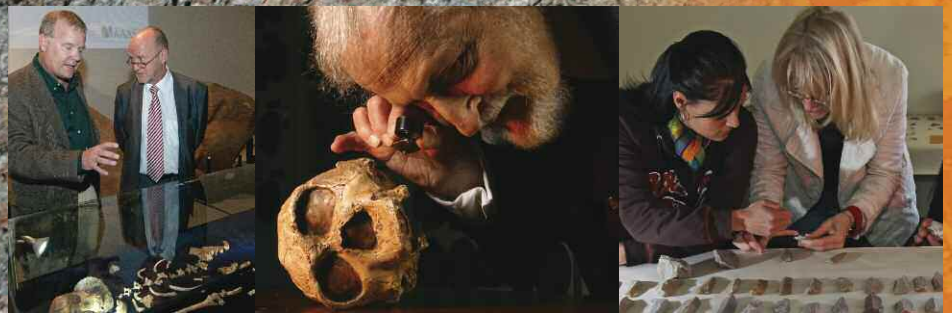


# The South African Strategy for the **Palaeosciences**

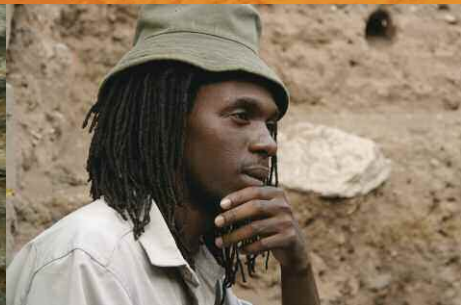
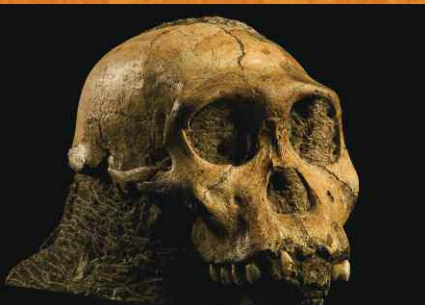
Incorporating Palaeontology, Palaeo-anthropology and Archaeology



science  
& technology

Department:  
Science and Technology  
REPUBLIC OF SOUTH AFRICA





## List of acronyms

AOP.....	African Origins Platform
DAC.....	Department of Arts and Culture
DBE .....	Department of Basic Education
DEA.....	Department of Environmental Affairs
DHET .....	Department of Higher Education and Training
DST .....	Department of Science and Technology
NHRA.....	National Heritage Resources Act
NRF .....	National Research Foundation
PAST.....	Palaeontological Scientific Trust
PHRAs .....	Provincial heritage resources agencies
SAASTA .....	South African Agency for Science and Technology Advancement
SAHRA .....	South African Heritage Resources Agency
SANReN.....	South African National Research Network



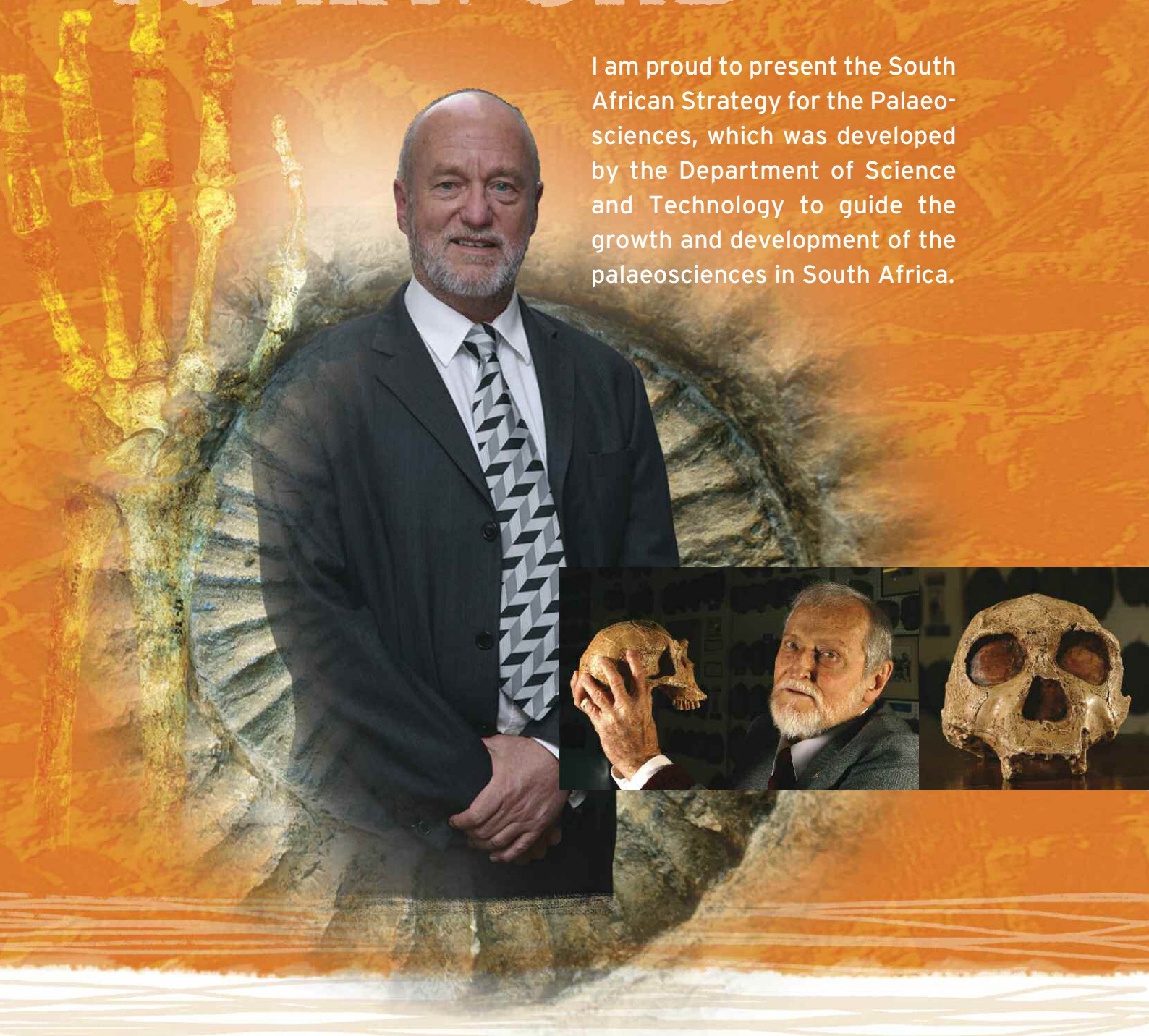
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# FOREWORD

