

The legacy of Asbestos Mining in SA and its rehabilitation program

CAAWG 7; 3 – 9 November 2014; Namibia

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Council for Geoscience
Leaders in Applied Geoscience Solutions

35th IGC

Cape Town, South Africa

27 August – 4 September 2016



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About CGS

- State owned Entity
- Report to DMR - Mandate
- Report to DST - Research in the geological related fields



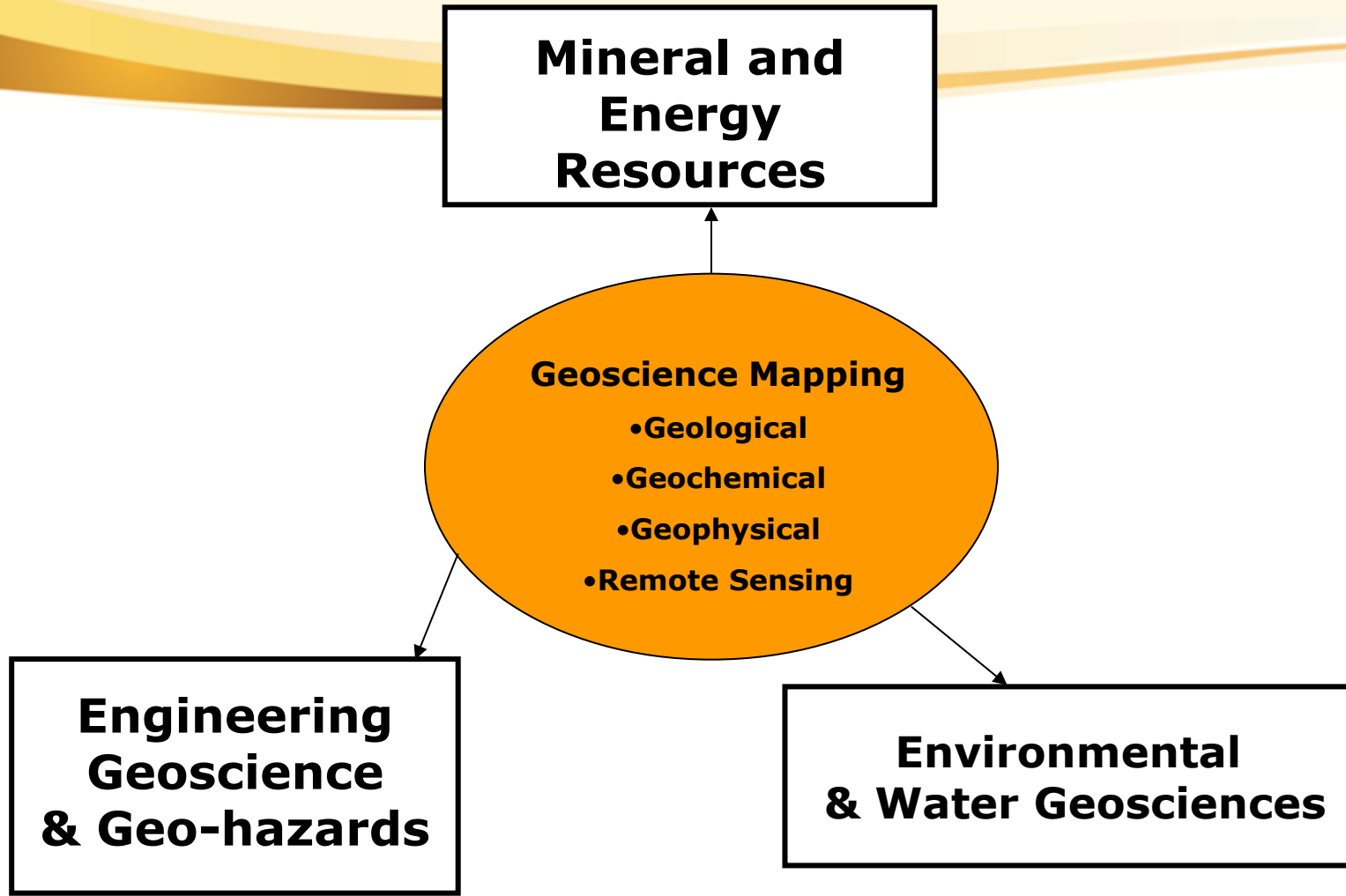
The Geoscience Act (Act 100 of 1993)

