



Xstrata-Merafe PSV

Lion Ferrochrome

Project Lion



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- **1.09 million ton ferrochrome facility built in three phases.**
 - **Each phase 364 kta**
 - **Phase 1 : 2006**
 - **Phase 2 : 2009**
 - **Phase 3 : 2012**

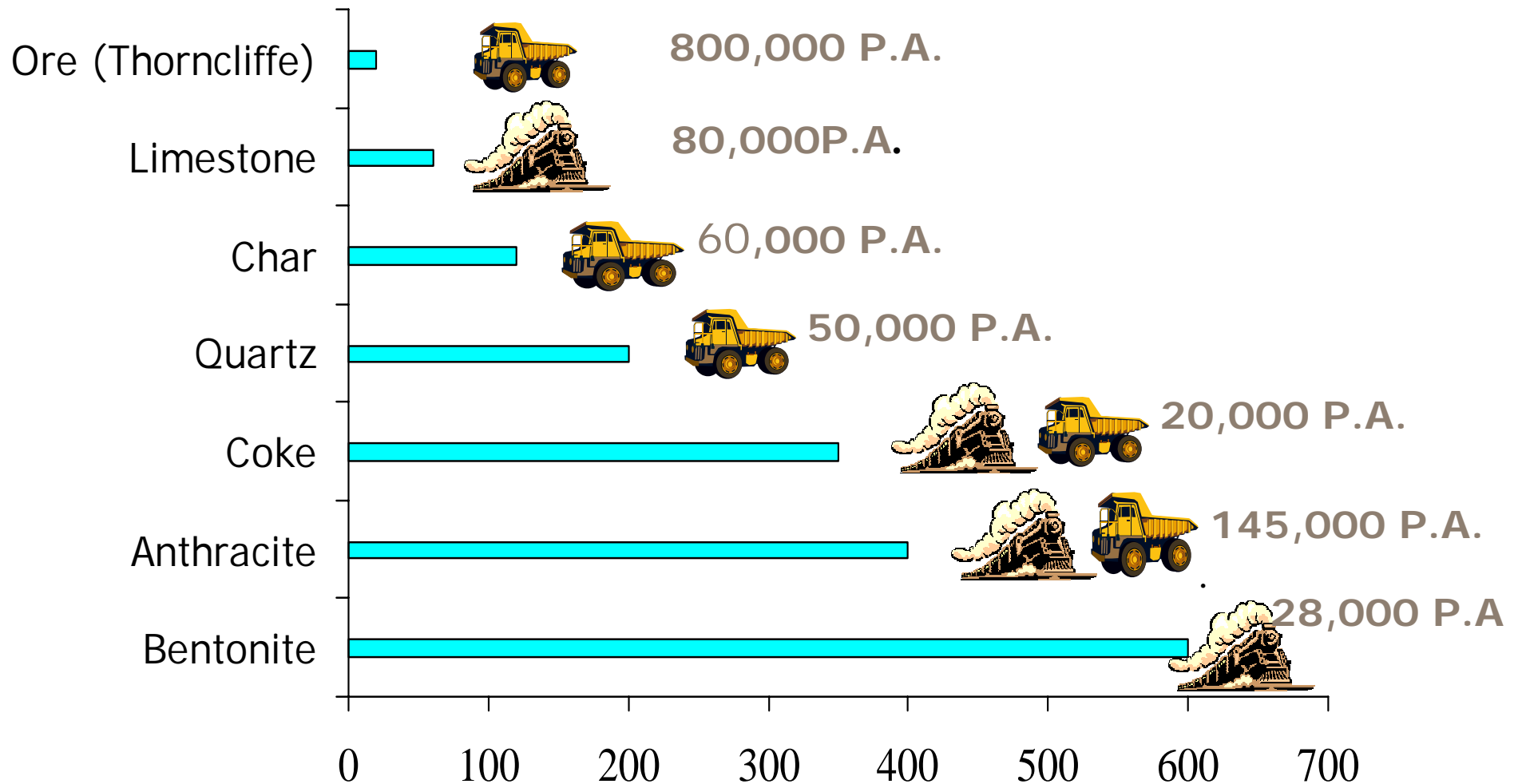
 - **Technology used : Premus Technology**



Plant Location

- **Brownfield expansion on Xstrata Vantech site.**
- **Chosen for following reasons:**
 - Xstrata's significant ore reserves in the area
 - Thorncliffe Mine and,
 - Helena Chrome ore deposit
 - The potential for UG2 from future PGM extractions
 - The proximity to raw material Suppliers (Bentonite, Anthracite, Limestone, and Magnesite.)
 - The proximity of the plant to the Maputo harbour