I am proud to present the South African Strategy for the Palaeosciences, which was developed by the Department of Science and Technology to guide the growth and development of the palaeosciences in South Africa.







The National Research and Development Strategy, which is aimed at advancing research in science, engineering, technology and innovation to enable economic growth and social development, emphasises the need to use scientific areas in which South Africa has a geographic advantage to develop globally competitive science and research.

With our geographic location comes the responsibility to protect, preserve and develop knowledge about our abundant fossil wealth. This strategy for palaeosciences sets out some of what government plans to do to meet its responsibility in this regard.

Initiatives within the Strategy will include investing in the development of human capital to protect our fossil heritage and build expertise in the palaeosciences. Ensuring a critical mass of human capital to grow this field and others like it will be key in transforming South Africa into the knowledge economy we envisage for the future. The palaeosciences, like astronomy, are able to capture the popular imagination and attract youngsters to become part of the human capital pipeline for science in general.

Through the implementation of the South African Strategy for the Palaeosciences, we also aim to widen the reach of this field to ensure a better understanding of our common human origins, an important endeavour for nation building.

A handwritten signature in black ink that reads "Derek Hanekom".

**Derek Hanekom, MP**

**Minister of Science and Technology**



# Executive summary

This strategy gives expression to one of the goals of the National Research and Development Strategy (NRDS) and builds on the existing African Origins Platform.

The NRDS has identified a number of knowledge fields in which South Africa should aim at achieving international research excellence because of our geographical position and natural or cultural heritage. The palaeosciences (collectively including palaeontology, palaeo-anthropology, archaeology and related disciplines) are areas in which South Africa has a geographical advantage, owing to the quantity and diversity of finds within our national borders.



THE PALAEOSCIENCES are the scientific disciplines that tell us the story of life on Earth, including the story of humankind. This is a complex tale, with many layers of knowledge. South Africa is one of the countries which

hold the key to advancing our understanding of many parts of the story of life on Earth; it has evidence of how plant and animal life evolved through geographical time, how modern humans originated, and how human culture began and grew to become the modern societies we know today.

Unfortunately, because of our country's divided history, this richness is not widely appreciated, and does not provide the unifying source of national pride or the exposure of our scientific excellence, that it should.

This strategy is intended to provide a holistic framework for the development of palaeosciences. It therefore enjoins the private and public sectors, through the work of different government departments, their agencies and institutions such as

universities, science councils, museums that play a significant role in research in the palaeosciences to work in concert toward realising the goals of the strategy.



The strategy addresses five goals and their associated interventions which recognise the need for a holistic approach to the development of palaeosciences. These goals are centred around the need to build human capital, provide resource support and an enabling legislative environment, to collect, curate and research the country's palaeosciences treasures, and engage the public on all spheres of the field.

In this regard, South Africa does not currently have the requisite number of well trained people to study, manage and optimally benefit from its globally important heritage. This lack of human capacity is the most serious threat facing the disciplines of palaeosciences. The Department of Science and Technology will thus prioritise the establishment of a national research centre of excellence which



might evolve into a national institute for the palaeosciences to showcase and enhance South Africa's unique position and research capacity in palaeosciences. In addition, a number of research chairs will be established to attract and retain scarce and critical skills in these disciplines, while training the next generation of palaeoscience researchers.

Over the medium to long term, Government will also support and encourage universities, palaeoscience museums, science councils and heritage agencies to expand their capacity to ensure that the country has sufficient numbers of researchers, curators and heritage practitioners, and that South Africa becomes a world leader in palaeoscience research, collections management and site development and management.

This strategy has also identified the importance of increasing investment in palaeoscience infrastructure. This includes storage facilities of palaeoscience collections, particularly at museums, for display and research. Similarly, the strategy recognises the importance of developing a national network of sites to create vibrant and lasting public

engagement with the palaeosciences in South Africa.