The Geoscience Amendment Act (Act 16 of 2010)

- The systematic onshore and offshore geoscientific mapping of South Africa
- Basic geoscience research into the nature and origin of rocks
- The collection and curation of all geoscience data and act as a National Geoscience Repository
- Rendering of geoscience knowledge services and advice to the State
- Manage a number of national geoscience facilities on behalf of the country
- Render commercial geoscience services and products to national and international clients



Scientific/Business Thrusts



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Mining Industry in SA-Background

- SA is known for its mining industry. This is what put it on the global business map
- It is abundant in precious metals, coal, etc.
- In fact, mining is what propelled migrant labourers and big businesses to set up shop in SA.
- To date, our GDP is still much dependent on the mining industry.



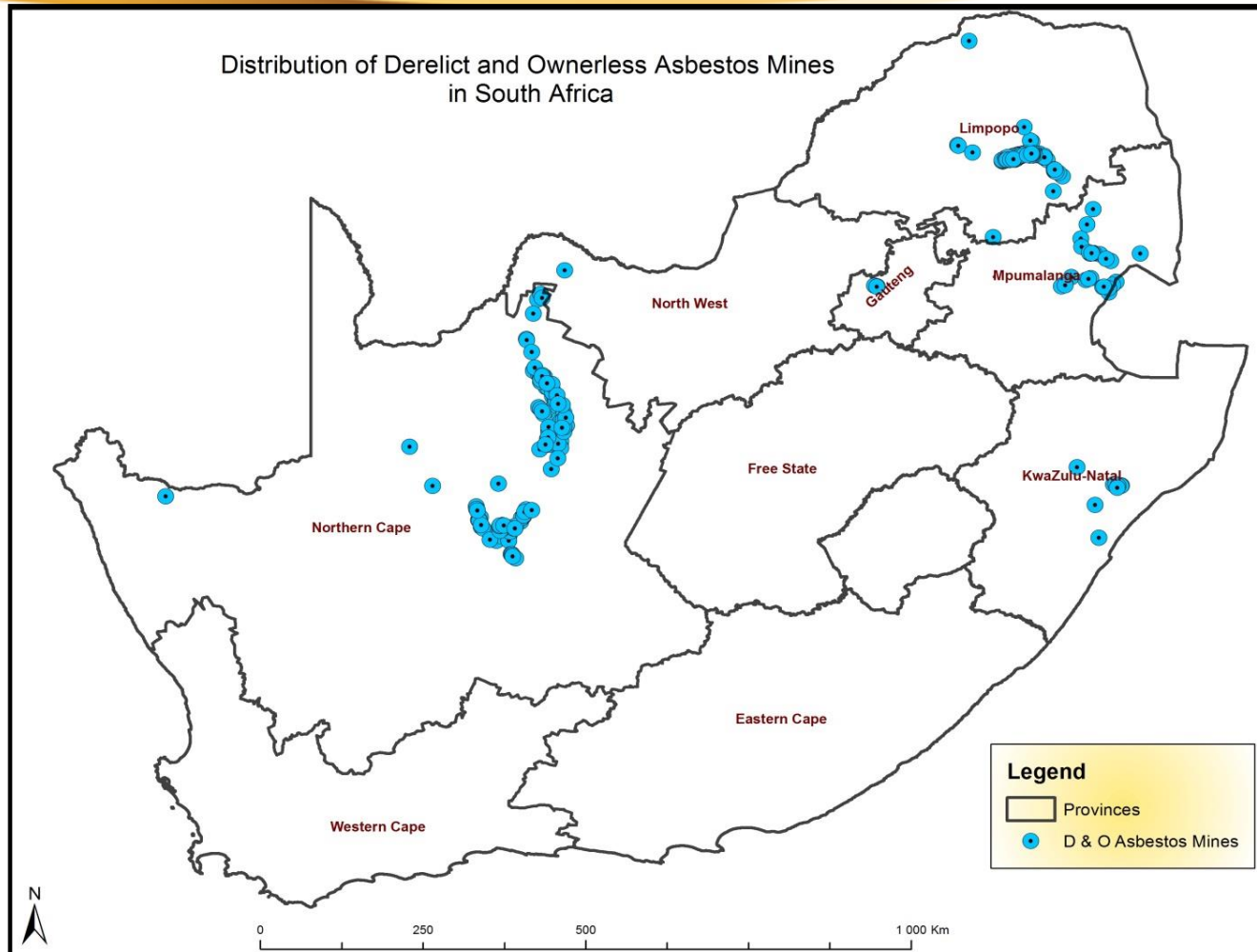
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Introduction-Asbestos mining in SA

