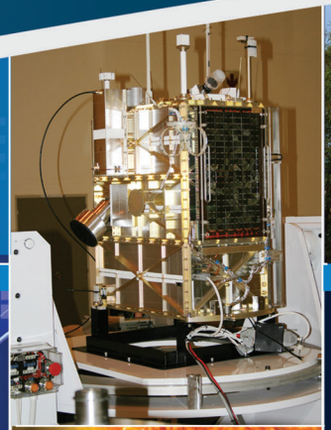
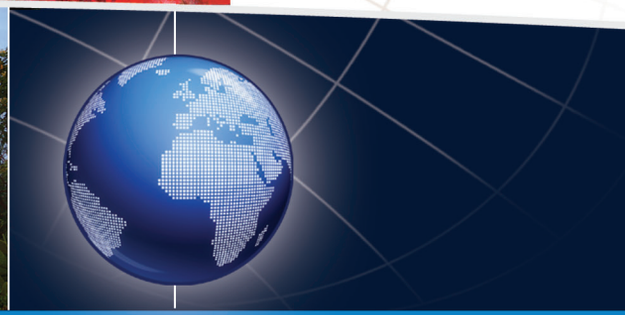
sansa
SOUTH AFRICAN NATIONAL
SPACE AGENCY

science
& technology
Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA








ANNUAL PERFORMANCE PLAN
2013/14

Foreword

The South African National Space Agency (SANSA) was established in 2010. Building on a rich South African space heritage, the agency formally began operations in 2011. In the two years of its operations, the organisation has made strides in contributing to key national objectives of transforming South Africa into a knowledge-based economy, the development of skills, the sustainable development of the country and the improvement of the quality of life of all South Africans.

SANSA has reached its full operational phase and is now commencing with the advancement of the national space programme. As the primary implementing and coordinating agency of the National Space Strategy, SANSA aims to ensure better and integrated national space activities.

Consistent with its Strategic Plan (2012-2017), SANSA has set ambitious targets that seek to:

- improve organisational efficiency and corporate governance;
- offer high-quality and relevant geospatial information, services and products for resource and environmental management, disaster management, decision making, planning and performance monitoring, health, safety and security;
- conduct cutting-edge research and development and the creation of knowledge and its utilisation in the knowledge-based and green economies;
- develop much needed and rare skills for the South African economy;
- stimulate interest and appreciation of science amongst the youth and the general public; and
- develop, nurture and leverage global partnerships that elevate South Africa's stature amongst the community of nations.

This document provides a concise plan of SANSA's performance commitments for the financial year (FY) 2013/14. In this financial year, SANSA aims to continue ensuring that space science and technology benefits society, the environment, the South African economy as well as the global community through the provision of space-based products and services, research and development as well human capital development.

The SANSA Board is enthused that the Agency is making remarkable strides in contributing to the advancement of the Department of Science and Technology's Strategic Plan and the National System of Innovation and is fully committed to the successful implementation of this Annual Performance Plan.

Mr Maurice Magugumela
Chairperson of the SANSA Board
Accounting Authority

Official sign-off

It is hereby certified that this Annual Performance Plan:

was developed by the Management and Board of the South African National Space Agency (SANSA) in consultation with the Department of Science and Technology;

was prepared in line with the current Strategic Plan of SANSA; and

accurately reflects the performance targets which SANSA will endeavour to achieve given the resources made available in the budget for 2013/14.

Ms Bulelwa Pono
Chief Financial Officer

Signature: _____

Dr Sandile Malinga
Head Official Responsible for Planning

Signature: _____

Mr Maurice Magugumela
Accounting Authority

Signature: _____

Approved by:

Mr Derek Hanekom
Minister of Science and Technology
Executive Authority

Signature: _____

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PART A

STRATEGIC OVERVIEW

1 VISION

To be the leader in ensuring that space science and technology benefits society, the environment, the economy and the global community through products and services; research and development; and human capital development.

2 MISSION

To use space science and technology to:

- deliver space-related services and products to the citizens of South Africa and the region;
- support, guide and conduct research and development in space science and engineering and the practical application of the innovations they generate;
- stimulate interest in science and develop human capacity in space science and technologies in South Africa;
- create an environment that promotes industrial development; and
- nurture space-related partnerships to enhance South Africa's standing in the community of nations.

Our mission is succinctly captured in our motto: **in service of humanity**

3 VALUES

SANSA has six values, namely

Service
Teamwork
Excellence
Integrity
Respect
Personal Growth

4 VALUE PROPOSITION

Towards the realisation of its mission, SANSA has defined a five-point value proposition to create:

1. Societal Capital
2. Intellectual Capital
3. Human Capital
4. Economic Capital
5. Global Capital.

5 STRATEGIC GOALS

The 2013/14 SANSA Annual Performance Plan indicates how the respective business units within SANSA intend to contribute towards achieving the following strategic goals:

1. World-class and efficient services and societal benefits (Societal Capital);
2. Cutting-edge research, development, innovation, technology and applications (Intellectual Capital);
3. Effective development of human capital, transformation, science advancement and engagement of the citizenry (Human Capital);
4. Globally competitive national space industry (Economic Capital); and
5. Make South Africa a recognised global space citizen (Global Capital).

6 SITUATIONAL ANALYSIS

6.1 Performance Delivery Environment

6.1.1 Global Space Environment

The global space sector is growing at a rapid rate with more than 50 countries now having at least one satellite in space. China, India and Brazil have now become space powers alongside Russia in the BRICS block. There has also been significant growth in space on the African continent. Nigeria has three satellites in space, Algeria and Egypt each have two satellites and Angola has one satellite in space.

The total space budget of the 35 countries considered by the Organisation for Economic and Cooperative Development (OECD) amounted to about USD 65.3 billion in 2010 with the G7 and BRICS countries leading. There are almost 1000 satellites in space focussing on Earth observation, telecommunications, and navigation/positioning, and scientific exploration. The OECD estimates that the global revenue generated from space-related products and services amounted to USD 150-165 billion in 2009. The market value for telecommunications in 2009 was about USD 76-87 billion, geo-positioning stood at about USD 15 billion, while Earth observation (EO), which is a largely public good enterprise, accounted for USD 900 million to USD 1.2 billion. The commercial and institutional demand for satellite development is strong with the total five-year value of satellite production projected at USD 65.5 billion.

Given the complexity of space, the space sector is a recognised technology and innovation driver impacting a wide range of industries. In terms of return on investment (ROI), some European countries have reported a space-related ROI as high as 4.7. Earth observation applications are important in numerous socio-economic sectors including global change, natural and environmental monitoring, food security, disaster management, cost efficiencies and productivity gains. For instance, the USA reported a positive cost-benefit of 6 from weather predictions.

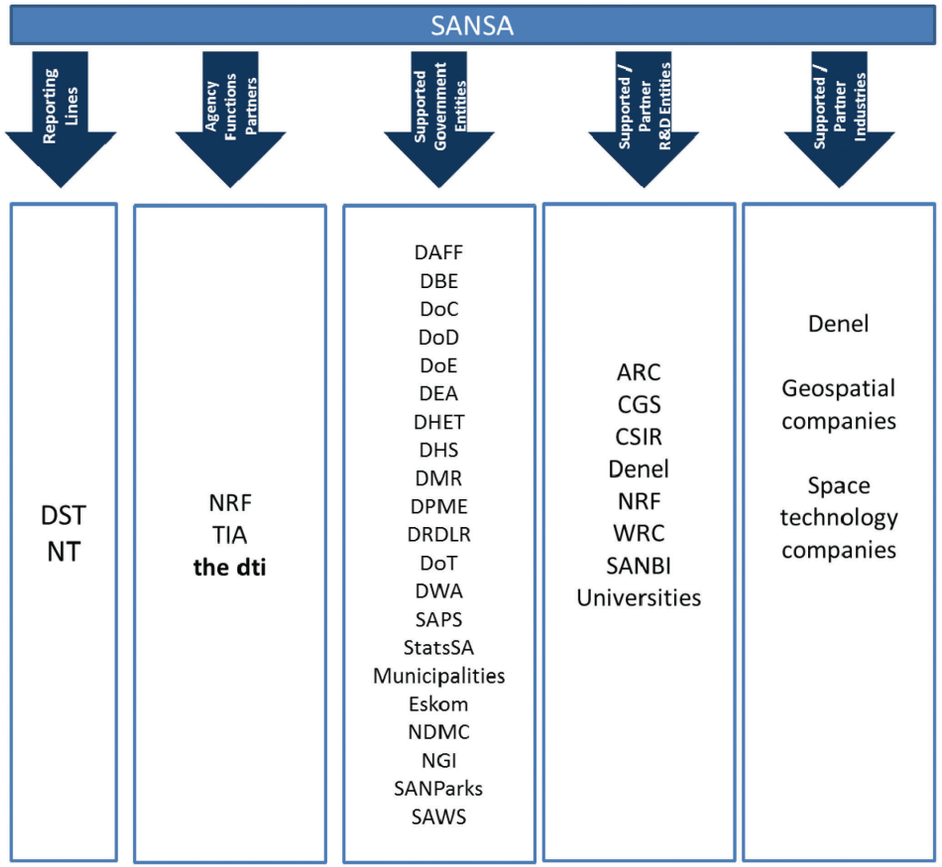
Initiatives in the Group on Earth Observation (GEO) and the Committee on Earth Observation Satellites (CEOS) are progressing well. In particular, the AfriGEOSS plans will lead to better coordination of Earth observation initiatives on the African continent. SANSA and other national partners have to contribute to this important initiative as led by the Department of Science and Technology (DST). This will promote South Africa's standing in the continent and facilitate the sharing of knowledge, resources and skills in Africa.

6.1.2 National Science Environment

The Minister of Science and Technology commissioned a review of the South African Science, Technology and Innovation Landscape. SANSA welcomes the report and supports the main recommendations of the Ministerial Review Committee. In particular, the proposed establishment of the National Council on Research and Innovation (NCRI); the reconfiguration of policy formulation structures; better integration of science councils; the improvement of cooperation with industry; improved Human Capital Development (HCD) programmes; improved knowledge infrastructure; and the improved financing of the NASA Standards Indicator (NSI).

With South Africa winning the rights to host 70% of the Square Kilometre Array (SKA), there is a huge potential for collaboration between SANSA and the SKA community.

6.1.3 SANSA's Interface in the NSI Landscape



[1] *OECD Report: The Space Economy at a Glance 2011*

SANSA has five key stakeholders, namely, (i) government departments the Agency reports to; (ii) departments/entities that fulfil some agency function e.g. funding agencies; (iii) government departments and state entities that SANSA supports in one form or the other; (iv) partner research and development (R&D) institutions; and (v) industry partners and clients. SANSA primarily reports to the DST and for certain governance aspects to the National Treasury. In terms of its agency role, SANSA works together with the National Research Foundation (NRF) with regard to R&D and student funding initiatives. There is also a science advancement partnership between SANSA and the NRF through the South African Agency for Science and Technology Advancement (SAASTA). With respect to the promotion and/or funding of technology, innovation and industrial development, SANSA works together with the Technology Innovation Agency (TIA) and the Department of Trade and Industry (the dti) through the various initiatives that are driven by these two entities. To facilitate the coordination of national space activities, SANSA works very closely with the National Earth Observation and Space Secretariat (NEOSS) in an effort to be in tune with the national user needs. Coming to government and public entity support, SANSA supports various government departments, municipalities and other government agencies through the provision of space and geospace data and related services. R&D engagements are in the form of SANSA supporting and/or collaborative partnering with various R&D institutions and with South African universities. SANSA also works with various industry partners in the provision of geo-space data and related services as well as in the development of space technologies and systems.

6.1.4 Broad National Environment

The National Development Plan (NDP) has now been finalised. SANSA will play a key role in addressing some of the central challenges identified in the Plan. Areas of contribution include the creation of high-technology jobs; the improvement of geospatial patterns to foster the development of marginalised communities; the planning and monitoring of backbone national infrastructure through space systems; health surveillance and intelligence through satellites; space-based service delivery and performance monitoring to assist in the eradication of corruption; and the provision of geospatial decision-making tools for decision-makers.

6.1.5 National Space Programme (NSP) Formulation

The National Space Strategy (NSS) sets the national goals and objectives for space science and technology. The draft implementation plan from the DST "provides a framework for the formalisation of a national space programme and further provides guiding principles on how the operationalisation is to be realised." In line with this, a national consultative process was undertaken with a view to formulate a coherent National Space Programme (NSP 2030). This plan defines programmatic roadmaps that will take the South African space programme to the year 2030. The NSP 2030 consists of the National Earth Observation Programme (NEOP), the National Space Science Programme (NSSP), the National Space Engineering Programme (NSEP) and the National Space Operations Programme (NSOP). The NSP sets project and resourcing priorities; clarifies institutional interfaces; and highlights high-levels outputs and measures of success for the NSP.

6.2 Organisational environment

6.2.1 Governance and Organisational Structure

SANSA Organisational Structure

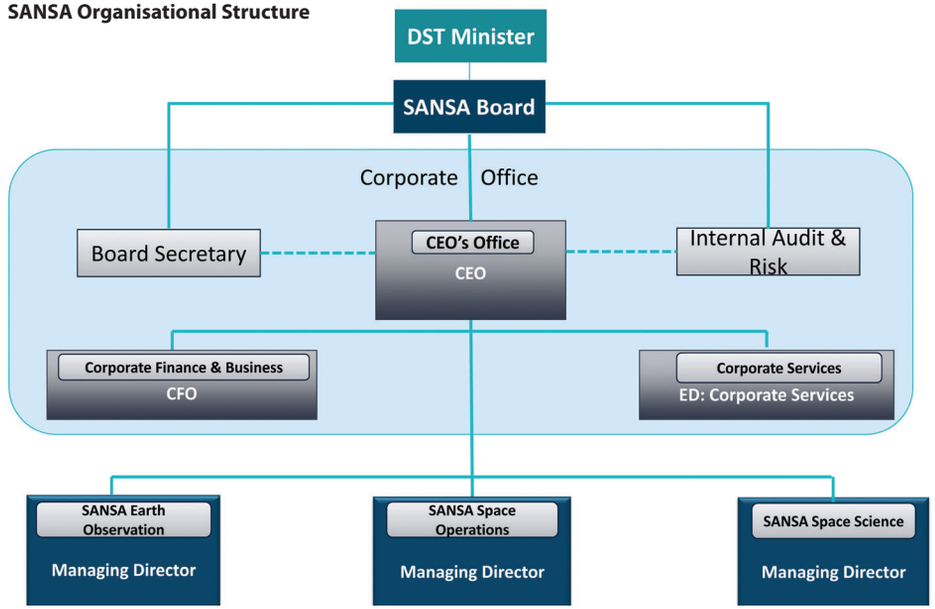


Figure 1: Organisational Structure

SANSA Board consists of the following members

Mr Maurice Magugumela - Chairman
Mr Leeandran Annamalai
Mr Potlaki Maine
Ms Louisa Mogudi
Dr Robert Scholes
Ms Joy-Marie Lawrence
Mr Vincent Gore
Mr Mpho Mamashela
Mr Mthobisi Zondi
Dr Elizabeth Gavin
Adv Tsheko Ratsheko
Dr Sandile Malinga, SANSA CEO and ex officio Board member

6.2.2 Organisational Structure

To deliver on its mandate, SANSA is structured into the following five business units:

- SANSA Corporate Office
- SANSA Earth Observation directorate
- SANSA Space Operations directorate
- SANSA Space Science directorate
- SANSA Space Engineering directorate.