An integrated, effective and technologically advanced network of heritage agencies is critical to ensure protection and conservation of palaeoscience heritage sites for research purposes and for future generations. In this regard, government will explore the viability of a single, national heritage resource agency.

Palaeoscience site displays and interpretative centres will be used to provide hands-on education and awareness and to propel the growth of South African tourism. Through these and other interventions, South Africans and others will be empowered to understand the true significance of African origins and Africa's heritage.

In implementing this strategy a national vision will be realised for the future of palaeosciences. Through the goals outlined in this document, South Africans will find a unity in their common origins and a shared sense of informed and responsible citizenship in the local and global importance of African origins.







# 1. The value of palaeosciences

Palaeosciences refers to the fields of palaeontology, palaeo-anthropology, archaeology, and related disciplines. These are the scientific disciplines that tell us the story of life on Earth, including the story of humankind. This is a complex tale, with many layers of knowledge, which is increasingly being revealed through research and discovery.



South Africa's special geographic advantage as a global provider of information on the evolution of life and humanity on Earth stands alongside the country's geographic advantage in astronomy, the science of the southern oceans, and biodiversity.

South Africa holds the key to advancing our understanding of various aspects of the story of life on Earth; it has some of the best evidence in the world of how plant and animal life developed, how humans evolved, and how human culture began and grew to become the modern societies we know today.

South Africa's contribution to human history is not only limited to the origins of life or humans. South Africa has made significant contributions in the development of human culture and civilisation. Cultural heritage sites such as Mapungubwe demonstrate traits suggesting that the earliest and largest Southern African civilisations were found in South Africa. This kingdom bears evidence of complex social and political systems which upheld its civilisation. Research suggests that inhabitants of Mapungubwe were also trading with the various regions of the Arab and Asian world as early as

900AD. This history demonstrates the contribution that Africa and South Africa made to the development of human culture in the world.

Work on South African palaeoscience is therefore of crucial national and international importance, because it provides proof of shared human origins, the mutual roots that bind all people within a common humanity. It provides answers to what occurred before humans existed, including the evolution of animal and plant life. In this story there is a message for all; that the continued survival of the human species requires the development of more sustainable ways of living with the available natural resources and environments.

The success of humans as a species must recognise that we are a social species and therefore need one another to survive. By building social barriers based on differences, humans undermine their ability to function effectively as a species and as individuals. The shared past of humanity is thus important as it unites us and provides the basis upon which we can build a united society, forged from similarities rather than differences, and on tolerance and understanding rather than on prejudice and mistrust.

## 2. Facing up to a difficult past

To understand why South Africa, in spite of its unique position in palaeosciences, has not attained its seemingly natural position as a global leader in these disciplines, it is necessary to consider South Africa's recent past.



The relationship between the apartheid government and the palaeosciences was complex. However, the nature of the relationship between these disciplines and apartheid has left certain legacies which impact on this proposed strategy. Arguably, the most significant of these legacies lies in the relationship between palaeosciences and South African society.

The 1960s was a period of rapid economic growth in South Africa. In the late 1960s and early 1970s the apartheid state invested significantly in museums and universities, as a means of presenting a modern face to the world. Many new jobs, although for only one privileged group, were created in all palaeoscience disciplines and basic infrastructure was put in place, which has endured.

The paradox of why the apartheid state invested in disciplines ostensibly focused on African origins and African heritage was resolved by a new wave of theories cumulatively known as *New Archaeology*. This is a methodological and theoretical approach which was developed in the late 1960s and early 1970s in Britain and America. This approach turned archaeology away from being a discipline constructing 'culture histories' towards a hard science which uses hypothesis testing, statistical approaches and computer modelling. The aim of this approach was to portray archaeology as a neutral, objective and 'apolitical' science.

Historians of the discipline have noted how archaeology, as studied around this time, was shrouded in technical language and used technical approaches that made it impenetrable outside the confines of the discipline. It was around this time, too, that professional archaeology distanced itself from its amateur constituency, who were considered to lack scientific rigour. The field was then too closed for comprehension by anyone outside of academia.

The 'experts' purported to present objective interpretations of the past which were mainly the middle class, Western, white male perspectives which were apparent in the field. The language used by this group was filled with technical jargon served to keep much archaeological knowledge concealed from the broader South African society. Distortions of the pre-historical past could have been easily presented as facts without interrogation by the broader public. This arguably set in place a pattern which, with a few exceptions, has endured to the present.

A final, significant legacy of apartheid lies in the way in which it isolated local archaeologists and palaeontologists. Progressively, through by the 1980s, many South African archaeologists became politically engaged using archaeological findings to challenge Apartheid constructions of history. The South African government at the time ensured that South Africans were cut-off from colleagues in the rest of Africa, and from the traditional disciplinary



centres of influence in the Northern Hemisphere. South African archaeologists, palaeontologists and palaeoanthropologists for example, were banned in 1988 from attending meetings of the World Archaeological Congress. Where they were not banned, many chose to stay away, adhering to the principles of the Cultural Boycott. The implications were that the shared common human ancestry and South African ancient knowledge systems and ideologies were stifled to prevent contradictions with the Apartheid states' ideologies.