- Asbestos mining ceased in South Africa in 2002
- In terms of the 2008 asbestos regulations, the use, transport, manufacture, import and export of asbestos and asbestos containing products is prohibited.
- Asbestos was used to manufacture a number of widely-used products, for example, asbestos-cement sheets for roofing low-cost housing or seaside homes.
- Its inherently useful properties, such as heat and acid resistance, insulation, strength and durability, led to its use in thousands of products.

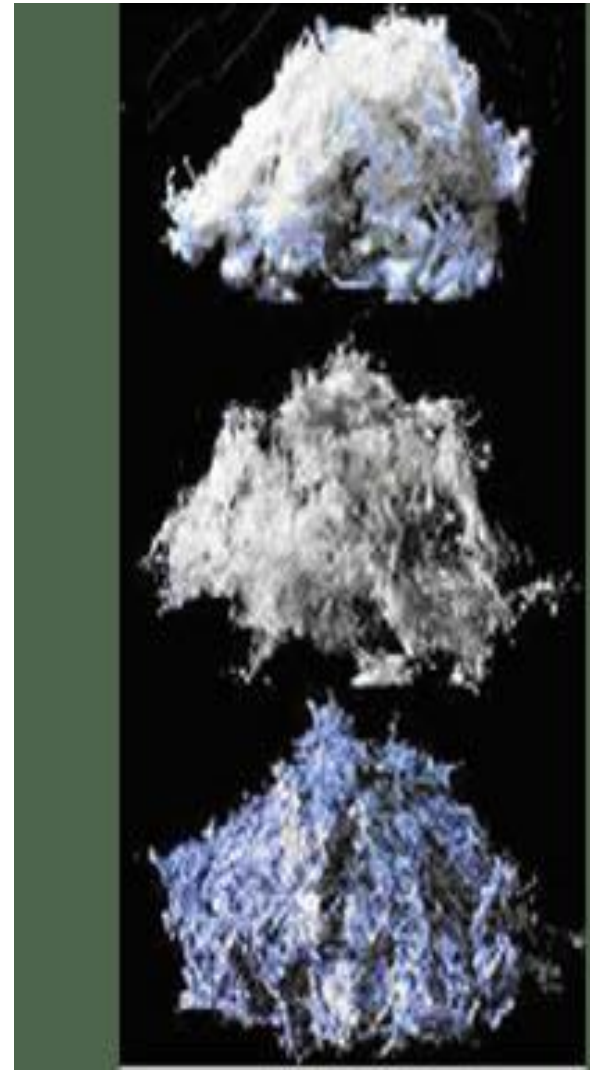


Asbestos Mines Distribution



Different Types of Asbestos

- Historically in South Africa, there were two amphibole asbestos mining areas
- The Cape crocidolite in the Northern Cape Province asbestos fields and Pietersburg asbestos field in Limpopo Province, where both Transvaal crocidolite and amosite were mined.
- Many small mines and mills operated in the Pietersburg asbestos field from the 1920s producing Transvaal crocidolite and amosite from deposit in which seams of two amphiboles often overlapped.
- The crocidolite mining in Pietersburg asbestos field never reached the production levels of those in the Northern Cape, mostly because the deposits were small and scattered and were considered to be of lower grade than those in the Northern Cape.