Restructuring of the Organisation

Two of SANSA's directorates (SANSA Space Operations and SANSA Space Science) have been established and are fully functional. The SANSA Earth Observation directorate has now been desegregated from the SANSA Space Operations directorate. The plan is to fully establish the Earth observation operations in Pretoria so that this directorate is closer to key stakeholders and clients (largely government departments, research councils and tertiary institutions). The primary aim for 2013/14 is to establish the SANSA Space Engineering directorate or some other suitable formation to implement the satellite development programme.

7 REVISIONS TO LEGISLATIVE AND OTHER MANDATES

There have not been significant changes to the South African National Space Agency legislative and other mandates that are directly related to SANSA.

8 OVERVIEW OF 2013 BUDGET AND MTEF ESTIMATES

8.1 Revenue Estimates

Table 1 South African National Space Agency - Source of Funds

Transfers and Revenue	Audited outcome	Audited outcome	Approved Budget	Medium-Term Expenditure Estimate			Total MTEF	% of
R thousand	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16		total
Parliamentary Grant	-	103,670	105,911	111,708	118,298	124,355	**354,361**	44%
Contract income:Public	-	18,676	17,000	25,023	26,499	27,856	**79,377**	10%
Contract income: Private	-	38,029	31,500	37,345	39,548	41,573	**118,466**	15%
Research Grants	-	6,573	2,000	4,338	4,594	4,829	**13,761**	2%
Ring-fenced Transfers	9,528	18,416						0%
Strategic Engineering Initiatives	-		16,120	37,200	95,000	100,246	**232,446**	29%
Other income	48	4,654	-	-	-	-	**-**	0%
Total Transfers and Revenue	9,576	190,018	174,031	215,614	283,939	298,859	**798,412**	100%

8.1.1 Total transfers and revenue outlook for the Medium Term Expenditure Framework (MTEF) period

The projected total annual funding for SANSA over the MTEF period is R216 million (2013/14), R283 million (2014/15) and R298 million (2015/16) with an MTEF total of R798 million.

Parliamentary Grant

The parliamentary allocation for SANSA, which constitutes 44% of the Agency's total revenue, increases by 5.5% in 2013/14 from a baseline of R106 million, 5.9% in the 2014/15 and 5.1% in the 2015/16 financial year.

Contract income: Public

Contract revenue from the public sector for the 2013/14 period and over the MTEF period is mainly from value added services provided for customers/clients for Earth observation imagery products or services at R15.5 million (MTEF - R49 million), navigation and communication sectors at R6 million (MTEF - R18.8 million) and space operations hosting services at R3.4 million (MTEF - R11 million). The R25 million (MTEF - R79 million) contract revenue is largely from public enterprises and select government departments. The estimates are based mainly on existing contracts and those that are currently negotiated.

Contract income: Private

Private sector revenue during the MTEF is generated from contract revenue on launch support, tracking, telemetry and command operations mainly to international public (space agencies) and private customers

[2] There is still a level of uncertainty on the form and suitable configuration of this unit. This is largely due to the pending finalisation of the SunSpace and Houwteq matter. However, SANSA has, in all earnest, started with the space engineering activities. These are led by the Space Programme Unit of SANSA in partnership with space industry partners.

(satellite operators). The 2013/14 estimate is R36 million and R118 million over the MTEF period. The projections are conservative and are based on current contracts that run over a period of years, at most five years.

Research Grants

Research grants are received from funding agencies like the National Research Foundation (NRF) and the European Union (EU)'s Framework Programme (FP7). These grants are applied for depending on calls for applications that are made available. The estimate is conservative throughout the MTEF period.

Ring- fenced Transfers

Ring-fenced allocations are funds received and allocated for specific projects. The sources vary across the science councils depending on the nature of projects to be undertaken. There are no firm ring fenced projects anticipated for the MTEF.

8.2 Expenditure Estimates

Table 2 South African National Space Agency : Expenditure Estimates

Sub Programme	Audited Outcome	Audited Outcome	Approved Budget	Medium-Term Expenditure Estimate			Total MTEF
R'000	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	
Corporate Office	8,681	55,641	33,034	34,854	36,911	38,802	110,567
Earth Observation	-	-	62,000	70,092	74,227	78,027	222,346
Space Operation	-	77,349	30,000	39,919	42,274	44,439	126,632
Space Science	-	33,582	32,877	33,548	35,527	37,346	106,421
Space Engineering	-	-	16,120	37,200	95,000	100,246	232,446
Total programme allocation	**8,681**	**166,572**	**174,031**	**215,614**	**283,939**	**298,859**	**798,412**
Strategic Engineering Initiatives Economic Classification		-	**16,120**	**37,200**	**95,000**	**100,246**	232,446
Current payments	**4,861**	**155,335**	**144,211**	**163,561**	**173,209**	**182,079**	**518,849**
Compensation of employees	1,462	55,353	70,147	80,752	85,516	89,895	256,163
Board Costs	1,068	690	660	1,372	1,453	1,528	4,353
Goods and services	2,331	99,292	73,404	81,437	86,240	90,656	258,333
Payments for Capital Assets	**3,820**	**11,237**	**29,820**	**52,053**	**110,729**	**116,780**	**279,562**
Buildings and other fixed structures	-	1,046	-	-	-	-	-
Machinery and equipment	536	8,481	28,120	49,853	108,400	114,332	272,584
Software and intangible assets	3,284	3	1,700	1,700	2,330	2,448	6,478
Vehicles		1,706	-	500	-	-	500
Strategic Engineering Initiatives	-	-	16,120	37,200	95,000	100,246	232,446
Total expenses	**8,681**	**166,572**	**174,031**	**215,614**	**283,939**	**298,859**	**798,412**

Total Expenditure outlook over the MTEF period

The projected total expenditure for SANSA over the MTEF period is R798 million. Of this total, R566 million is allocated to SANSA programmes and R232.4 million is allocated to the Strategic Engineering initiatives.

The SANSA programme budget over the MTEF period is based on a 12.7% increase on the 2012/13 budget for the 2013/14 financial year, 5.9% increase for the 2014/15 financial year and 5.1% for the 2015/16. This excludes the budget for the satellite development programme.

The spending focus over the MTEF period will include work undertaken with respect to Earth observation services and the development of the South Africa's Earth Observation satellite (ZA-ARMC -1) for the African Resource and Environmental Management Constellation (ARMC).

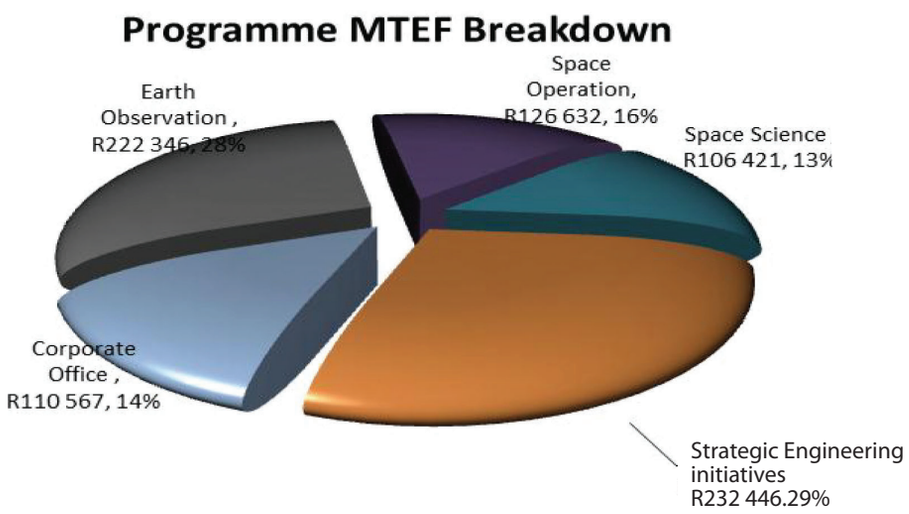
The Earth observation programme expenditure increases by 13% from R62 million to R70 million, due to the fact that the current SPOT 5 satellite is being phased out and a new agreement for SPOT 6&7 (SPOT 6 recently launched by Astrium) is being concluded to continue supplying geospatial information products from the SPOT mission to service a number of national societal service delivery requirements. The agreement for Spot 6&7 will significantly increase expenditure from R16 million per annum in 2012/13 to R25 million per annum, from the 2013/14 MTEF period.

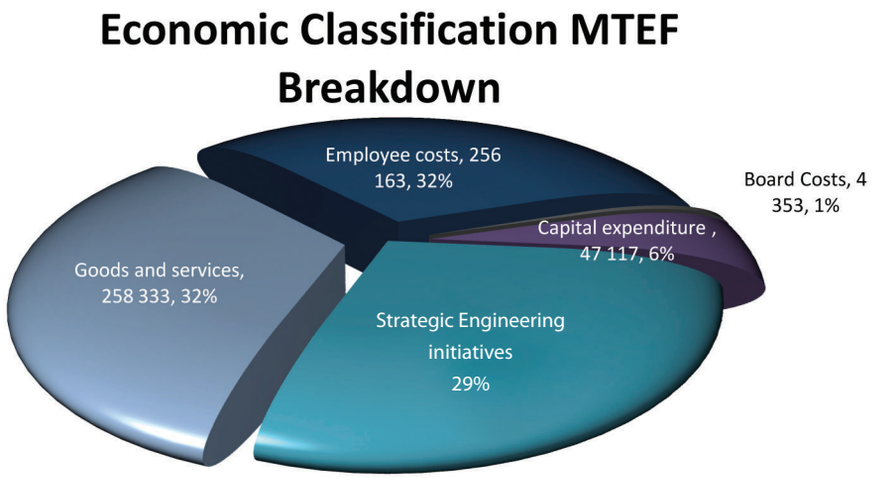
The SANSA Space Operations programme is largely dependent on commercial income and partly on transfers for remote sensing services for earth observation. Its growth is 33% from 2012/13 (R30 million) to R39.9 million in 2013/14 due to securing major contracts with international customers for in-orbit testing and hosting services.

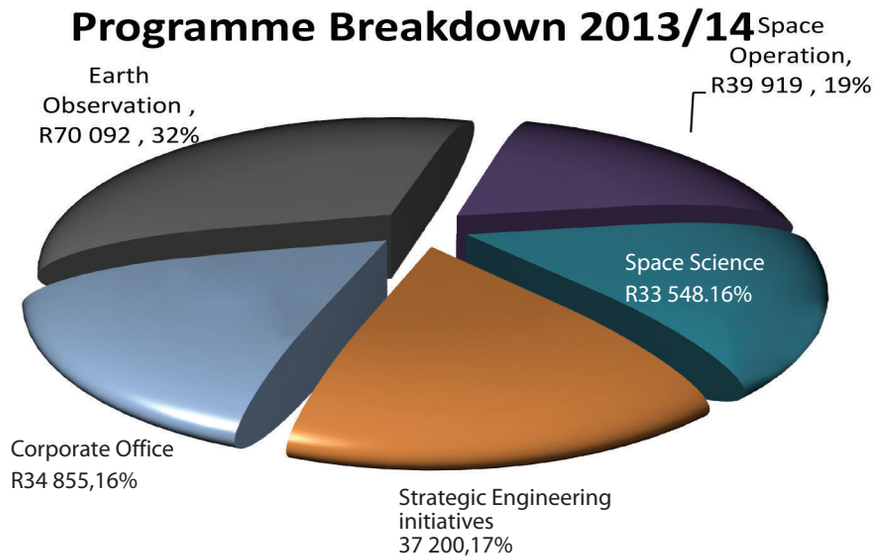
The SANSA Space Science programme increases by 2% from R32.8 million in 2012/13 to R33.5 million in 2013/14 this is due to some of the contract income projects not renewed from the 2013/14 financial year.

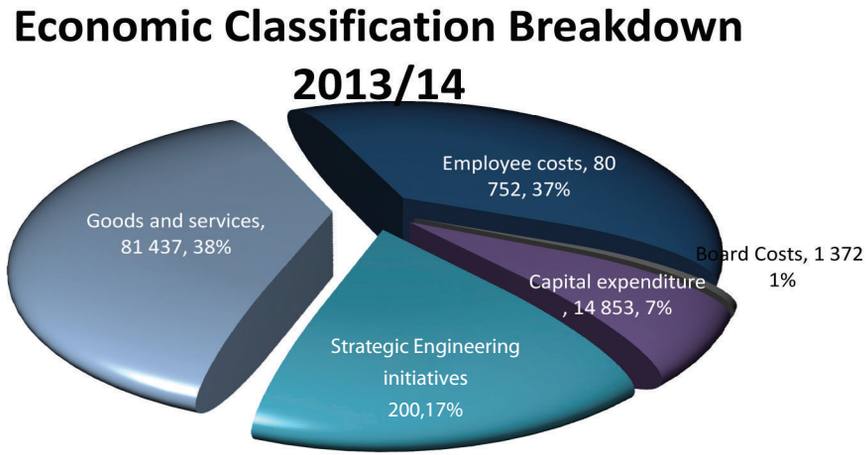
The Corporate office budget increases by 5.5% from the 2012/13 year to R34.8 million, remaining within the inflationary adjustment to the budget.