As a consequence of this history, South Africa's large and very rich palaeoscience heritage and the knowledge inherent therein is not known to the majority of South Africans. Although museums exhibit important national objects, visitor numbers are extremely low by international standards, and have been declining. The national and provincial network of heritage sites is also underdeveloped and have thus not been fully utilised to develop public education and tourism. Significant academic debates in fields like marine and indigenous archaeology have had little purchase locally. South Africa lags behind many other countries in debates and policies related to ethics, the rights and responsibilities of archaeologists and descendent or affected communities, and ownership and control of fossils, cultural heritage and human remains.

Despite the significant gains made since 1994, challenges remain in respect of diversifying research networks, in particular activating south-south and African collaborative networks in the palaeosciences. It is imperative that South African researchers be empowered to drive their own significant, long-term research agenda and

projects, rather than primarily acting as local anchors for international research teams.

Since 1997, new school curricula have also started to give greater prominence to palaeosciences. The transformation of school curricula needs to be complemented with increased support to improve the knowledge and understanding of these disciplines by teachers to realise the potential of the palaeosciences to transform the minds of the youth about their African heritage so as to make them informed and responsible citizens. The inclusion of palaeosciences in school curricula has had positive knock-on effects in tertiary education, with a greater number and diversity of students wanting to study these subjects.

This positive development at tertiary level has, however, not yet been complemented by significant financial support to universities, including teaching and research staff. This situation is mirrored in museums and heritage agencies responsible for the development of palaeosciences where historical funding has also hampered growth in the numbers of professional palaeosciences staff. Historical inadequacies in the curation, conservation and storage of collections must therefore be addressed.

The implication of this situation is that South Africa has not seen the kind of expansion in research, human capital development, curatorial capacity, infrastructure, public engagement and palaeo-tourism that is required to sustain the historical gains made in this regard.

beads, metal ornaments and tools, the bone fragments of slaughtered household animals and the burnt seeds of cultivated plants. The characteristics of this evidence indicate that there were probably at least four phases of human settlement on the Southern Terrace.





### 3. Towards a consultative solution

Seventeen years into South Africa's democratic era, a series of interventions in the palaeosciences need to be introduced to overcome the legacy inherited from apartheid times. If South Africa is to achieve its natural position as a world leader in these disciplines, in which it has unique geographic advantage and which are of national and international interest and significance, then coordinated and enhanced intervention is necessary.



Recognising the importance of the disciplines of palaeosciences, the Department of Science and Technology (DST) initiated a consultative process in 2004 to develop a national strategy to guide government and other actors to improve research, collections management and training in these disciplines. This strategy became known as the African Origins Platform.

The implementation of the strategy has been the basis of government intervention in these disciplines.

During 2009, the DST again initiated a comprehensive and consultative process which included researchers and practitioners in the palaeosciences. This process resulted in the reformulation of the African Origins Platform Strategy.

### 4. The Goals of the Strategy and targeted interventions

The five goals and the specific interventions that support them form the basis of Government's intentions of holistically nurturing, developing and sustaining palaeosciences. These goals are to be achieved over a medium to long period of five to fifteen years. A number of targeted interventions will be introduced systematically to ensure the attainment of the goals. The interventions outlined within each goal will change over time with changing circumstances, but their choice is based on their potential to effect systemic and positive impact on these disciplines into the future.

# Goal 1

To transform the minds of South Africans so as to instil a sense of pride and provide the intellectual content to their African heritage so as to make them informed and responsible citizens, and to engage all sectors of society in palaeoscience matters, through information on discoveries that will allow them to appreciate the special place of South Africa in the story of life and humanity on Earth.

One of the objectives of the National Heritage Resources Act 25 of 1999 (NHRA), is to nurture and conserve heritage resources for the benefit of current and future generations. However, an enduring legacy of the apartheid era is that the richness of South Africa's fossil and archaeological heritage is not matched by a corresponding public passion and appreciation.

It is thus important to undo that part of South Africa's history which has served to downplay the importance of African origins and African heritage in particular; and which actively disconnected people from their heritage through displacements and the eradication or obfuscation of their history.

Several barriers prevent many South Africans from engaging more fully with this heritage. Currently, many important heritage sites are not open to the public or are not presented in a way that is accessible to the general public. Public awareness and engagement programmes have also historically been fragmented and require improved coordination to have maximum impact.

Historically, the South African media has generally not profiled African origins and heritage. This is beginning to change with improved understanding of the value and importance of the palaeosciences. Many museums are also not places where the general public can learn about their past and take pride in their heritage. In the absence of strong national public engagement programmes, a significant section of South African society will not have access to the rich knowledge of South Africa's contribution to the evolutionary history of life that is unique in the world.

Addressing these and other issues will require coordinated and concerted intervention by all actors in the public and private sectors.

## Interventions:

The former Department of Education provided the necessary leadership by revising the school curriculum with the inclusion of African origins in the National Curriculum Statement. This is a necessary condition for transforming the minds of the





youth in appreciating and deepening their understanding of the origins of humanity and heritage in particular. In order to take full advantage of this change, it is important to empower teachers by improving their understanding of the disciplines of palaeosciences.