Rationale Behind the Rehabilitation Programme

- Asbestos mining posed a serious health hazard to the public when they are exposed to it in its finest form over an extended period.
- It is for this reason that the areas where Asbestos was previously mined be rehabilitated.
- If asbestos polluted environments remain unmonitored and not contained, then fine particles of asbestos fibres released into the atmosphere could reach critical levels and become a hazard if it could be inhaled.



Uncapped Asbestos mine dump

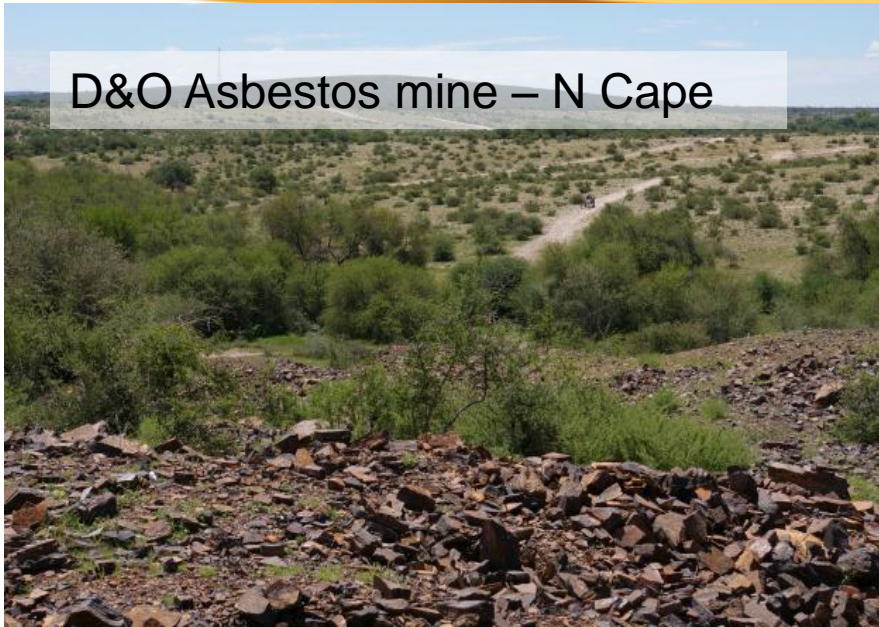


Rationale Behind the Rehabilitation Programme

- The extensive asbestos mining industry in South Africa has left a legacy of pollution that continues to contaminate former mining areas and the surrounding land, thus posing a significant health risk to local communities.
- The rehabilitation of sites disturbed by mining activities, aims to negate the adverse effects associated with these post-mining landscapes and perhaps to a degree where the land can be of a usable condition.
- With these adverse effects remaining behind, the South African government through Department of Mineral Resources has embarked on the rehabilitation programme by putting aside a financial provision to do so.
- In this case, the Council for Geoscience and Mintek have been tasked to undertake the government's programme.



Typical Exposed Asbestos Fibres



- Over 200 asbestos sites are listed in the D&O Database, located in the Northern Cape, Limpopo, Mpumalanga, KZN and Gauteng.
- Comprehensive rehabilitation plans and bills of quantities are to be prepared for the rehabilitation of identified high-risk sites.



Asbestos Rehabilitation Programme

- The mines that are prioritised are those that are in close proximity to the communities.
- Thus posing a significant threat to the environment and to the health and safety of the people living in the area.
- The aim of a rehabilitation project is to, within a short time and as cost-effectively as possible, decrease the environmental risks and hazards.
- To source contractors and workers from local communities as part of the drive for job creation.
- In some areas, the occurrence of asbestos is so severe that the area should be evacuated, as windstorms can cause exposure to the material.



Objectives of the Rehabilitation Programme

- Containment of Asbestos fibres:
 - tailings will be governed by factors such as the desired post-mining land use.
 - the quantity and quality of the surface and subsoil available and the nature of the underlying waste material.
 - the dumps have to be sufficiently covered by topsoil to prevent secondary pollution.
 - Establishment of the self-sustaining vegetation.



Challenges

- Funding
- Post Rehabilitation Monitoring



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