3.2.2 Programmatic Expenditure outlook over the MTEF period









3.3.3 Relating Expenditure trends to strategic outcome oriented goals

Table 3 Expenditure : Strategic outcome oriented goals

Goals and Objectives	Sub Programme R'000	Key Performance indicators	Approved Budget	Medium-term expenditure estimate			Total MTEF	Percentage
			2012/13	2013/14	2014/15	2015/16		
Goal 1: World Class and efficient services and societal benefits (Societal Capital)	**Earth Observation Services**	*Amount of data acquired archived and distributed*	31,930	36,097	38,227	40,184	114,508	14%
	Launch, Tracking, Telemetry & Communication	*Number of mission launch support and in -orbit tests*	6,516	11,274	12,067	12,416	35,757	4%
		Earth Observation support	14,300	12,750	13,200	14,520	40,470	5%
	Research, applied science & technology	*Amount of science data acquired archived and distributed*	5,589	5,703	6,040	6,349	18,091	2%
			58,335	**65,825**	**69,533**	**73,469**	**208,827**	26%
Goal 2: Cutting Edge Research development, innovation, & technology applications (Intellectual Capital)	**Research, Development, Innovation, Technology & Applications**	*Amount of data distributed for research; Number of formal collaborative research projects,*	22,678	24,943	26,423	27,757	79,123	10%
Goal 3: Effective Development of human capital, transformation and science advancement (Human Capital)	**Human Capital Development**	*Number of students supported and trained; Number of learners and educators engaged*	19,767	23,250	24,687	25,812	73,750	9%
Goal 4: Globally competitive national space industry (Economic capital)	**Industry Growth**	*Number of joint or outsourced projects with industry; Number of industrial/commercial sector services/products; Global launch, spacecraft, IOT support market*	12,775	16,467	17,519	18,245	52,232	7%
Goal 5: Make South Africa a recognised global space cit˙zen (Global capi˙al)	**Partnerships**	*Number of multi-national projects; Client performance*	11,323	13,073	13,866	14,528	41,467	5%
Goal 1-5	**Corporate Support**	*Leadership, Management and Operational excellence index*	33,034	34,855	36,910	38,802	110,567	14%
Goal 1-5	**Strategic Engineering Initiatives**	*Space Engineering*	16,120	37,200	95,000	100,246	232,446	29%
			174,031	215,614	283,939	298,859	798,412	100%

The budget over the MTEF period will fund the following activities that are aligned to SANSA's Key Performance Outcomes:

- Earth observation services (R114.5 million) - to fund the acquisition of data/imagery, processing and distribution of the acquired satellite imagery and data to public institutions, for planning, decision making and research purposes.
- Launch, tracking, telemetry and command (R52.5 million) - to fund the support of launch and in-orbit test operations and hosting services to international clients.
- Research and applied science and technology platforms (R18 million) - for the provision of geo-space, space weather and applied science and technology products and services for research purposes.
- Research, development and technology applications (R80 million) - for access to satellite infrastructure, to enable the download of data and imagery from various satellites, for access to telecommunication network, investment in antennae and navigation infrastructure, the supply of research data on the space weather, as well as producing research papers on Earth observation, space operations and space science applications.
- Human Capital Development (HCD) (R82.5 million) - to fund human capital development and science advancement in the space sector. This includes the cost of retaining and distributing imagery and data used for research purposes.
- Industry growth (R62.9 million) - to fund the cost of commercial operations in industry, participation in space operations (launch, telemetry and command), Earth observation and space science (value added services in navigation and communication systems).
- Partnerships (R44.5 million) - to fund the participation in multi-national projects in fostering global partnerships.
- Administration (R110.5 million) - to fund the provision of administrative structures and processes including stakeholder engagement for institutional cohesion.
- Space engineering initiatives (R232 million)

PART B

PROGRAMME AND SUBPROGAMME PLANS

9 Programme 1: Corporate Support

9.1 Programme Purpose and Value Proposition

The SANSA Corporate Office has a role to ensure that SANSA is operationally efficient, managed cost-effectively, complies with good corporate governance principles and enables seamless integration and collaboration between all SANSA directorates and external stakeholders.

Outcome

The primary outcome for the SANSA Corporate Support programme is Institutional **Excellence and Accountability.** This requires that the Corporate Office provides the necessary and enabling support to ensure performance efficiency at the core functional level and delivery on the Agency's mandate while ensuring public accountability through good corporate governance. Achieving institutional efficiency at the expense of good corporate governance or vice versa is tantamount to overall institutional failure. Therefore, SANSA needs to achieve its institutional performance targets and a clean audit.

Strategic Objectives and Measurement

To achieve institutional excellence and accountability, the Corporate Office will ensure that SANSA has:

- Leadership Excellence
- Management Excellence
- Operational Excellence

The measure of success for each on these three objectives is through a corresponding Excellence Index. Each index is a weighted composite of the performance in the Key Performance Areas (KPAs) specified in Figure 2.

Links

Achievement of these strategic objectives will directly contribute to all SANSA Strategic Goals as well as the National Government Outcome 12: An efficient, effective and developmental orientated public service and an empowered, fair and inclusive citizenship.

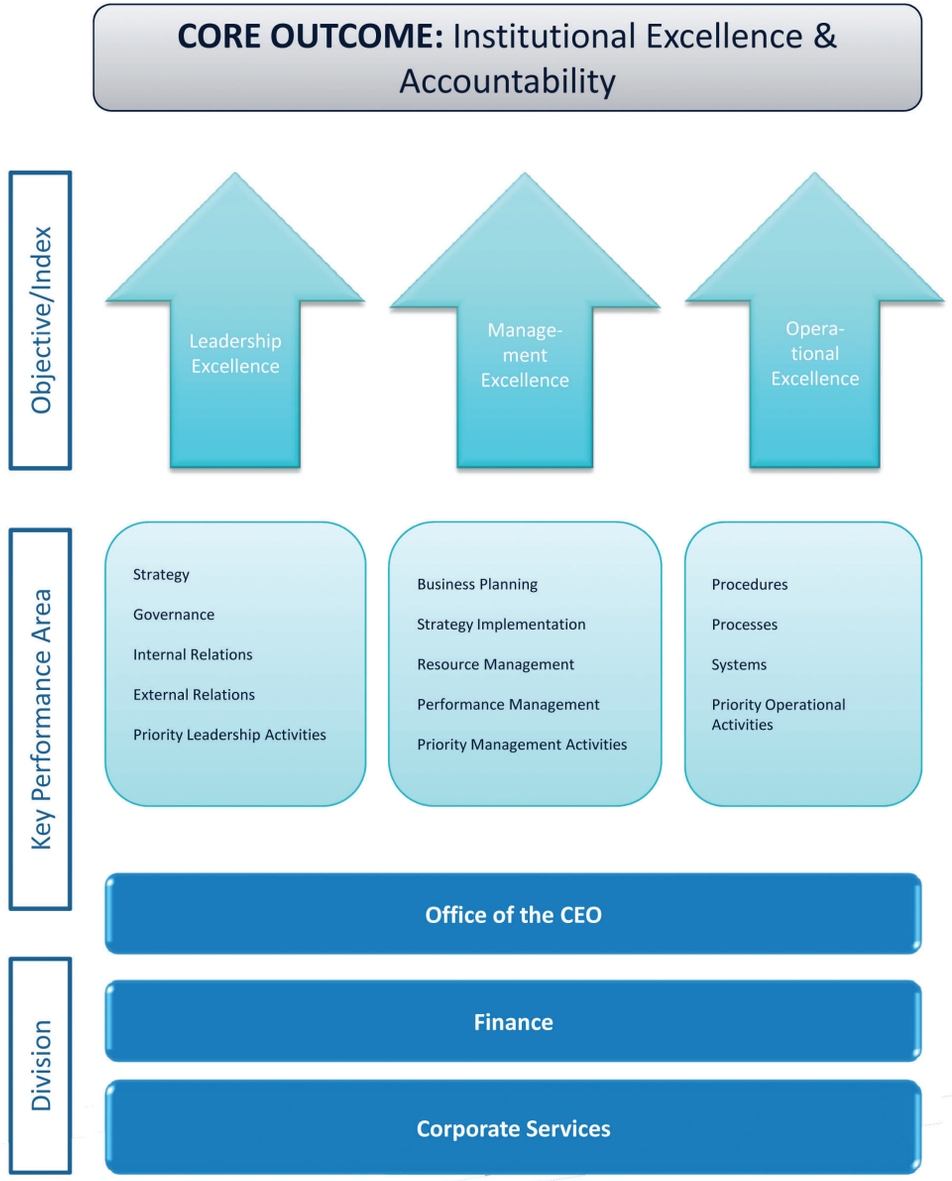


Figure 2: Strategic objectives of the Corporate Support programme

9.2 Corporate Support Programme Overview

Sub-Programme	Sub-Programme Purpose	Key Priorities & Major Projects for 2013/14
CEO's Office	Ensure executive management and leadership of SANSA with overall management of day-to-day SANSA operations and good corporate governance. The CEO's Office coordinates the following functions: Board Secretariat Audit and Risk Planning & Performance Management Corporate Communications Stakeholder Management Space Programme Management	• Ensuring maximum efficiency and accountability of all SANSA units. • Improve Board processes and corporate governance structures. • Formalise a clear enterprise risk management framework. • Efficient performance management systems and processes. • Full implementation of effective and impactful communication systems and processes. • Effective stakeholder management and national space coordination. • Full operationalisation of the Space Programme Management Unit & full roll-out of Strategic Engineering Initiatives.
Finance and Business Division	Ensure that all revenue, expenditure, assets and liabilities of SANSA are managed efficiently and effectively in line with the Public Finance Management Act (PFMA), and to maintain an appropriate procurement and provisioning system that is fair, equitable, transparent, competitive and cost effective. The finance and business division is structured into two specific roles: Financial Management Supply Chain Management (SCM)	• Business process analysis and review to refine internal control systems, policies and procedures . • Improve finance operational systems and processes. • Improve SCM operational systems and processes.
Corporate Support Division	Ensure the provision of effective and e fficient corporate support services. The Corporate Services Division coordinates the following functions: - Human Resources (HR) Management - Information & Communication Technology (ICT) Management - Legal Support Services Management - Safety, Health, Environment and Quality (SHEQ) / Facilities Management	• Ensuring a conducive organisational climate and improved Human Resources Planning, Management and Development processes, systems and standard operating procedures. • Improvement of human resources development initiatives. • Improve employee performance management processes. • Ensure transformation and organisational change management. • Ensuring enhanced business support th rough enabling ICT services, including a document management system. • Ensuring effective management of legal risks and contractual matters. • Refining of internal control, governance structures, operational systems and processes in HR, ICT, Legal and SHEQ.

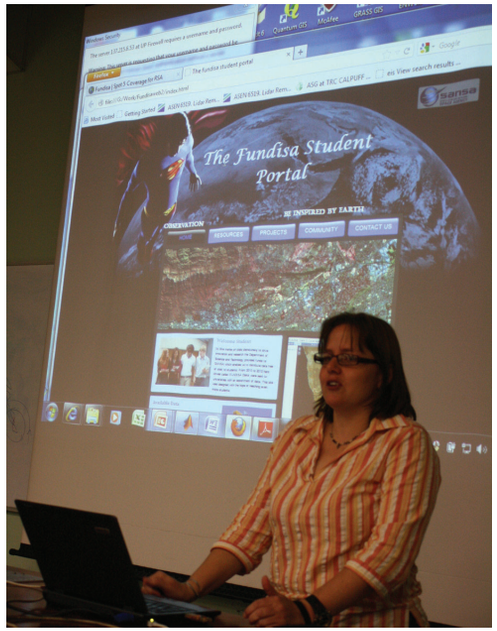
9.3 Programme Performance Indicators and Annual Targets 2013/14

			CORPORATE SUPPORT PROGRAMME							
Strategic objective		Outputs	Activities	Five Year Targets (Targets to be attained by 2017)	Key Performance Indicator	Baseline 2011/12	Estimate 2012/13	Medium-term targets (SMART TARGETS)		
								2013/14	2014/15	2015/16
1	**Leadership Excellence**	Effective & efficient leadership	Strategic leadership Corporate governance Internal & external relations	Leadership Excellence Index (LEI) score of 8 out of 10 (CS1)	Leadership Excellence Index	None. Indicator is new.	68% management satisfaction 61% leadership satisfaction (1CS1)	Leadership Excellence Index (LEI) score of 7 out of 10 (2CS1)	Leadership Excellence Index (LEI) score of 7.5 out of 10 (3CS1)	Leadership Excellence Index (LEI) score of 8 out of 10 (4CS1)
2	**Management Excellence**	Effective & efficient management	Business planning Strategic implementation Resource management Performance management	Management Excellence Index (MEI) score of 8 out of 10 (CS2)	Management Excellence Index	None. Indicator is new.	68% management satisfaction 61% leadership satisfaction (1CS1)	Management Excellence Index (MEI) score of 7 out of 10 (2CS2)	Management Excellence Index (MEI) score of 7.5 out of 10 (3CS2)	Management Excellence Index (MEI) score of 8 out of 10 (4CS2)
3	**Operational Excellence**	Operational efficiency and cost effectiveness	Development of procedures Process analysis and improvement System implementation & management	Operational Excellence Index (OEI) score of 8 out of 10 (CS3)	Operational Excellence Index	None. Indicator is new.		Operational Excellence Index (OEI) score of 7 out of 10 (2CS3)	Operational Excellence Index (OEI) score of 7.5 out of 10 (3CS3)	Operational Excellence Index (OEI) score of 8 out of 10 (4CS3)

Table 4: Measurable Objectives: Corporate Support programme

CORPORATE SUPPORT PROGRAMME						
Strategic objective		Key Performance Indicator	2012 Quarterly Targets			
			Q1	Q2	Q3	Q4
1	Leadership Excellence	Leadership Excellence Index (LEI) score of 7 out of 10 (2CS1)	7	7	7	7
2	Management Excellence	Management Excellence Index (MEI) score of 7 out of 10 (2CS2)	7	7	7	7
3	Operational Excellence	Operational Excellence Index (OEI) score of 7 out of 10 (2CS3)	7	7	7	7

Table 4: Quarterly Targets 2012/13: Corporate Support programme



9.4 Corporate Support Budget and MTEF Estimates

Programme 1 - Corporate Support - Source of Funds

Transfers and Revenue	Audited outcome	Audited outcome	Approved Budget	Medium-Term Expenditure Estimate			Total MTEF	% of total
R thousand	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16		
Parliamentary Grant		55,641	33,034	34,855	36,911	38,801	**110,567**	100%
Total Transfers and Revenue	-	55,641	33,034	34,855	36,911	38,801	110,567	100%

9.4.1 Revenue estimates

The corporate support programme is fully funded from the parliamentary allocation.