- a) The Department of Science and Technology and the Department of Basic Education will work in concert with universities and teachers in developing appropriate pre-service and continuous development programmes for science teachers.
- b) Science awareness programmes managed by the South African Agency for Science and Technology Advancement (SAASTA) of the National Research Foundation (NRF); that target school learners will be strengthened to support this strategy.
- c) In order to improve public awareness and appreciation of our rich palaeoscience culture and heritage, the Department of Science and Technology and the Department of Arts and Culture, working with museums, universities, SAASTA, heritage agencies, the Palaeontological Scientific Trust (PAST), professional organisations and media organisations will explore how current awareness programmes and initiatives can be better coordinated for improved complementarity and impact; and whether new programmes or initiatives should be introduced.
- d) The Department of Arts and Culture will explore and implement measures to improve the accessibility of museums and palaeoscience sites by the general public and school learners.



## Goal 2

**Support the country's universities to produce a critical mass of palaeoscience researchers with a range of research, technical, curatorial, public engagement and managerial skills and drive knowledge production and exploitation to make South Africa a world centre of scientific excellence in the palaeosciences.**

Currently, South Africa has modest university teaching and research capacity relative to comparable nations, given its rich heritage in the palaeosciences. Currently there are approximately 75 research active<sup>1</sup> palaeoscientists employed in the public and private sectors. This pool is inadequate to effectively manage and conduct research of the rich palaeoscience heritage of the country.

There is also a skewed staffing demographic in terms of both age and race, with a wide generation gap between the cohorts of researchers employed in the 1970s and those employed post-1994, with the former close to or past retirement age, and the latter under the age of 45. The absence of a strong pipeline from postgraduate student to well-established researcher level has impeded the replenishing of the skills base with young and demographically representative South Africans.

These problems are further exacerbated by the development of new areas of specialisation, such as technical conservation, digital imaging and

heritage management in the palaeosciences which require new skills which are currently scarce.

There is also a growing concern about the reduction in entry-level positions at both universities and museums. This has made it difficult for the development of a new generation of specialists and lecturers. In recent years, when senior positions become vacant due to retirement, young South African graduates were not sufficiently qualified or experienced to fill the posts. The absence of career opportunities has resulted in top young students choosing opportunities other than careers in the palaeosciences.

The training of university students must also equip students with a range of applied skills needed in institutions other than universities to support the broad development of these disciplines. These include but not limited to palaeoscience heritage resource management, conservation, public engagement, disciplinary ethics, heritage and collections management.

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<sup>1</sup> "Research active" is defined here as someone producing the equivalent of one or more Department of Higher Education and Training-accredited papers per year between 2008 and 2010.





Research capacity in the palaeosciences must also be strengthened to generate a dynamic research environment and create the maximum intellectual vibrancy within these disciplines. As such, a balanced approach to funding research activities by the National Research Foundation (NRF) will be adopted. It will be necessary to prioritise existing institutional strengths, while working at enhancing identified priority areas.

The level of international collaboration of South African researchers is commendable as it promotes competitiveness and access to international funding. It is, however, important to have South African scientists playing a leading role, rather than primarily acting as local anchors for research initiated and driven by foreign scientists. The structural dominance of researchers from abroad is in part due to their access to sustainable long-term funding for their research projects. South African research funding needs to follow suit as it has tended to be made available with little lead-up time, for a short duration and in relatively modest amounts. There is also a great need to ensure that a new young South African generation of palaeoscientists

are encouraged to turn to palaeontology, palaeo-anthropology and archaeology as careers. The crafting of a South African research agenda should be informed by the pursuit of scientific excellence while ensuring that the palaeosciences benefit South African society. International collaboration should also be pursued for mutual benefit of both local and international researchers.

The fossil hominin record from Africa is internationally celebrated and has shown that humanity first evolved on this continent. The South African discoveries have highlighted the rich potential of Southern Africa to yield new fossil bearing localities that may host significant evidence of unknown or poorly represented periods in hominin evolution. Taxonomic, taphonomic, isotopic, palynological, sedimentological and stratigraphic studies of the entire fossil record from South African sites have greatly elucidated the climates and environments in which early hominins evolved, and which helped to shape the patterns of development of humans and other species. This offers clues as to why our world has taken the form it has.



## Interventions:

Improving the number and equity profile of researchers and academics in the palaeosciences is a key intervention to ensure the sustainability of these disciplines. It is thus important for the university system to continue to improve its graduate output in these disciplines at all levels, including postdoctoral fellows. These graduates must also possess the requisite skills necessary to support the implementation of this strategy and the broader strategy for the heritage sector as developed by the Department of Arts and Culture.

- a) The Department of Science and Technology and the Department of Arts and Culture will work in concert with the Department of Higher Education and Training and universities to foreground the growth of these and other priority disciplines within the DHET enrolment planning exercise at universities and FET colleges. In addition, the Department of Science and Technology will engage with DHET with the aim of getting the relevant Sector Education and Training Authorities to assist in the development of skills required to support palaeosciences.
- b) The Department of Science and Technology will also ensure that these and other priority disciplines receive, through the NRF, appropri-

ate research grant support and postgraduate student bursaries subject to available resources. Research grant support will be for basic research and for applied research in fields such as heritage conservation, heritage management practices, heritage ethics, public engagement, and collections management. Research infrastructure support will also be provided through the National Equipment Programme of the NRF for specialised equipment and laboratories.

