards to the IIFS, sustainability examines the extent to which the benefits will continue to accrue to the Division, SAPS, and the CJS. Three factors promote the sustainability of the IIFS:

- The Division: Forensic Services has developed some capacity in planning and monitoring their activities. This provides an excellent platform for the Division to shift towards results-based planning that links activities to outputs and outcomes.
- There has been a definite improvement in the management of forensic services, which if sustained will contribute to better performance over time.
- The investment in equipment and technology will continue to yield substantial benefits in coming years.

Various factors adversely affect the sustainability of the IIFS. Forensic services do not work in isolation, and their success depends on how well other parts of the CJS function. The lack of coordination around the interventions that fall under the Seven-Point Plan undermines the effectiveness of the plan. Within SAPS, the critical shortage in the number of detectives means that forensic evidence is used less effectively and fewer arrests are made on the basis of this evidence. Equally concerning is the high level of charges withdrawn by prosecutors in cases with forensic evidence. Low morale among crime scene examiners affects their productivity and is likely to raise the turnover of the Division, threatening the overall sustainability of the IIFS. Finally, inadequate and ill-suited physical infrastructure will limit the ability of SAPS to cope with the increasing demand for forensic analysis.

Emerging impact

The proportion of cases with forensics across the 11 types of crime selected for study rose from around 4% of reported crimes in 2009 to around 6% by 2015. This period coincides with the CJS Review and accelerated investment in forensics. Similarly, the proportion of murder cases with forensics that achieved a guilty verdict increased from 36.1% in 2009 to 50.7% in 2014. For rape, this percentage rose from 71.4% to 79.9%. These trends suggest that forensics has contributed to a higher conviction rate for these priority crimes.

5. Main recommendations

The IIFS has made significant strides in addressing the operational constraints faced by the Division: Forensic Services. Nevertheless, a few changes are needed to fully realise the benefits of the IIFS. Hence, the main recommendations emerging from this evaluation are as follows:

R.1 The SAPS and DOJ&CD must coordinate their planning and strengthen their monitoring systems to realise the benefits of the IIFS.

R.2 The SAPS must improve its financial management processes and supply chain management practices to achieve better value for money.

R.3 Although the IIFS has made a major contribution to the performance of forensic services, the SAPS should consider providing additional funding to sustain these gains and cope with the increasing demand for forensic services.

R.4 The SAPS and SITA must work together to integrate information technology systems necessary for the forensic services programme to operate efficiently.

R.5 The SAPS must take steps to build skills, competencies, and capacity among forensic personnel, and to improve staff welfare and morale.

R.6 The SAPS must train Visible Policing and detective services to secure crime scenes and safeguard forensic evidence. Visible Policing must monitor the implementation of crime scene procedures and national instructions.

R.7 The NPA and SAPS must interrogate the high levels of withdrawn charges in cases where forensics is present, and develop plans to reverse this trend where appropriate.

Department of Planning Monitoring & Evaluations
330 Grosvenor Street, Hatfield,
Pretoria
0028
South Africa

Tel: 012 312 0000

www.dpme.gov.za