9.4.2 Expenditure estimates

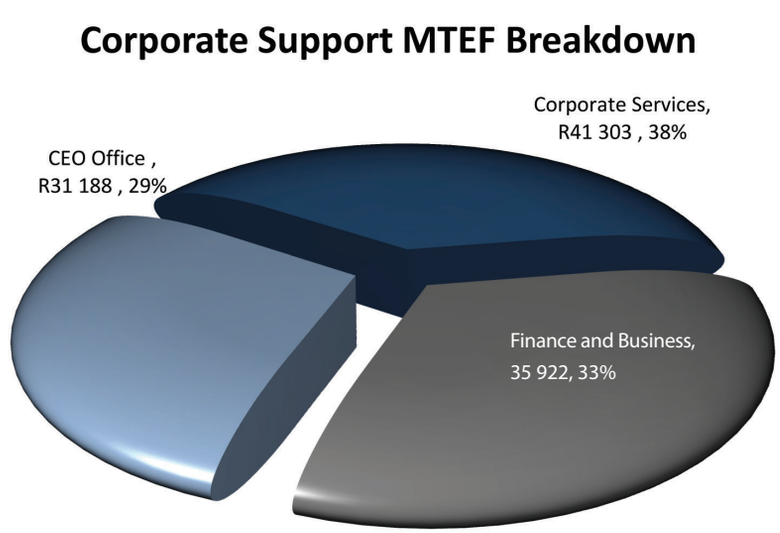
Programme 1 - Corporate Office

Sub Programme R'000	Audited Outcome	Audited Outcome	Approved Budget	Medium-term expenditure estimate			Total MTEF
	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	
Board	–	750	660	1,372	1,453	1,528	4,353
CEO's office	–	10,480	4,136	9,139	9,678	10,174	28,990
Corporate Services	8,681	8,248	20,922	13,020	13,789	14,495	41,303
Finance and Business	–	19,467	7,316	11,324	11,991	12,606	35,921
National Space Programme	–	16,697	–	–	–	–	–
Total Programme Allocation	**8,681**	**55,641**	**33,034**	**34,855**	**36,911**	**38,802**	**110,568**
Economic Classification							
Current payments	**4,861**	**54,181**	**32,334**	**33,029**	**34,978**	**36,769**	**104,776**
Compensation of employees	1,462	18,833	17,552	20,041	21,224	22,310	63,575
Board Costs	1,068	750	660	1,372	1,453	1,528	4,353
Goods and services	**2,331**	**34,598**	**14,122**	**11,616**	**12,301**	**12,931**	**36,847**
Payments for Capital Assets	**3,820**	**1,460**	**700**	**1,826**	**1,934**	**2,034**	**5,792**
Mach˙nery and equipment	536	1,023	500	1,326	1,404	1,476	4,206
Software and intangible assets	3,284	3	200	–	530	557	1,086
Vehicles	–	434	–	500	–	–	500
Total expenses	**8,681**	**55,641**	**33,034**	**34,855**	**36,911**	**38,803**	**110,568**

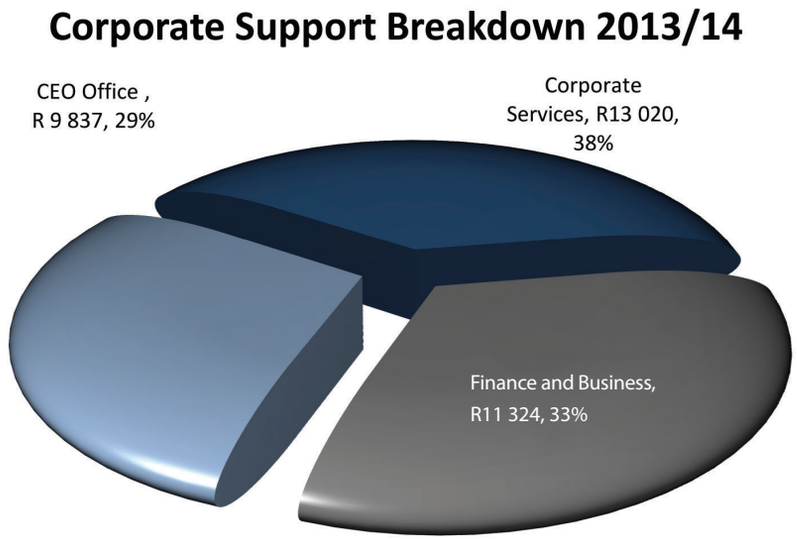
Table 5 Corporate Office Budget and MTEF Estimates

The projected expenditure for the Corporate Support programme over the MTEF period is R34.8 million (2013/14), R36.9 million (2014/15) and R38.8 million (2015/16) with an MTEF total of R110.6 million.

Sub - Programme MTEF Breakdown



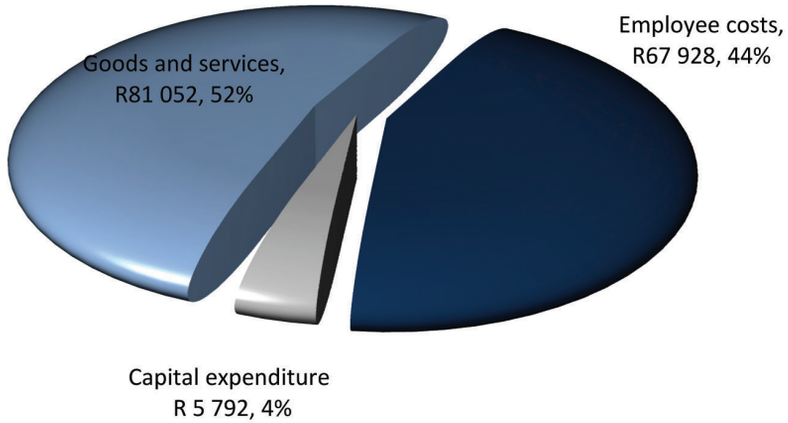
Sub - Programme Breakdown 2013/14



The Corporate Support programme will undertake strategic projects focussing on stakeholder engagements, broader space HCD and science advancement to the amount of R3 million over the MTEF period (R1 million for 2013/14).

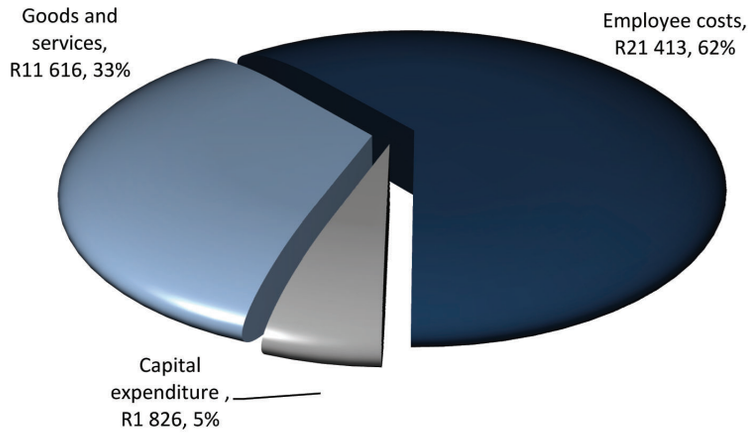
Programme MTEF Economic Classification

Corporate Support MTEF Breakdown



Programme Economic Classification Breakdown 2013/14

Corporate Support Breakdown 2013/14



In terms of economic classification, over the MTEF period period, the programme will spend R81 million (R11.6 million for 2013/14) on goods and services, R67.9 million (R21 million for 2013/14) on employee cost and R5 million (R1.8 million for 2013/14) on capital infrastructure, mainly machinery and equipment.

The Corporate Office MTEF allocation as indicated excludes expenditure that relates to the Satellite Development programme, although it is coordinated under the CEO's office. Details are available under the Space Engineering Programme section.

10 Programme 2: Earth Observation

10.1 Programme Purpose and Value Proposition

Due to a drive to globally ensure improved livelihoods and economic development in a sustained global environment, there are a number of global initiatives that are aimed at maximising the benefits from Earth observation programmes. These efforts are led by various international bodies, including the Group on Earth Observations (GEO) of which South Africa is co-chair. These GEO efforts are largely driven in the context of the Global Earth Observation System of Systems (GEOSS) and the Committee on Earth Observation Satellites (CEOS). The common theme for all these activities is to globally coordinate Earth observation efforts with the primary objective of benefiting humanity in a sustained and Earth-friendly manner as the world strives to attain the Millennium Development Goals (MDGs) by 2015. SANSA, as one of the contributing agencies of the South African Earth Observation Strategy (SAEOS), fulfils this strategic objective through the SANSA Earth Observation directorate. In collaboration with external partners, the directorate will drive six operational themes, as follows:

Figure 3: Earth observation systems assist in monitoring and managing environmental risks that can impact on crop production and food supplies. Photo: C Kirchhoff, MediaClubSouthAfrica.com

Natural Resource Management
Water
Biodiversity
Ecosystem
Marine resources
Coastal zones
Mineral resource
Forestry
Atmosphere

Food Security
Crop status monitoring
Crop yield forecasting
Precision farming
Land-use management

Health
Cholera monitoring
Malaria monitoring
Cross-border disease control
Air quality monitoring

Disaster Management
Disaster prediction
Disaster monitoring
Disaster mitigation
Rescue planning
Post-disaster recovery

Planning and Development
Rural development planning
Urban planning
Infrastructure planning

Decision-Making & enforcement
Policy formulation
Policy enforcement
Delivery monitoring

Safety and Security
Policing
Defence
National intelligence
Surveillance
Border control

Economic Development
Navigation
Logistics

(i) Environmental Management:

With an ever increasing global population and the associated increase in demand for natural resources and the consequent degradation of the environment, satellite Earth observation provides information on the state of the environment. This ensures that current and future policy programmes and plans are formulated to ensure better and sustainable livelihoods. Together with partners in government, universities, research institutions and the public, SANSA Earth Observation provides access to satellite Earth observation data, tools and applications that are relevant in the following areas: environmental monitoring and assessment; global change monitoring; land-use and land cover change and pollution.

(ii) Resource Management:

SANSA Earth Observation provides data that is used to monitor various resources including water, agricultural produce and livestock, energy, fish stock, and mineral resources, to name a few. These data provide information upon which resource utilisation, conservation and efficient use are mainstreamed in national plans and programmes.

(iii) Planning & Development:

Large area and rapid satellite imaging give a bird's eye view that enables better planning and decision-making. Satellite images are used for rural development, urban planning, informed decision-making, policy-making and performance monitoring including generating land cover and land use mapping for the geo-information user community. Areas of application include human settlement planning, environmental policy formulation, monitoring and enforcement.

(iv) Health, Safety and Security:

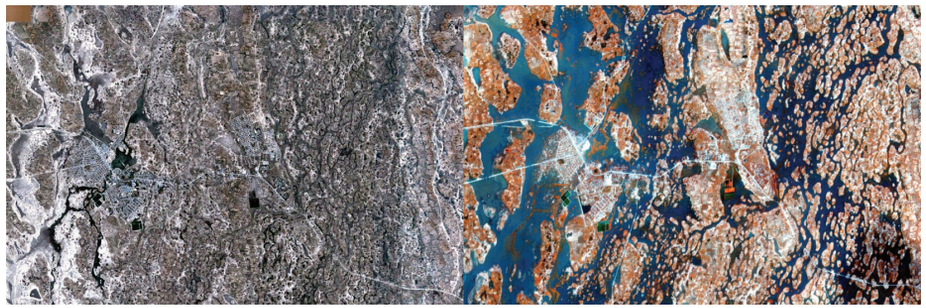
Satellites provide a very broad view that is useful for cross-border health, safety and security monitoring. As an example, satellites can be used to monitor mosquito-borne diseases such as malaria; monitor fires or flooding as well as cross-border theft, drug trafficking and for African peace-keeping missions. Satellites are also used for national security and crime prevention and monitoring.

(v) Disaster Management:

In an Earth that is so prone to disasters, satellites are used for disaster forecasting, monitoring, assessment and mitigation. These ensure huge cost savings and mitigate further severe human catastrophes especially if these data are used in conjunction with environmental and socio-economic in-situ measurements to produce disaster early warning systems.

(vi) Industrial Services:

Different services are offered that benefit industry e.g. geo-spatial data for industry usage; logistics; fleet tracking; and navigation.



10.2 Earth Observation Programme Overview

The programme delivers on its mandate through the following sub-programmes

Sub-Programme	Sub-Programme Purpose	Key Priorities & Major Projects for 2013/14
Research and Applications Development	The core function of the Research and Applications Development sub-programme is the improvement of Earth observation data quality and data handling methodologies; increase in the stock of knowledge in remote sensing and develop high quality value-added Earth observation-based information products, applications and services.	Pursuit of ARMC related projects and activities. Recruitment and retention of staff. Development of image processing algorithms and processing chains. Mapping of informal and low cost housing settlement at provincial and national scales. Development of land use and land cover classification methodologies. Showcasing remote sensing and its abilities to improve the quality of life of all South Africans and the region. Provision of short training courses to university students and government employees. Collaborative generation of several base maps in the core areas of focus (Environmental and Resource management, Disaster Management, Planning and Development and Health, Safety and Security). Improving in-house reference datasets to higher geometrical accuracies using improved digital surface and elevation models.
Data, Products and Services	The focus of the sub-programme is the archiving, extraction, processing and delivery of data and relevant applications to all stakeholders.	Full operationalization of basic Earth observation services. Fostering an even greater penetration of EO services into government services. Continuously improving archive, extraction, processing and distribution software and tools to ensure efficient services and satisfy needs of different customers. The enlargement of the EO database with the desired sensor portfolio. In particular, the focus will be on adding CBERS-3B, Landsat 8. Ensuring regular and consistent distribution of EO data, products and services into government services, higher institutions of learning and research institutions. Optimising the production turnaround times and quality assurance.
Data Systems Management	The sub-programme enables business operations by providing IT infrastructure; maintaining and periodically upgrading a comprehensive Earth observation processing systems to help ensure that the geographic information value chain is optimised for the benefit of South Africa and the southern African community.	Continual upgrade and automation of systems to enable smooth and consistent running of all software and hardware related Earth observation data systems. Ensure that the Earth observation data centre is well equipped, secured and all data is updated and available on the Earth observation online catalogue. Fully operationalization of DIMS system. Completion of Archives Migration. The development and maintenance of easily accessible and efficient distribution systems and channels of the Directorate through catalogue systems. Ensure that all maintenance contracts are renewed. Full upgrade of data infrastructure in order to contribute to the implementation of the South African Earth Observation Strategy (SAEOS). Hosting Meraka and other external Earth observation applications.

Sub-Programme	Sub-Programme Purpose	Key Priorities & Major Projects for 2013/14
Stakeholder Management	The sub-programme ensures a broad and effective engagement with stakeholders.	Increase the Directorate stakeholder networks through regular engagements with national, SADC and international groups. Ensure that adequate strategic marketing and stakeholder relationships are established and serviced in SANSA Earth Observation Directorate. Increase the Directorate's strategic contribution to GEO and CEOS and other relevant international organisation towards improving our contribution to global capital. Coordinate the directorates efforts in AfriGEOSS. Assess stakeholder training needs; arrange and facilitate stakeholder training initiatives. Expanding HCD work by increasing collaborative network with R&D institutions and universities. Foster relations with geo-information industry.
Human Capital Development and Science Advancement	The sub-programme drives science advancement and public engagement initiatives	Student and intern training. In-service training programme. Advance science among learners. Engage educators. Increasing awareness on the application of space science and technology for societal benefit.