- c) Within the 2011 to 2013 Medium Term Expenditure Framework, the DST and the NRF will establish at least one national research centre of excellence which might evolve into a national institute for the palaeosciences to showcase and enhance South Africa's unique position in and research capacity in palaeontology. In addition, a number of research chairs at universities will be established to support this strategy. The DST will also assist universities to establish international collaborations or exchange programmes to strengthen local capacity, especially in the acquisition of specialist skills.
- d) Centralised scientific laboratories specialising in specific technical services need to be established and supported. These are fundamental to a broad range of research interests in both archaeology and palaeontology. These laboratories could be attached to research centres





wherever possible. Palaeoscientists should be encouraged to optimally use existing laboratories such as the Isotope Laboratory at the University of Cape Town, the Accelerator at iThemba labs, the Optically Stimulated Luminescence facility, and the Digital Laboratory (for virtual palaeontology) at Wits University. The Department of Science and Technology will continue to provide researchers with access to international non-invasive technologies such as the synchrotron. The DST through the National Equipment Programme that is managed by the NRF has committed to acquire a computerised tomography (CT) scan to be situated at Wits University to advance non-invasive investigations.

- e) Particular attention will be placed on strengthening the collaborations with universities and research institutions on the rest of the African continent, particularly Botswana, Kenya, Ethiopia, Tanzania, Zimbabwe and Namibia. South African universities and research institutions will also be encouraged to support the training of archaeologists, palaeontologists, palaeoanthropologists and technical personnel from these and other countries.
- f) The increased graduate output must also be complemented with the increase in the availability of entry level positions, as well as development of programmes such as professional development and internship programmes and

postdoctoral fellows. Postdoctoral fellows augment the supervisory and research capacity of the universities and provide the basis for growing the pool of active researchers. To this end, the DST will ensure that these and other priority disciplines receive support through the NRF.

- g) The creation of permanent university positions for the new generation researchers and academics will also be encouraged. This will require additional financial support to universities. The private sector will be encouraged to support endowed positions at universities, while the DST will explore with the DHET the possibility of increasing the subsidy allocation to universities for these and other priority disciplines as part of the ongoing review and refinement of the university funding formula.
- h) Capacity has been diminishing in South African research areas such as invertebrate palaeontology, micropalaeontology, palynology (including pollen and phytolith analysis), taphonomy, geochronology (which includes isotope analysis and palaeoscience conservation). These areas need to be strengthened while concomitantly ensuring that currently existing areas of research strength are also maintained. Institutions will be engaged to use currently available instruments such as research chairs to ensure that the current areas of strength are retained while building expertise in weak areas.

# Goal 3

## Enhance the capacity of museums to curate, conduct and support research in palaeosciences in ways that inform South Africans and the world.

South Africa has many palaeoscience collections that are of national and international significance. These include therapsids, the ancestors of mammals, dinosaurs, hominins and archaeological artefacts. Museums are the primary vehicle through which many people are able to appreciate these collections. In this regard, museums play multiple roles of public education, display of collections, preservation and cataloguing of collections, and research. These roles complement that of universities, which include teaching, learning and research. However, a significant number of museums have seen the erosion of their human and infrastructural capacity over time, leaving many research and curation departments under-staffed and under-skilled and their collections in suboptimal facilities.

The South African Heritage Resources Agencies (SAHRA) mandates that institutions storing collections undertake to curate the material in perpetuity. There is thus a need for provision of infrastructure to store and manage palaeoscience materials, and to provide the human capacity needed to ensure best practice curation.

The current state of South Africa's palaeoscience collection facilities is variable. There are some adequate facilities, particularly at national museums such as Iziko South African Museum, Wits Origins

Centre, Maropeng, National Museum, Bloemfontein, the Rock Art Research Institute (RARI) and the Wits Palaeoscience Centre, but the majority have insufficient storage and working space, and lack essential curation and conservation materials and equipment. In fact, all facilities are experiencing understaffing, lack of appropriate skills and under-resourcing. Collections are often incorrectly perceived as necessary evils that use space and require funding and constant care, while providing little benefit to a museum or nation.

However, collections are a basic resource that supports fundamental and applied research, today and will continue to do so well in the future. They also enable displays and facilitate public engagement and training. Museums and other collecting institutions should be provided with the necessary support to maintain their collections in good condition. In addition, museums should be assisted to expand their storage and curation capacity as ongoing research projects will produce additional materials every year.

As with universities, many museums currently have insufficient human capacity to fulfil their mandates, particularly for research and curation. This problem is also exacerbated by relatively low remuneration of their staff compared to their university or





private sector counterparts, leading to low attraction and retention of qualified staff.

## Interventions:

As with universities, museums must improve the number and equity profile of staff for continued sustainability. However, museums are not autonomous institutions like universities.

- a) To facilitate this increase in capacity, the Department of Arts and Culture, being the national custodian of museums is considering organising museums in clusters of mutually complementary expertise. Each cluster could comprise a set of skills in related fields so that each museum becomes a specialised centre of research and technical analysis. Such clusters would ultimately have technical and research staff with specialised training in collections management, curation, conservation and research. The creation of clusters of excellence within museums will ensure that investment and funding responsibilities between the provinces have a wider footprint, while at the same time creating national synergies and economies of scale. This would be more efficient and effective than a network of individuals working in isolation.

- b) To attract and retain scarce skills, museums and universities will be encouraged to create strategic alliances that commit each institution to supporting a particular set of palaeoscience skills.
- c) Improving staff conditions of service is also important to attract and retain personnel to ensure operational continuity. The Department of Arts and Culture will explore the creation of an "Occupation Specific Dispensation" category for museum positions requiring scarce and critical technical skills. Museums will also be encouraged to participate in an integrated national system of staff development fellowships, partnering with universities to create training opportunities, and offering specialist internships for university graduates.
- d) The Department of Arts and Culture and museums working in concert with the DST will conduct an audit of palaeoscience collections at all museums. Such an audit would include information on where material is curated; the size, content and condition of the collections held; and a plan to digitise and display the collections. This would be an evaluative audit that identifies problems in collection curation, recommends solutions, and determines a ranking of priority issues requiring attention.
- e) The Department of Arts and Culture will also explore the determination of a national set of minimum standards for the curation of collections, and protocols to access these collections, at all museums. Similarly, the DAC will consider a review of the efficacy of the current governance, an operational model for provincial and national museums, and consider making legislative or other institutional changes such as the funding model for museums.

## Goal 4

**Ensure that South Africa's palaeoscience heritage is well managed so as to attain international standards of heritage management and ensure that the country's palaeoscience heritage is well managed and used for the benefit of current and future generations.**

The diverse South African palaeoscience wealth requires effective and efficient management. There are numerous government departments and agencies mandated with the management of this wealth at local, provincial and national level; with the main custodian, as mandated by the National Heritage Resources Act 25 of 1999 being the South African Heritage Resources Agency (SAHRA). SAHRA, in addition to enforcing compliance, is responsible for coordinating efforts undertaken by all the various government agencies in management of heritage sites.

In this regard, SAHRA needs to perform both compliance and coordinating roles in addition to being an agency for the development of site management.

It is commendable that national departments, municipalities, universities and museums are funding the development of some sites. There is an ongoing need to strengthen and support South African heritage agencies to effectively and efficiently manage the country's palaeoscience heritage. A number of laws exist which clearly outline the mandates of different bodies.

Among the important Acts and regulations are the National Heritage Resource Act, 1999 (NHRA) the Cultural Institutions Act, 1998, and the World Heritage Convention Act, 1999. Other laws that impact on the management of this resource include the National Environmental Management Act; the Protected Areas Act; the Minerals and Petroleum Resources Development Act; the Cultural Institutions Act, 1998 and the Human Tissue Act. Provincial laws and ordinances and local by-laws also add to the regulatory regime of these heritage resources at provincial and local levels.

Although the legislative framework protecting South Africa's heritage resources has been in operation for more than a decade, it has neither achieved the desired level of heritage management and protection, nor the adequate development of the heritage sector.

The NHRA promotes a three-tier system for heritage resources management, in which national heritage resources are the responsibility of SAHRA, provincial heritage resources are the responsibility of the provincial heritage resources agencies (PHRAs), and other heritage resources are the re-





sponsibility of local authorities. The limited capacity and competence in the palaeosciences, including heritage management, at provincial heritage agency level is currently the most serious threat to the future of these heritage resources in South Africa.

In terms of legislation, all palaeoscience sites, other than Grade I sites are to be managed at provincial level. This is done in terms of the Guidelines for Provincial Heritage Resources Authorities and the Management of Archaeological and Palaeontological Heritage Resources, which provide, inter alia, the requirements to be met before an entity can be given competence to manage our palaeoscience heritage.

There is currently great unevenness in the capacity of provincial heritage authorities (PHRAs) to manage palaeosciences resources. These PHRAs face the same challenges as museums of an inability to recruit and retain skilled and experienced individuals. The inability of PHRAs to appoint skilled staff thus constitutes a looming crisis in heritage management.

Despite the limitations observed in the heritage sector, positive efforts are being undertaken by government to improve the status of heritage management in the country. As part of a national strategy to preserve our heritage resources, the Department of Arts and Culture has developed a national draft Policy on Digitisation of Heritage Resources. The scope of this policy is directed towards the digitisation of heritage resources for the purpose of documentation, preservation, access and management of ownership. It is intended to cover all forms of heritage from tangible to intangible heritage. However more efforts are required to counter the problems faced by this sector.

## Interventions:

- a) To establish how best to integrate the heritage management sector to support this strategy, the Department of Arts and Culture working with the Department of Environmental Affairs and the Department of Science and Technology will jointly review the regulatory framework for the management of heritage resources. Such a review would aim to identify



gaps, weaknesses and overlaps in roles and responsibilities of different agencies and organisations; while proposing solutions on improving integration and coordination of heritage management to support the implementation of this strategy. This review will also explore the viability of a single, national heritage resource agency.

- b) As with museums, the Department of Arts and Culture will consider the appointment of palaeoscientists to monitor heritage assessments and to manage provincial palaeoscience sites in each PHRA. The Department will also explore the creation of an “Occupation Specific Dispensation” category for heritage manage-

ment positions requiring scarce and critical technical skills.