10.3 Programme Performance Indicators and Annual Targets 2013/14

EARTH OBSERVATION PROGRAMME										
SANSA GOAL	**Programme Strategic Objective**	**Outputs**	**Activities**	Indicators	Five Year Targets (Targets to be attained by 2017)	Audited performance	Estimate	Medium-term targets		
						2011/12	2012/13	2013/14	2014/15	2015/16
GOAL 1: World-class & efficient services and societal benefits (Societal Capital)	Offer efficient EO services for national and international benefit and a sustained environment	1. EO Data Stock 2.Space based EO data products, value added data products& services 3.Decision making tools for policy and decision makers	• Data collection • Data distribution • Value-added services	Number of images acquired and archived (EO1)	5000	4000	4000	4000	4000	4500
				Number of images distributed (EO2)	60 000	40 000	42 000	44 000	50 000	55 000

EARTH OBSERVATION PROGRAMME										
SANSA GOAL	**Programme Strategic Objective**	**Outputs**	**Activities**	Indicators	Five Year Targets (Targets to be attained by 2017)	Audited performance	Estimate	Medium-term targets		
						2011/12	2012/13	2013/14	2014/15	2015/16
GOAL 2: Cutting-edge research, development, innovation, technology & applications (Intellectual Capital)	Conduct cutting-edge research, development and innovation to continually improve SANSA's EO offering	New and innovative data /image /signal processing techniques	• Provide data for R&D purposes • Collaborative projects with R&D and tertiary institutions • Continual R&D of internal processes	Number of images distributed for research (EO4)	20 000	15 000	16 000	17000	18000	19000
				Number of technical reports and research publications (EO6)	10	10	10	10	10	10
GOAL 3:Effective development of human capital, transformation and science advancement (Human Capital)	Development of human capital in EO related science & engineering and advance science amongst the youth and the public	Skilled students Skilled workers Science advancement programmes Public engagement programmes	• Provision of data for student training • Collaborative student training • Internship training	Number of students/interns supported/trained (EO7)	6	5	6	6	6	6
				Number of short courses conducted (EO9)	3	2	2	2	3	3
				Proportion (%) of permanent staff from designated groups in the top two management levels (manager, senior manager) (EO12)	65%	40%	40%	50%	50%	60%
				Number of learners reached through direct and specific engagement	3000	N/A	New indicator	2000	2200	2500
GOAL 4:Globally competitive national space industry (Economic Capital	Provide services that stimulate industry growth and participation in EO	• Value-added services	• Collaborative projects with industry	Number of joint or outsourced projects with industry (EO13)	4	2	2	2	3	3
GOAL 5: Make South Africa a recognised global space citizen (Global Capital	Establish and maintain effective and mutually beneficial international partnerships in line with national strategic alignment	•Membership of international organizations of strategic importance• Beneficial multi-national agreements, partnerships & projects	• Develop & maintain active international partnerships	Number of multi-national projects (EO14)	3	2	2	2	2	3

Table 6: Measurable Objectives: Earth Observation

10.4 Quarterly Targets for 2013/14

Earth Observation Programme							
SANSA GOAL	Audited			Quarterly Targets			
	2011/12	2012/13	2013/14	1st	2nd	3rd	4th
Strategic Objective 1: Offer efficient EO services for national and international benefit and a sustained environment							
Number of images acquired and archived (2EO1)	4000	4000	4000	1000	2000	3000	4000
Number of images distributed (2EO2)	40 000	42 000	44 000	110 00	22 000	33 000	44 000
Strategic Objective 2: Conduct cutting-edge research, development and innovation to continually improve SANSA's EO offering							
Number of images distributed for research (2EO4)	15 000	16 000	17 000	4000	8 000	12 000	17 000
Number of technical reports and research publications (EO6)	10	10	10	2	4	6	10
Strategic Objective 3: Development of human capital in EO related science & engineering and advance science amongst the youth and the public)							
Number of students/interns supported/trained (2EO7)	5	6	6	2	2	2	6
Number of short courses conducted (2EO9)	2	2	2	0	1	1	2
Proportion (%) of permanent staff from designated groups in the top two management levels (manager, senior manager) (2EO12)	40%	40%	50%	40%	50%	50%	50%
Number of learners reached through direct & specific engagement (2EO15)	N/A	N/A	2000	500	12 00	1800	2000
Strategic Objective 4: Provide services that stimulate industry growth and participation in EO							
Number of joint and outsourced projects with industry (2EO13)	2	2	2	0	1	2	2
Strategic Objective 5: Establish and maintain effective and mutually beneficial international partnerships in line with national strategic alignment							
Number of multi-national projects (2EO14)	2	2	2	0	1	2	2

Table 7: Quarterly Targets 2013/14: Earth Observation

10.5 Earth Observation Budget and MTEF Estimates

10.5.1 Revenue estimates

Programme 2 - Earth Observation Source of Funds

Transfers and Revenue R thousand	Audited outcome 2010/11	Audited outcome 2011/12	Approved Budget 2012/13	Medium-Term Expenditure Estimate 2013/14	2014/15	2015/16	Total MTEF	% of total
Contract income:Public		- -	11,300	15,586	16,505	17,351	**49,442**	22%
Total Programme Revenue and Transfers	-	-	**62,000**	**70,092**	**74,227**	**78,027**	**222,346**	100%
Total Transfers and Revenue	-	-	62,000	70,092	74,227	78,027	**222,346**	100%

10.5.2 Expenditure estimates

The projected expenditure over the MTEF period is R70 million (2013/14), R74 million (2014/15) and R78 million (2015/16) with an MTEF total of R222.3 million.

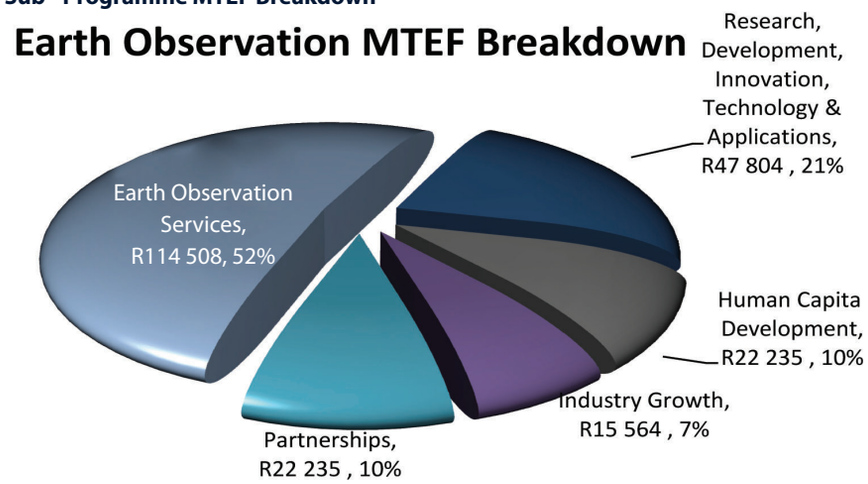
Programme 2: Earth Observation

Sub Programme R'000	Audited Outcome 2010/11	Audited Outcome * 2011/12	Approved Budget 2012/13	Medium-Term Expenditure Estimate 2013/14	2014/15	2015/16	Total MTEF
Earth Observation Services	-	-	31,930	36,097	38,227	40,184	114,508
Research, Development, Innovation, Technology & Applications	-	-	13,330	15,070	15,959	16,776	47,804
Human Capital Development	-	-	6,200	7,009	7,423	7,803	22,235
Industry Growth	-	-	4,340	4,906	5,196	5,462	15,564
Partnerships	-	-	6,200	7,009	7,423	7,803	22,235
Total	**-**	**-**	**62,000**	**70,092**	**74,227**	**78,027**	**222,346**
Economic Classification							
Current payments	**-**	**-**	**60,300**	**66,018**	**69,913**	**73,492**	**209,423**
Compensation of employees	-	-	17,023	17,161	18,173	19,104	54,438
Goods and services	**-**	**-**	**43,277**	**48,857**	**51,740**	**54,389**	**154,985**
Payments for Capital Assets	**-**	**-**	**1,700**	**4,074**	**4,314**	**4,535**	**12,924**
Machinery and equipment	-	-	200	2,374	2,514	2,643	7,531
Software and intangible assets	-	-	1,500	1,700	1,800	1,892	5,393
Total expenses	**-**	**-**	**62,000**	**70,092**	**74,227**	**78,027**	**222,346**

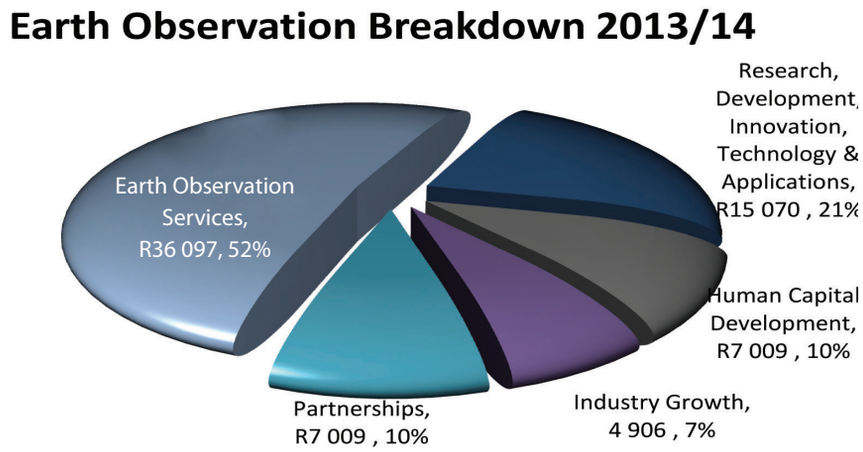
*Earth observation became a separate Programme with effect from 1 April 2012, 2011/12 figures not separately identifiable

Table 7: Earth Observation Budget

Sub - Programme MTEF Breakdown



Sub - Programme Breakdown 2013/14

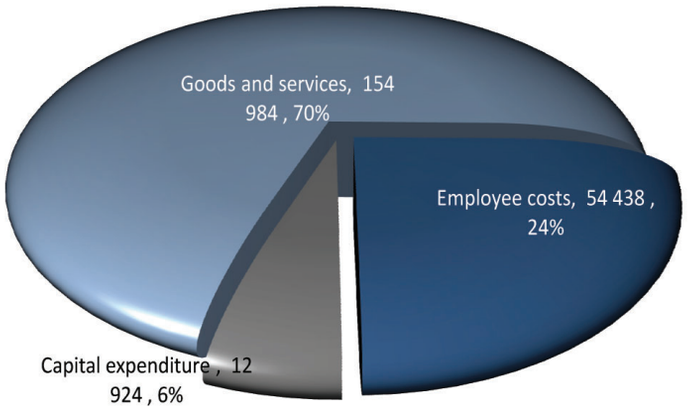


The significant allocation for this programme's MTEF budget of R114.5 million (R36 million for 2013/14) relates to the Earth observation service offering of data delivery and processing, Earth observation applications and services for societal benefit all of which contribute to SANSA's Strategic Goal 1. An MTEF budget of R47.8 million (R15 million for 2013/14) is devoted to conducting cutting-edge research, development and innovation to continually improve Earth observation data quality, development of high quality value added products and applications and the continuous maintenance and upgrading of data systems. This corresponds to Goal 2. Human Capital Development and Science

Advancement initiatives (Goal 3) will absorb, over the MTEF period period, R22 million (R7 million for 2013/14) and R22 million (R7 million for 2013/14) will be allocated to establish and maintain effective and mutually beneficial international partnerships (Goal 5).

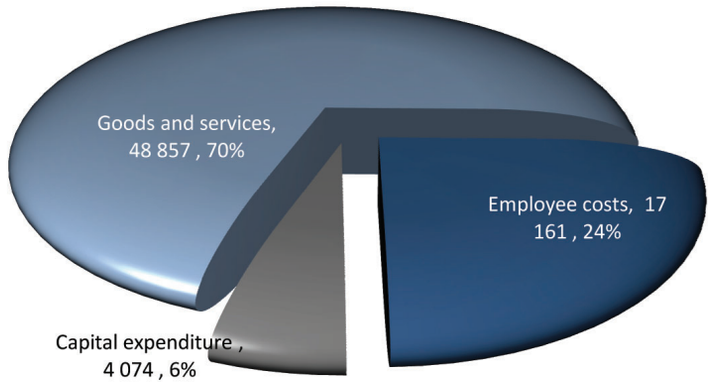
Programme MTEF Economic Classification

Earth Observation MTEF Breakdown



Programme Economic Classification Breakdown 2013/14

Earth Observation Breakdown 2013/14



The activities funded over the MTEF period are mainly access fees for satellite imagery (R93 million; R25 million for 2013/14), internal cost-recovery charges from the Space Operations programme for remote sensing imagery (R 40 million; R12 million for 2013/14), maintenance and upgrading of processing systems (R8,6 million; R2,6 million for 2013/14) and Human Capital Development initiatives (R2 million; R0.6 million for 2013/14).

This will result in the acquisition and distribution of 163 400 scenes of data over the MTEF period, which focuses on the SANSA strategic mandate to offer Earth observation services as a source for geo-information that contributes to the management, sustained utilisation, preservation and understanding of natural resources; improved health, safety and security; disaster forecasting, monitoring and mitigation; the increase of R&D data stock and value-added data products and information; the provision of decision-making, policy-making and planning instruments for government and other stakeholders. Collectively these contribute to a vast array of socio-economic benefits and improved livelihood in the country.

In terms of economic classification, over the MTEF period the programme will allocate R155 million (R49 million for 2013/14) to goods and services expenditures, R54.4 million (R17.1 million for 2013/14) to employee costs and R12.9 million (R4 million for 2013/14) to capital infrastructure.

11 Programme 3: Space Operations

11.1 Programme Purpose

SANSA Space Operations (SSO) operates state-of-the-art ground station facilities and provides services to local and international space industry and governments. These include launch and early-orbit support (LEOP), in-orbit testing (IOT), satellite life-cycle support and mission control.

11.2 Space Operations Programme Overview

The programme delivers on its mandate through the following sub-programmes

Sub-Programme	Sub-Programme Purpose	Key Priorities & Major Projects for 2013/14
Space Operations	The core function of the unit is the offering of satellite ground services, through telemetry, tracking and command (TT&C) for the various launcher and satellite support services, as well as hosting satellite ground infrastructure for various international and local clients.	Re-position SANSA for all Earth observation and science satellite ground station activities to meet SANSA's needs and seize a substantial share of the African market. Retain current customer base and enter into new strategic contracts in a measured manner. Increase in-orbit testing and carrier monitoring operations with expansion of necessary infrastructure. Consolidate mission control activities, competencies and capacity in view of the initiation of the ARMC project. Enter into new additional ground station facility hosting contracts in a measured manner for both EO and science missions. Develop space operations automation processes. Replace and upgrade aging equipment.
Data Downloading Services	Engage in partnership with other SANSA units to download EO and space science data at a central point. This enables a cost-effective method with local expertise: Typical data will include: All Earth observation data that must be acquired from time to time such as (Spot, Landsat, Modis) and other satellites as prescribed by Stakeholders. Scientific data for the purposes of research.	Ensure that maximum benefit is derived from contracted Earth Observation Satellites. Install and operate equipment to download scientific payloads.
Space Applications	The directorate, in collaboration with government departments and private industry, engage in: communications and data transmission, with the DoC and industry. positioning, navigation and timing, with NGI, the DoT and industry.	Lay a firm foundation for satellite-based navigation augmentation activities (dedicated infrastructure, personnel, national & regional partnerships and dedicated funding). Participate in EU Africa workgroups on navigation to ensure a coordinated solution for the region. Establish contact and partnerships with SADC countries for the roll-out of RIMS to those states to have the best possible augmentation coverage in the initial system.
Human Capital Development and Science Advancement	The sub-programme drives science advancement and public engagement initiatives and also pursues HCD initiatives.	Continue with current internship programme. Establish a dedicated science advancement sub-programme. Initiate well-structured science advancement initiatives.