- c) The Department of Science and Technology will support the Department of Arts and Culture, through a range of measures including technology solutions in the implementation of this policy. In this regard, the two Departments will explore the inclusion of heritage resource agencies and museums onto the South African National Research Network (SANReN), to provide broadband connectivity to enable accessibility and sharing of digital heritage resources. This will provide a platform to share digitised resources nationally.



# Goal 5

**Make South Africa the destination of choice for palaeo-tourism by building a network of site displays and interpretative centres which are managed in a socially responsible and sustainable manner.**

South African tourism has historically been dominated by an emphasis on natural heritage, but the international significance of and interest in South African cultural heritage makes it as important as natural heritage tourism. In 2010, Tourism contributed 7.7% towards South Africa's Gross Domestic Product. Directly and indirectly, tourism also constitutes approximately 7% of employment in South Africa.

Cultural and heritage tourism is well-positioned to be a significant national revenue generator, a source of employment and poverty alleviation. However, it first requires marketing of the existing tourism products as a pilot for more projects on major infrastructural and human capacity development if it is to fulfil its true potential.

South Africa currently boasts numerous sites of great palaeoscience significance. The best known of these are the Sterkfontein, Swartkrans and Kromdraai sites that make up the Cradle of Humankind, one of the world's richest concentrations of hominin fossils. Archaeological sites include the uKhahlamba Drakensberg World Heritage Site, host to one of the largest and most concentrated series of rock art paintings in Africa, and the Mapungubwe Cultural Landscape, site of an ancient and sophisticated African kingdom that predated Euro-

pean colonisation by almost a thousand years.

While these sites can contribute enormously to rural tourism and rural poverty alleviation, helping to sustain jobs in hotels, restaurants, shops and many other services, the sites themselves are seldom profitable. In most countries, high-quality site presentations are subsidised by governments that recognise the broader benefits to society. Governments use these subsidies to ensure open access to sites for tourism, education and research purposes.

The model for the further development of national and provincial network of heritage tourist sites in South Africa therefore needs to be reviewed; recognising the contributions of both the public and private sectors. Appropriate integrated planning by relevant authorities is a necessary condition to ensure the creation and sustainability of integrated tourist routes. Minimum standards of management, presentation and conservation should be enforced at every site to ensure that the value of the site is sustained for future generations. The safety and integrity of sites should be achieved as far as possible without compromising the visitor experience. Provision should also be made in the future for the training of palaeo heritage tourism managers and guides.

## Interventions:

- a) The Departments of Tourism and Arts and Culture in collaboration with the Department of Science and Technology will review the current model for the management and governance of heritage tourism. These departments will establish a task team comprising senior officials from these departments and other relevant stakeholders who would review the mandates and capacity of existing structures aimed at developing and promoting heritage tourism countrywide.
- b) The review would need to take the following mandates into account: coordination of heritage site development, maintaining a register of open heritage sites for tourism that comply with SAHRA, and of sites not open but with tourism potential; the allocation and management of funds for site development, management-conservation planning, custodian training and provision of assistance to third-tier institutions, local authorities and private individuals with the expertise for the development of heritage sites.
- c) The Department of Tourism is currently developing a Strategic Framework on Heritage Tourism, which is intended to provide strategic direction for the development and promotion of heritage tourism in South Africa. This framework adopts a phased approach to site development. The first phase entails the identification of the site, its detailed need assessment, evaluation of its heritage and or scientific significance, and its tourism potential. The second phase is site development and its registration for tourism. The final phase is

the operational management of the site. The Department of Tourism is committed to the development of key sites or nodes and will develop five heritage sites over a five year period. Priority will be given to those sites with tourism potential but which are currently not adequately profiled.

- d) To effectively market heritage tourism, a number of heritage sites need to be developed as part of tourism routes. These routes should cover different aspects of cultural and natural heritage to provide tourists with a diverse and rich experience. Profiling our world-renowned palaeo heritage would thus complement South Africa's well-known socio-cultural and natural wonders such as the Kruger National Park, Mapungubwe World Heritage Site, Robben Island, the Drakensberg and iSimangaliso World Heritage Site to name a few. The Department of Tourism working in concert with the DST will also ensure that the International Marketing Council and South African Tourism profile South Africa as a destination of natural and cultural heritage, in particular its rich palaeoscience records and its position as a cradle of culture, technology, art, humanity and life on Earth.





## 5. Conclusion

**This strategy, while retaining significant elements of the African Origins Platform, addresses limitations in the original strategy. This strategy however recognises that a multi-pronged research based approach is necessary to maximise efforts at developing palaeosciences.**

Palaeoscience is a broad discipline which spans scientific, social, cultural, economic and legal frontiers. It is thus crucial that all these elements are addressed by the strategy. Investments in the palaeoscience will also have economic benefits which can contribute towards the development of communities adjacent and immediate to palaeoscience sites. This and other objectives will require joint planning and implementation.

This strategy is also intended to complement other policies and strategies of government, in particular

those of the Department of Arts and Culture, such as the Heritage Human Resource Strategy, the Heritage Digitisation Policy and the National Museums Policy. The implementation of this strategy would contribute towards the Government effort to transform the museum and palaeoscience heritage management landscape.

In implementing this strategy a national vision will be realised for the future of palaeosciences in South Africa.



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