11.3 Programme Performance Indicators and Annual Targets for 2013/14

SPACE OPERATIONS PROGRAMME										
SANSA GOAL	Programme Strategic Objective	Outputs	Activities	Indicators	Five Year Targets (Targets to be attained by 2017)	Audited/Actual performance	Estimate	Medium-term targets		
						2011/12	2012/13	2013/14	2014/15	2015/16
GOAL 1: World-class & efficient services and societal benefits (Societal Capital)	Offer efficient, cost effective & globally competitive space operations and applications for societal benefit and global market	1. Directly acquired data for EO 2. Launch support services 3. In-orbit tests	• Data collection • Launch support • In-orbit testing (IOT)	Success rate (%) for EO satellite passes as per service requirement (2SO1)	95%	95%	95%	95%	95%	95%
				Number or mission launches supported and in-orbit tests undertaken (2SO2)	33	23	25	24	31	33
GOAL 2: Cutting-edge research, development, innovation, technology & applications (Intellectual Capital)	Focused and needs driven applied research, development and innovation in key space operations and applications areas	New and innovative space operations processes & applications	• R&D activities in space operations & applications	Number of technical reports and research publications (2SO4)	4	2	2	3	4	4
GOAL 3: Effective development of human capital, transformation and science advancement (Human Capital)	Focused HCD in space operations and space applications and active science advancement	•Skilled youth •Skilled workers •Science advancement programmes	• Intern training • Staff training • Science advancement activities	Number of students/interns supported/trained (2SO5)	8	6	6	7	7	8

SPACE OPERATIONS PROGRAMME										
SANSA GOAL	Programme Strategic Objective	Outputs	Activities	Indicators	Five Year Targets (Targets to be attained by 2017)	Audited/ Actual performance	Estimate	Medium-term targets		
						2011/12	2012/13	2013/14	2014/15	2015/16
				Proportion (%) of permanent staff from designated groups in the top two management levels (manager, senior manager) (2SO9)	65%	40%	40%	50%	60%	65%
				Number of learners reached through direct & specific engagement (2SO10)	5000	1000	1200	1000	3000	3500
GOAL 4: Globally competitive national space industry (Economic Capital)	Maintaining a strong commercial service for industry	• Value-added services	• Commercial support to industry	Global launch, spacecraft, IOT support market share (%) (2SO12)	25%	new	new	20%	23%	25%
GOAL 5: Make South Africa a recognised global space citizen (Global Capital)	Establish and maintain effective and mutually beneficial international partnerships and customer relations in line with national strategic alignment	• High-quality professional services	• Global space industry servicing	Client performance rating (%) (2SO13)	95%	85%	95%	98%	98%	98%

Table 9: Measurable Objectives: Space Operations

11.4 Quarterly Targets for 2013/14

Space Operations Programme							
Indicator	Baseline	Estimate	Annual	Quarterly Targets			
	2011/12	2012/13	2013/14	1st	2nd	3rd	4th
Strategic Objective 1: Offer efficient, cost effective & globally competitive space operations and applications for societal benefit and global market							
Success rate of 95% of all passes taken for Earth observation (2SO1)	95%	95%	95%	95%	95%	95%	95%
Number of mission launches supported and in-orbit tests undertaken (2SO2)	23	24	23	6	12	17	22
Strategic Objective 2 : Focused and needs driven applied research, development and innovation in key space operations and applications areas.							
Number of formal R&D reports and publications (2SO4)	2	3	3	0	1	0	3
Strategic Objective 3: Focused HCD in space operations and space application and active science advancement							
Number of students/interns supported/trained (2SO5)	6	6	7	7	7	7	7
Proportion (%) of permanent staff from designated groups in the top two management levels (manager, senior manager) (2SO9)	40%	40%	50%	50%	50%	50%	50%
Number of learners reached through direct & specific engagement (2SO10)	1000	1200	1000	250	500	750	1000
Strategic Objective 4: Maintaining a strong commercial service for industry							
Global launch, spacecraft, IOT support market share (%) (2SO12)	new	new	20%	20%	20%	20%	20%
Strategic Objective 5: Establish and maintain effective and mutually beneficial international partnerships and customer relations in line with national strategic alignment							
Client performance rating (%) (2SO13)	98%	98%	98%	98%	98%	98%	98%

Table 10: Quarterly Targets 2013/14 Space Operations

11.5 Space Operations Budget and MTEF Estimates

11.5.1 Revenue estimates

Programme 3 - Space Operations Source of Funds

Transfers and Revenue	Audited outcome	Audited outcome	Approved Budget	Medium-Term Expenditure Estimate			Total MTEF	% of total
R thousand	2010/11	2011/12	2012/13	2013/14	2014/1 5	2015/16		
Parliamentary Grant	-	-	-	-	-	-	-	-
Contract income:Public		- -	-	3,488	3,694	3,883	**11,065**	9%
Contract income: Private		- -	30,000	36,431	38,580	40,556	**115,567**	91%
Total Revenue	-	-	30,000	39,919	42,274	44,439	**126,632**	100%
Earth observation services - internal			14,300	12,750	13,200	14,520	**39,720**	
Total Transfers and Revenue			44,300	52,669	55,474	58,959	166,352	

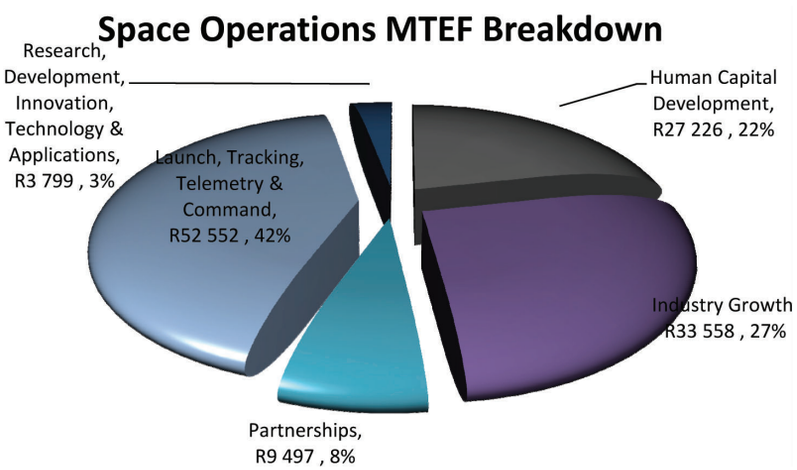
The Space Operations programme is commercially funded and does not receive a direct Parliamentary allocation. However, as it provides services to the Earth observation programme, there is an internal cost recovery of remote sensing services provided through the Earth observation programme. About 91% of the revenue source is from contracts with international clients and nine per cent from the local public sector.

11.5.2 Expenditure estimates

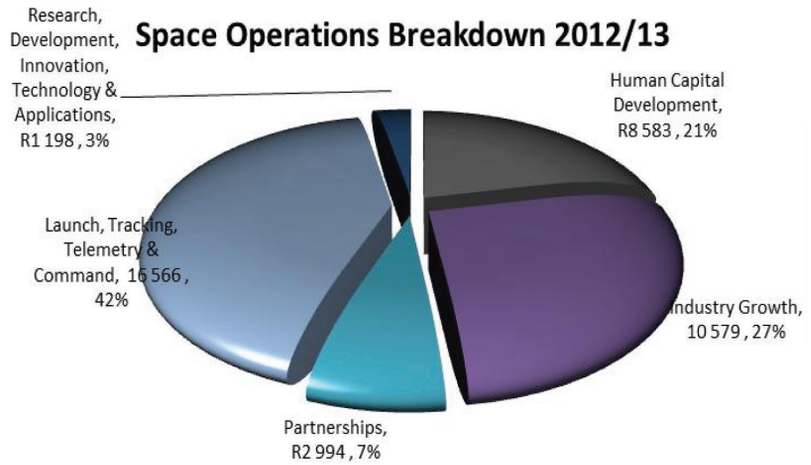
Programme 3: Space Operations

Sub Programme R'000	Audited Outcome	Audited Outcome	Approved Budget	Medium-Term Expenditure Estimate			Total MTEF
	2010/11	2011/12	2012/13	2013/14	2014/1 5	2015/16	
Launch, Tracking, Telemetry & Command	-		12,450	16,566	17,544	18,442	52,552
Earth Observation support			14,300	12,750	13,200	14,520	39,720
Research, Development, Innovation, Technology & Applications	-		900	1,198	1,268	1,333	3,799
Human Capital Development	-		6,450	8,583	9,089	9,554	27,226
Industry Growth	-		7,950	10,579	11,203	11,776	33,557
Partnerships	-		2,250	2,994	3,171	3,333	9,497
EO and SO unclassifed *		77,349					
Total	**-**	**77,349**	**44,300**	**52,669**	**55,474**	**58,959**	**166,352**
Economic Classification							
Current payments	**-**	**67,558**	**22,100**	**33,819**	**35,814**	**37,648**	**107,281**
Compensation of employees	-	23,734	19,372	23,774	25,177	26,466	75,416
Goods and services	**-**	**43,825**	**2,728**	**10,045**	**10,638**	**11,181**	**31,864**
Payments for Capital Assets	**-**	**1,503**	**7,900**	**6,100**	**6,460**	**6,791**	**19,351**
Machinery and equipment	-	1,136	7,900	6,100	6,460	6,791	19,351
Vehicles	-	368	-	-	-	-	-
Total expenses	**-**	**69,062**	**30,000**	**39,919**	**42,274**	**44,439**	**126,632**
Earth Observation support			**14,300**	**12,750**	**13,200**	**14,520**	**39,720**
		69,062	**44,300**	**52,669**	**55,474**	**58,959**	**166,352**

Sub-Programme MTEF breakdown

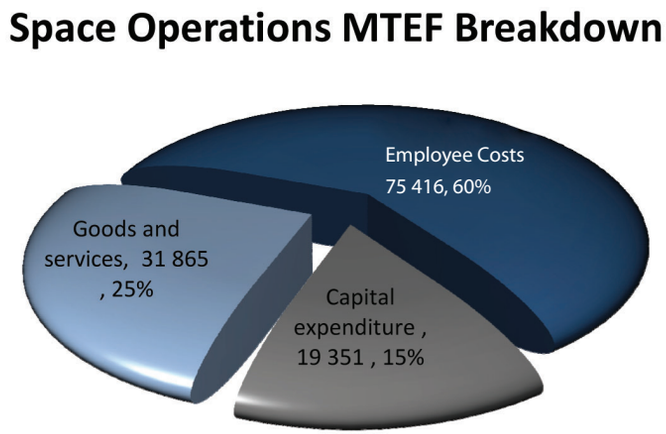


Sub Programme breakdown - 2013/14

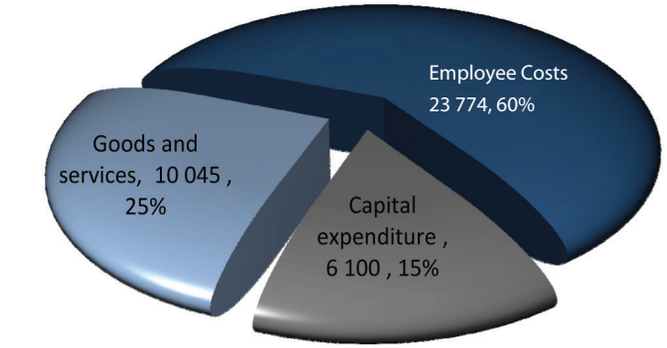


The bulk of the MTEF budget of R52.5 million (R16.5 million for 2013/14) is allocated to Launch, Tracking, Telemetry and Command services and the acquisition of data for the Earth observation programme of R40 million (R12.7 million for 2013/14) (Goal 1). A portion of the MTEF budget of R3.8 million (R1.1 million for 2013/14) is also allocated to Research and Development (Goal 2) activities in space operations and applications. A further amount of R27.2 million (R8.5 million for 2013/14) is allocated to Human Capital Development and Science Advancement initiatives (Goal 3). The balance of the budget, over the MTEF period period, R9 million (R3 million for 2013/14) is allocated to stimulate industry growth and global space partnerships (Goals 4 and 5).

Programme MTEF Economic Classification



Programme Economic Classification Breakdown 2013/14



Over the MTEF period period, the programme will spend R31 million (R10 million for 2013/14) on goods and services expenditures, R81.7 million (R25.7 million for 2013/14) on employee costs and R13 million (R 4 million for 2013/14) on capital infrastructure.

12 Programme 4: Space Science

12.1 Programme Purpose

Science Research Platform
Observational infrastructure
Data systems
Data processing & distribution
Research facilities
Student Training facilities

Knowledge Creation & Utilisation
Research
Applied science and innovation
Collaborations
Publications

Human Capital Development
Post-graduate training
Short-course training
Internships
Science advancement and outreach

Space Science is an important driver for scientific enquiry, knowledge creation, technology development and innovation. It is also an instrument for human capital development and has always been a vehicle for stimulating interest, awareness, understanding and appreciation of science amongst the youth and the general public. The long-term sustainability of the South African space programme and the increase in our market share of global space-technology and competitiveness are strongly dependent on the continued creation of new knowledge as bedrock for space technology development, innovation and services. Without home-grown basic space science research and knowledge capital, South Africa will continually be an importer of space know-how and will not reach its optimum innovative and competitive capacity and self-reliance. The SANSA Space Science directorate leads the space science programme by utilising the advantages of South Africa's geographic position in two areas, in particular. First, South Africa is the only African country with a scientific base in Antarctica. Second, South Africa is ideally located for the study of the South Atlantic Magnetic Anomaly - an area over the South Atlantic Ocean where aircraft, ships and satellites are exposed to increased radiation from space which leads to the interruption of, and damage to, communication systems.

SANSA Space Science is also part of the worldwide network of magnetic observatories. It is responsible for research, infrastructure and data for monitoring the near-Earth space environment. The scope of activities includes fundamental and applied space physics research, post-graduate student training, science advancement, space weather monitoring, and the provision of geomagnetic field-related services on a commercial and private basis. SANSA Space Science research and services are managed by means of various programmes.

Figure7: SANSA Space Science leverages research facilities in Antarctica to advance scientific knowledge

SANSA Space Science is a key player in the South African National Antarctic Programme (SANAP) and has several on-going space science and space weather related projects in Antarctica, on Marion and Gough Islands. SANSA is particularly interested in polar research since the inward-curving magnetic lines at the pole provide the perfect opportunity to conduct space particle research. SANSA research includes the monitoring of space weather to provide data related to the effects of the space environment on communication satellites, navigation and aviation to mention a few.

12.2 Space Science Programme Overview

The programme delivers on its mandate through the following sub-programmes

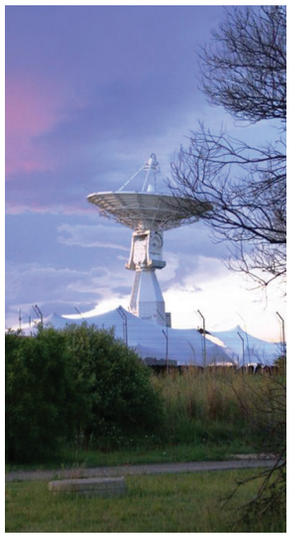
Sub-Programme	Sub-Programme Purpose	Key Priorities & Major Projects for 2013/14
Space Science Research	The core function of space science research is the generation of fundamental knowledge of the space environment through the collection and distribution of data for research, knowledge-creation and human capital development. The research areas covered by this programme include: Geomagnetism; Ionospheric physics; Magnetospheric physics; Plasma physics; Space weather; Atomospheric physics; Heliospheric physics; and Theoretical/Numerical/Computational Modelling.	Implementing a collaborative space science plan. Providing an Earth-space research platform (observational infrastructure and data systems). Finalising the roll-out of national research infrastructure under the South African Ionospheric, Geophysics and Geomagnetic Experimental Resource (SNIGGER). Continuing to collaborate with SANSA Space Operations on the ground station hosting for strategic scientific mission(s). Developing additional African and International Partnerships for research and development. Commissioning the new Digital Antarctic Radar.
Space Weather & Geo-space data Services	SANSA Space Science is host to the only Space Weather Regional Warning Centre in Africa, which operates as part of the International Space Environment Service (ISES). The space weather products and geo-space data services are required primarily for communication and navigation systems in the defence, aerospace, navigation and communication sectors. SANSA Space Science also provides data services to various clients and global data centres.	The provision of space weather and geo-space data services. Continuing the work on the IBSA space weather satellite and the South Atlantic Magnetic Anomaly (SAMA) research (geographic advantage). Expanding the space weather service portfolio. Installing a solar telescope.
Applied Science and Technology	The primary focus of the programme is provision of R&D and technology support to aviation, defence and maritime sectors. The technology and geomagnetic services provided by SANSA Space Science contribute significantly to the work of the navy, air force, and army, and thus to the safety and security of all South Africans. SANSA Space Science plays a key role in the navigation, communication and mineral exploitation sectors of the South African economy through the provision of technical and geomagnetic services to both the space and non-space sectors.	Providing magnetic navigation ground support to the defence sector. Providing electric and magnetic signature management services to the SA Navy. Supply and support of LEMI magnetometers and other magnetic sensors. Providing compass calibration support. SQUID magnetometry research. Providing magnetic technology support to space and non-space projects.
Human Capital Development and Science Advancement	SANSA aims to drive science advancement among the youth, public and policy makers as well as HCD in space science and related technology. SANSA Space Science aims to develop transferable skills through programmes such as summer and winter schools, the supervision of honours, MSc and PhD students, and teaching at partner universities. SANSA also runs various in-service courses in navigational support and space weather for the defence force.	Expanding HCD by increasing collaborative networks with R&D institutions and universities. Developing the necessary infrastructure for student training and science advancement. Presenting compass calibration and space weather courses. Presenting summer and winter schools for university students. Participating in at least six national exhibitions or festivals. providing holiday programme activities for learners. Using space science as a driver to advance science.

12.3 Programme Performance Indicators and Annual Targets 2013/14

SPACE SCIENCE PROGRAMME									
SANSA GOAL	Outputs	Activities	Indicator	Five Year Targets (Targets to be attained by 2017)	Baseline	Estimate	Medium-term targets		
					2011/12	2012/13	2013/14	2014/15	2015/16
GOAL 1: World-class & efficient services and societal benefits Societal Capital)	• Geo-space & space weather products and services • Applied science & technology products and services	• Data collection• Data processing• Value-added services and products	Amount (Tb) of Science data acquired & archived (2SS1)	5Tb	1 Tb	1 Tb	1.5 Tb	1.5 Tb	2 Tb
GOAL 2: Cutting-edge research, development, innovation, technology & applications (Intellectual Capital **)**	• Knowledge outputs • Geo-space & space weather products and services • Applied science & technology products and services	• Provide data for R&D purposes • Continual R&D of internal processes • Provision of data for student training • Collaborative student training • staff training • Science advancement	Number ISI publications per researcher (2SS4)	4	2	2	2	3	3
GOAL 3: Effective development of human capital, transformation, science advancement and engagement of the citizenry (Human Capital)	• Skilled students • Empowered workforce • Science advancement programmes • Public engagement program	Provision of data for student training• Collaborative student training • staff training • Science advancement	Number of students/interns supported/trained (2SS6)	30	15	25	25	30	30
			Number of short courses conducted (2SS9)	8	3	8	8	8	8
			Proportion (%) of permanent staff from designated groups in the top two management levels (manager, senior manager) (2SS12)	60%	New KPI	New KPI	55%	58%	60%
			Number of learners reached through direct and specific engagement (2SS13)	7000	3000	4000	4000	5000	7000

SPACE SCIENCE PROGRAMME									
SANSA GOAL	Outputs	Activities	Indicator	Five Year Targets (Targets to be attained by 2017)	Baseline	Estimate	Medium-term targets		
					2011/12	2012/13	2013/14	2014/15	2015/16
GOAL 4: Globally competitive national space industry (Economic Capital)	• Value-added services and products for navigation, communication, mineral exploration, satellite systems, power distribution	• Provision of geo-space & space weather services & products for industry (navigation, communication, mineral exploration power distribution) • Development of magnetic technology products and services for the commercial sector	Number of industrial/commercial sector services/products (2SS15)	10	new	5	5	7	8
GOAL 5: Make South Africa a recognised global space citizen (Global Capital)	• Membership of international organization of strategic importance • Beneficial multi-national agreements, partnerships & projects • High impact contribution to global	• Develop & maintain active international partnerships	Number of active multi-national projects (1SS16)	8	5	5	6	8	8

Table 12: Measurable Objectives: Space Science



12.4 Quarterly Target for 2013/14

Space Science Programme							
Indicator	Quarterly Targets						
	Audited 2011/12	Estimate 2012/13	2013/14	1st	2nd	3rd	4th
Strategic Objective 1: Offer a state-of-the-art research platform and applied science/technology service platforms							
Amount (Tb) of Science data acquired & archived (2SS1)	1 Tb	1 Tb	1.5 Tb	0.5 Tb	0.5 Tb	1 Tb	1 Tb
Strategic Objective 2: Conduct cutting-edge research, development and innovation							
Number ISI publications per researcher (2SS4)	2	2	2	0	1	0	2
Strategic Objective 3: Development of human capital in space science and science advancement							
Number of students/interns supported/trained (2SS6)	15	25	25	25	25	25	25
Number of short courses conducted (2SS9)	4	8	8	2	4	6	8
Proportion (%) of permanent staff from designated groups in the top two management levels (manager, senior manager) (2SS12)	new	new	55%	55%	55%	55%	55%
Number of learners reached through direct & specific engagement (2SS13)	3000	4000	4000	1000	2000	3000	4000
Strategic Objective 4: Active contribution to South African aerospace industry							
Number of industrial/commercial sector services/products (2SS15)	new	5	5	4	4	5	5
Strategic Objective 5: Establish and maintain effective and mutually beneficial international partnerships in line with national strategic alignment							
Number of multi-national projects (2SS16)	5	5	6	5	5	6	6

12.5 Space Science Budget and MTEF Estimates

12.5.1 Revenue estimates

Programme 4 - Space Science Source of Funds

Transfers and Revenue R thousand	Audited outcome 2010/11	Audited outcome 2011/12	Approved Budget 2012/13	Medium-Term Expenditure Estimate 2013/14	2014/15	2015/16	Total MTEF	% of total
Parliamentary Grant		-	21,773	22,347	23,665	24,877	**70,890**	67%
Contract income:Public		-	7,000	5,949	6,300	6,622	**18,870**	18%
Contract income: Private		-	-	914	968	1,017	**2,899**	3%
Research Grants		-	4,104	4,338	4,594	4,829	**13,761**	13%
Total Transfers and Revenue	-	-	32,877	33,548	35,527	37,346	**106,421**	100%

12.5.2 Expenditure estimates

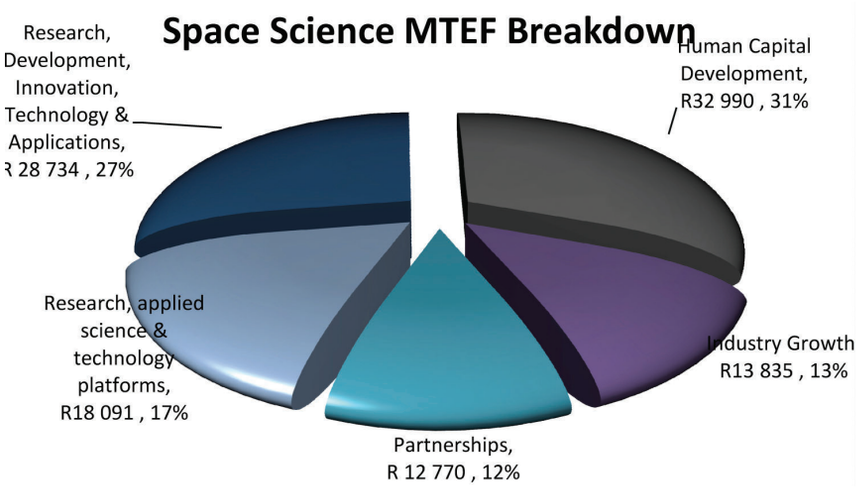
The projected expenditure for the programme over the MTEF period is R33.5 million (2013/14), R35.5 million (2014/15) and R37.3 million (2015/16) with an MTEF total of R106.4 million.

Programme 4: Space Science

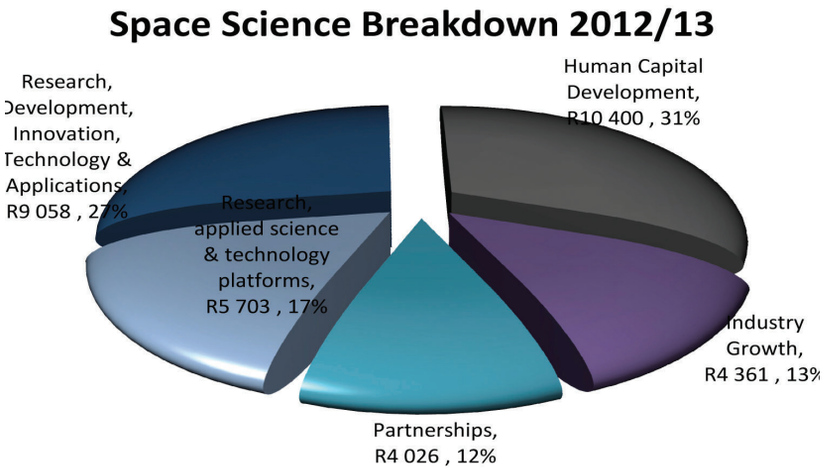
Sub Programme R'000	Audited Outcome 2010/11	Audited Outcome 2011/12	Approved Budget 2012/13	Medium-Term Expenditure Estimate 2013/14	2014/15	2015/16	Total MTEF
Research, applied science & technology platforms	-	4,783	5,589	5,703	6,040	6,349	18,092
Research, Development, Innovation, Technology & Applications	-	7,597	8,877	9,058	9,592	10,083	28,734
Human Capital Development	-	8,723	10,192	10,400	11,013	11,577	32,990
Industry Growth	-	3,658	4,274	4,361	4,618	4,855	13,835
Partnerships	-	3,376	3,945	4,026	4,263	4,481	12,771
Total	**-**	**28,137**	**32,877**	**33,548**	**35,527**	**37,346**	**106,421**
Economic Classification							
Current payments	**-**	**22,418**	**29,477**	**30,695**	**32,505**	**34,169**	**97,370**
Compensation of employees	-	13,033	16,200	19,776	20,943	22,015	62,734
Goods and services	**-**	**9,385**	**13,277**	**10,919**	**11,563**	**12,155**	**34,638**
Payments for Capital Assets	**-**	**5,719**	**3,400**	**2,853**	**3,022**	**3,176**	**9,051**
Buildings and other fixed structures	-	1,041	-	-	-	-	-
Machinery and equipment	-	3,754	3,400	2,853	3,022	3,176	9,051
Vehicles	-	924	-	-	-	-	-
Total expenses	**-**	**28,137**	**32,877**	**33,548**	**35,527**	**37,346**	**106,421**

Table 14: Space Science Budget

Programme MTEF Breakdown per Goal



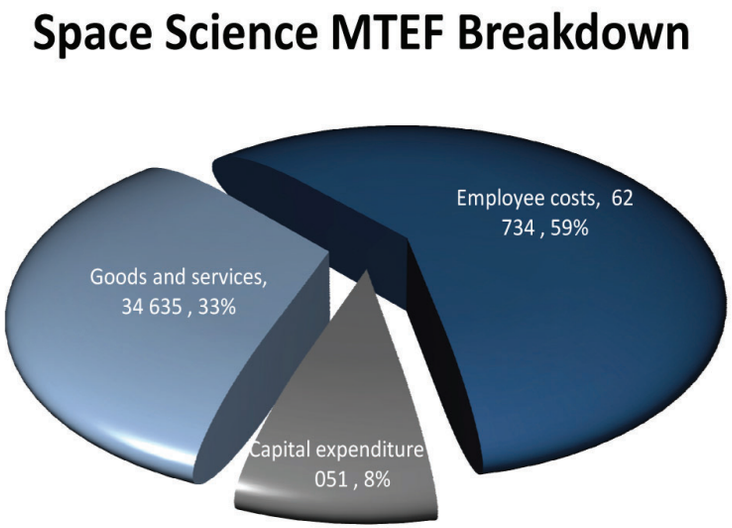
Programme per Goal 2013/14



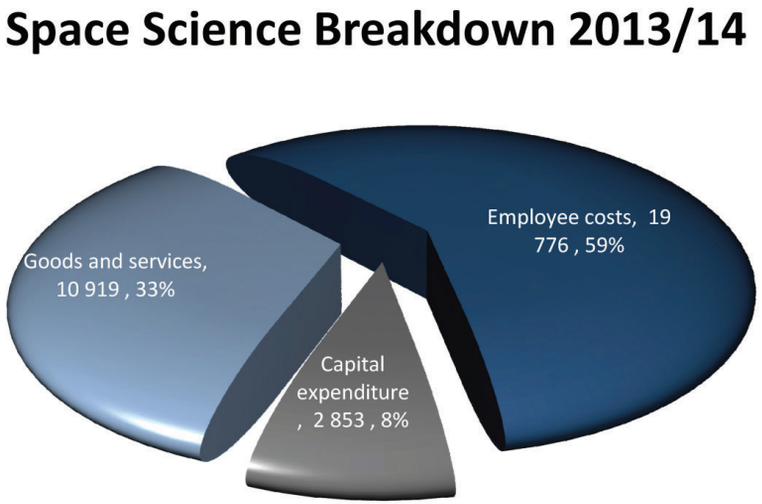
The activities funded over the MTEF period are mainly for the continued provision of an Earth-space research platform (observational infrastructure and data systems) (Goal 1) (R18 million; R5.7 million for 2013/14), cutting-edge research, development, innovation, technology and applications (Goal 2) (R28.7 million; R9 million for 2013/14), continued investment in human capital development (Goal 3) (R32.9 million; R10 million for 2013/14), and the development of additional African and International Partnerships for research and development (Goal 5) (R12.7 million; R4 million for 2013/14).

This will support the provision of the projected 45 end-user/value-added space weather, geo-space, and technology services / products over the MTEF period period as well as the publication of a number of research papers for the benefit of the space science global community.

Programme MTEF Economic Classification



Programme Economic Classification Breakdown 2013/14



The programme will, over the MTEF period, spend R34.6 million (R10.9 million for 2013/14) on goods and services, R62.7 million (R19.7 million for 2013/14) on employee costs (largely salaries) and R9 million (R2.8 million for 2013/14) on capital infrastructures. Of the goods and services expenditure for the 2013/14 financial year, R2.5 million is earmarked for HCD and science advancement initiatives and a further R3.7 million for research and applied science and technology platforms.

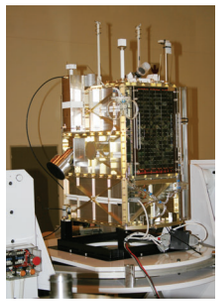
13 Programme 5: Space Engineering

13.1 Programme Purpose and Value Proposition

Space science and technology is recognized globally as an essential and strategic tool to meet social, technological, economic, and foreign policy objectives. Accordingly, many governments around the world are increasing their investments in space activities, with the intention of advancing their space capabilities and benefit from space operations. The SANSA Space Engineering programme will focus on the development, testing and deployment of space systems, and the development of engineering-specific human capacity. The efforts are aligned with South Africa's strategic drive for its own satellite system development capabilities, unique technologies and related skills to create a technology base for South Africa's industry and promote initiatives in advanced manufacturing and technology. Further, it will ensure access to facilities for space system assembly, integration and testing (AIT) for national and regional use.

The satellite development programme is to achieve the following objectives:

1. Develop a South African indigenous capability in space systems and hence create a certain level of self-reliance in satellite technology.
2. Use satellite development as a vehicle to develop technologies that will have a wider impact on the economy (e.g. control technology).
3. Associated with technology development will be the development of rare skills and innovative capability.
4. Stimulate the local industry through the development of new technologies and skills, contracting opportunities, and increased export and import channels through SANSA partnerships.



13.2 Space Engineering Programme Overview

The programme delivers on its mandate through the following sub-programmes

Sub-Programme	Sub-Programme Purpose	Key Priorities & Major Projects for 2013/14
Space Programme Management	The core function of satellite development sub-programme is to drive the development of a South African indigenous capability in space systems and hence create a certain level of self-reliance in satellite technology.	• Implementation of a coherent project management approach for SANSA. • Roll-out of strategic satellite engineering projects. • Scoping of the IBSA1 Space Science satellite under the IBSA trilateral agreement. • Facility development to support the assembly, integration and testing (AIT) of satellite systems.
Industrial Development	The primary function of the industry development sub-programme is to ensure the development of the local space industry and to use satellite development as a vehicle to develop technologies that will have a wider impact on the economy (e.g. control technology). Associated with technology development will be the development of rare skills and innovative capability.	• Facilitate the development of a competitive national satellite industry cluster. Involvement of the national space industry in the satellite build programme. • Development of a space industry plan.
Science Advancement and HCD	SANSA aims to drive science advancement among the youth, public and policy makers as well as HCD in space engineering and related technology.	• Undertaking HCD programmes in support of satellite engineering with a focus on student development and professional development.

13.3 Programme Performance Indicators and Annual Targets 2013/14

SPACE ENGINEERING PROGRAMME									
SANSA GOAL	Outputs	Activities	Indicator	Five Year Targets (Targets to be attained by 2017)	Baseline	Medium-term targets			
					2012/13	2013/14	2014/15	2015/16	2016/17
GOAL 1: World-class & efficient services and societal benefits (Societal Capital)	National space engineering competence (workforce and facilities) in satellite development	1. Satellite system and sub-system design and development 2. AIT facilities in line with national needs 3. Full operationalization of the Space Programme Management unit	Number of jobs directly supported by the satellite build programme (2SE1)	100	New KPI	30	50	60	70
GOAL 2: Cutting-edge research, development, innovation, technology & applications (Intellectual Capital)	Technology and Mission Development	1. Earth Observation Mission 2. IBSA1 Space Science Mission 3. Establish Centres of Competence	Number of national satellite projects (2SE2)	3	1	1	2	3	3
			Strategic satellite engineering project (2SE3)	100%	4%	24%	53%	78%	100%
			IBSA1 project scoping (2SE4)	IBSA1 Qualification Model	Concept	Project approved	Funding secured	Advanced Engineering Model	Qualification Model
GOAL 3: Effective development of human capital, transformation and science advancement (Human Capital)	Focused HCD in space engineering and active engineering advancement	1. Structured HCD programme and facilities 2.Collaborative student training 3.Collaborative professional development (internship)	Number of students/interns supported/trained (2SE5)	25	0	5	10	15	20
GOAL 4: Globally competitive national space industry (Economic Capital)	National space industry transformed and sustainable	1. Space industry cluster 2.Commercialisation of systems 3.Export success	Number of space industry cluster competitiveness programmes (2SE6)	2	0	1	1	2	2
GOAL 5: Make South Africa a recognised global space citizen (Global Capital)	South Africa playing lead in ARMC , Africa and IBSA programmes	Engage in multi-national projects	Number of multinational programmes (2SE7)	3	1	2	2	2	3

Table 15: Space Engineering Measurable Objectives and Medium-Term Output Targets

13.4 Quarterly Targets for 2013/14

Space Engineering Programme							
Indicator	Quarterly Targets						
	Audited 2011/12	Estimate 2012/13	2013/14	1st	2nd	3rd	4th
Strategic Objective 1: Offer a state-of-the-art satellite assembly, integration and testing (AIT) platform and services							
Number of jobs directly supported by the satellite engineering programme (2SE1)	N/A	N/A	**30**	10	20	30	30
Strategic Objective 2: Technical coordination of satellite system and sub-system development on behalf of SANSA							
Number of national satellite projects (2SE2)	N/A	1	1	1	1	1	1
Satellite engineering project implementation (2SE3)	N/A	4%	24%	10%	15%	20%	24%
IBSA1 project implementation (2SE4)	N/A	Position papers	Project approved	Proposal	Proposal submission	Proposal review	Project approved
Strategic Objective 3: Focused HCD in space engineering in partnership with space industry, universities and other partners							
Number of students/interns supported/trained (2SE5)	N/A	N/A	5	**2**	**5**	**5**	**5**
Strategic Objective 4: Promotion of a conducive environment for industrial/private involvement in satellite system and sub-system development							
Number of space industry cluster competitiveness programmes (2SE6)	N/A	N/A	1	**0**	**1**	**1**	1
Strategic Objective 5: Establish and maintain effective and mutually beneficial international partnerships and customer relations in line with national strategic alignment							
Number of multi-national projects (2SE7)	N/A	1	2	**1**	**1**	**1**	2

13.5 Space Engineering Budget and MTEF Estimates

13.5.1 Expenditure estimates

Programme 5: Space Engineering

Programme R'000	Audited Outcome	Approved Budget	Medium-Term Expenditure Estimate			Total MTEF
	2010/11	2012/13	2013/14	2014/15	2015/16	
Strategic Engineering Initiatives		16,120	37,200	95,000	100,246	232,446
Total Strategic Engineering Initiatives	**-**	**16,120**	**37,200**	**95,000**	**100,246**	**232,446**
Economic Classification						
Payments for Capital Assets		**16,120**	**37,200**	**95,000**	**100,246**	**232,446**
Machinery and Equipment		16,120	37,200	95,000	100,246	232,446
Total expenses	**-**	**16,120**	**37,200**	**95,000**	**100,246**	**232,446**

Table 17: Space Engineering Budget

The National Space Programme Management Unit in the CEO's office will spend an amount of R232 million approved from the Competitiveness Support Programme over the MTEF period in the strategic roll-out of satellite engineering activities.

PART C

LINKS TO OTHER PLANS

14 LINKS TO THE LONG TERM- INFRASTRUCTURE AND OTHER CAPITAL PLANS

Reconciliation of Capital Budget and MTEF to Capital Projects and infrastructur

Project name R thousands	Programme	Audited Outcome 2011/12	Approved Budget 2012/13	Medium Term Estimates 2013/14	 2014/15	 2015/16	Total MTEF
New and replacement assets							
Data Storage Device	Earth Observation	-	-	1,500	985		**2,485**
Satellite-Based Navigation Augmentation	Space Operations	-	1,500	-	-	-	**-**
Ku Band Antenna	Space Operations	-	-	-	-	3,150	**3,150**
Space Engineering Systems	Space Engineering	-	16,120	37,200	95,000	100,246	**232,446**
Scientific Mission Antenna / Science Tracking	Space Science	-	1,500	-	-	-	**-**
Navigation/ Network upgrade	Space Science	-	-	-	-	2,000	**2,000**
Total New and replacement assets		**-**	**19,120**	**38,700**	**95,985**	**105,396**	**240,081**
Maintenance and repairs							
Specialised Vehicles	Space Operations	-	1,500	-	-	-	**-**
Servers replacement	Earth Observation	-	-	-	-	-	**-**
Total Maintenance and repairs		**-**	**1,500**	**-**	**-**	**-**	**-**
Upgrades and additions						-	-
South African Earth Observation System (SAEOS) Architecture upgrade / maintenance	Earth Observation	-	1,500		-	-	**-**
Earth Observation Sensors / Antennas	Earth Observation	-	4,000	-	-	-	**-**
Servers replacement	Earth Observation	-	-	2,374	2,514	2,712	**7,600**
Specialised Software	Earth Observation	-	-	1,700	1,800	1,882	**5,382**
Antenna upgrade	Space Operations	-	-	6,100	6,460		**12,560**
General Capital expenditure	All	3,820	3,700	3,179	3,970	6,790	**13,940**
Total Upgrades and additions		**3,820**	**9,200**	**13,353**	**14,744**	**11,384**	**39,481**
Total Capital Programme		**3,820**	**29,820**	**52,053**	**110,729**	**116,780**	**279,562**

Table 18: Capital Projects

SANSA - Reconciliation of Capital Programme to Budget and MTEF

Description R thousands	2010/11 Audited Outcome	2011/12 Audited Outcome	Approved Budget 2012/13	Medium Term Estimates 2013/14	 2014/15	 2015/16	Total MTEF
Capital expenditure - Programme							
Corporate Support	3,820	1,460	700	1,826	1,934	2,032	5,791
Earth Observation		-	1,700	4,074	4,314	4,535	12,924
Space Operations		4,057	7,900	6,100	6,460	6,791	19,351
Space Science		5,719	3,400	2,853	3,022	3,176	9,051
Space Engineering			16,120	37,200	95,000	100,246	232,446
Total Capital Expenditure by Programme	**3,820**	**11,237**	**29,820**	**52,053**	**110,729**	**116,780**	**279,562**

Table 19: Capital Expenditure by Programme

15 CONDITIONAL GRANTS

Not applicable

16 PUBLIC PRIVATE PARTNERSHIPS

No Public Private Partnerships currently exist

17 ACRONYMS

Acronym	Full Name
AfriGEOSS	African Chapter of GEOSS
ARMC	African Resource Management Constellation
BRICS	Brazil, Russia, India, China and South Africa
DST	Department of Science and Technology
EGNOS	European Geostationary Navigation Overlay Service
EO	Earth Observation
EODC	Earth Observation Data Centre
GEO	Geostationary satellite or Group on Earth Observations, depending on context
GEOSS	Global Earth Observation System of Systems
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GSO	Geostationary orbit
HCD	Human Capital Development
IBSA	India, Brazil and South Africa
ICT	Information and communications technology
INTERMAGNET	International Real-time Magnetic Observatory Network
IOT	In-orbit testing/tests
ISES	International Space Environment Service
KPI	Key Performance Indicator
L,S,C,Ext c, X, Ku, Ka, DBS	Different frequency bands
LEOP	Launch and Early Orbit Phase/Low Earth Orbit Positioning
MTEF	Medium Term Expenditure Framework
NASA	National Aeronautics and Space Administration of the USA
NCRI	National Council on Research and Innovation
NDP	National Development Plan
NEP	National Equipment Programme
NRF	National Research Foundation
NSI	National Systems of Innovation
NSP	National Space Programme
NSS	National Space Strategy
OECD	Organisation for Economic and Cooperative Development
PFMA	Public Finance Management Act
R&D	Research and Development
ROI	Return on Investment
ROSCOMOS	Russian Federal Space Agency
SAASTA	South African Agency for Science and Technology Advancement
SAEON	South African Earth Observation Network
SAEOS	South African Earth Observation System
SANAP	South African National Antarctic Programme
SANSA	South African National Space Agency
SAR	Synthetic Aperture Radar
SBAS	Space-based Augmentation System
SET	Science, Engineering & Technology
SNIGGER	South African Ionospheric, Geophysics and Geomagnetic Experimental
Resource	
SPOT	System for Earth Observation (Système Pour l'Observation de la Terre)
TIA	Technology Innovation Agency
TT&C	Telemetry, Tracking and Command

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2. Department of Science and Technology Ministerial Review Committee on the Science Technology and Innovation Landscape in South Africa, 2012
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ANNEXURE A

ANNEXURE A

Strategic Outcome Oriented Goals

SANSA has five strategic goals, viz:

Strategic Outcome Oriented Goal 1	World-class & efficient services and societal benefits (Societal Capital)
Goal Statement	SANSA contributes to the improvement of the quality of the lives of South Africans in a sustained and conserved environment through the use of space science and technology for day-to-day societal benefits. This is achieved through the provisions of geo-spatial data, value-added data products, information and services for the operational needs of the country. These services include: (i) Decision-making, Policy-making & Planning Instruments; (ii) Agriculture & Food Security services; (iii) Water Resource Management; (iv) Disaster Management; (v) Safety and Security; and (vi) Space Weather & Geo-space Services.

Strategic Outcome Oriented Goal 2	Cutting-edge research, development, innovation, technology & applications (Intellectual Capital)
Goal Statement	SANSA uses space science and technology as a vehicle to increase South Africa's intellectual capital, advance technology capital and global new knowledge share. This is achieved through the provisions of geo-spatial data, value-added data products, information and services to R&D institutions and tertiary educational institutions. This is to serve the intellectual, technological and innovation needs of the country and to contribute to the global data and knowledge fabric. These services include: (i) Data procurement & acquisition; (ii) Low-level data processing, archiving and distribution; (iii) R&D platform provision; (iv) Research & development; and (v) Facilitating the application of R&D.

Strategic Outcome Oriented Goal 3	Effective development of human capital, transformation and science advancement (Human Capital)
Goal Statement	SANSA trains and develops South Africans in key areas of national importance, promotes the uptake and appreciation of science by our youth, and improves the overall scientific literacy and engagement of our populace. This is achieved through the provisions of: (i) Human capital development programmes; (ii) Science advancement; and (iii) Public engagement.

Strategic Outcome Oriented Goal 4	Globally competitive national space industry (Economic Capital)
Goal Statement	SANSA provides South Africa with the necessary space applications that are increasingly permeating and driving successful economies around the world to ensure South Africa's global competiveness, SANSA undertakes the following: (i) Space operations for the space industry; (ii) Positioning, Navigation & Timing Services; (iii) Promotion of industry participation in earth observation, space operations, space science and space engineering programmes; and (iv) Creates international opportunities for South African industries through global partnerships.

Strategic Outcome Oriented Goal 5	Make South Africa a recognised global space citizen (Global Capital)
Goal Statement	SANSA is the primary point of contact and face of South Africa in the global space arena and a vehicle for strategically positioning the country amongst the community of space faring nations.

Notes:

Notes:

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