Raw Material Sourcing

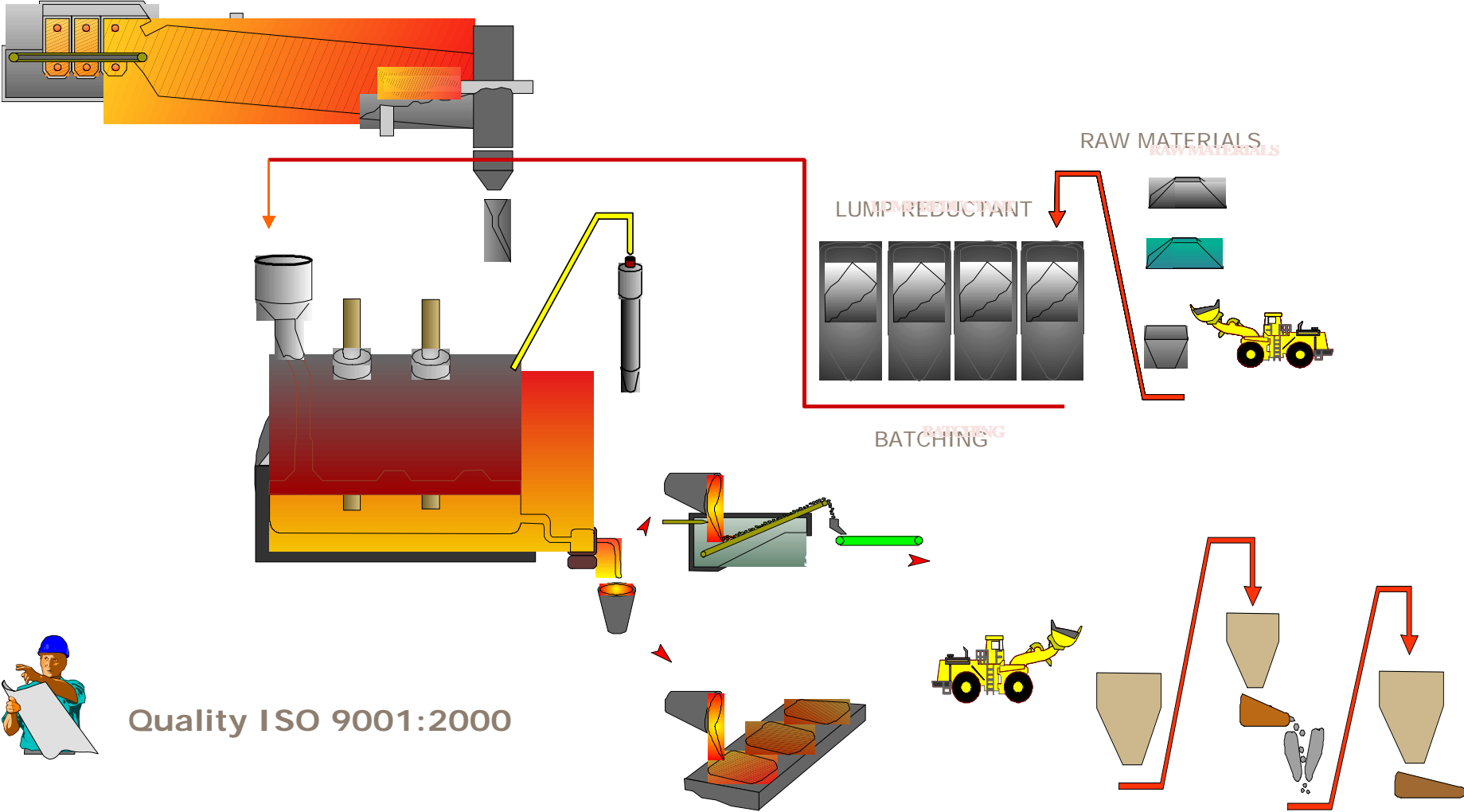


Premus Competitiveness



- **It is the most sophisticated and competitive process used today in the production of Ferrochrome**
- **Designed to reduce electrical energy consumption and provide high recoveries of metallic oxides, utilizing low cost reductants and energy sources such as anthracite and O_2**
- **As electrical energy and chrome ore cost increase (58% of current cost structures) the plant's competitiveness improves**
- **Proprietary technology, developed by Xstrata and implemented at Lydenburg**

Premus..... Smelting Process





Major Considerations

Agglomeration.

- 80% of chromite generation requires agglomeration.
- Xstrata's current agglomeration capacity - 50% of ore requirement.

Power.

- Eskom, is almost at capacity utilization.
- Future expansions must substantially reduce energy requirements
- New electricity capacity is likely to be considerably more expensive.

Reductant.

- New capacity - less reliant on coke - not sacrificing met. efficiency.

Major Considerations (continued)



Customer demand.

- Produce a product that remains in demand and which the competition cannot produce with ease. Lower Si.

Environmental issues.

- Embark on the best industry practice with environmental requirements.

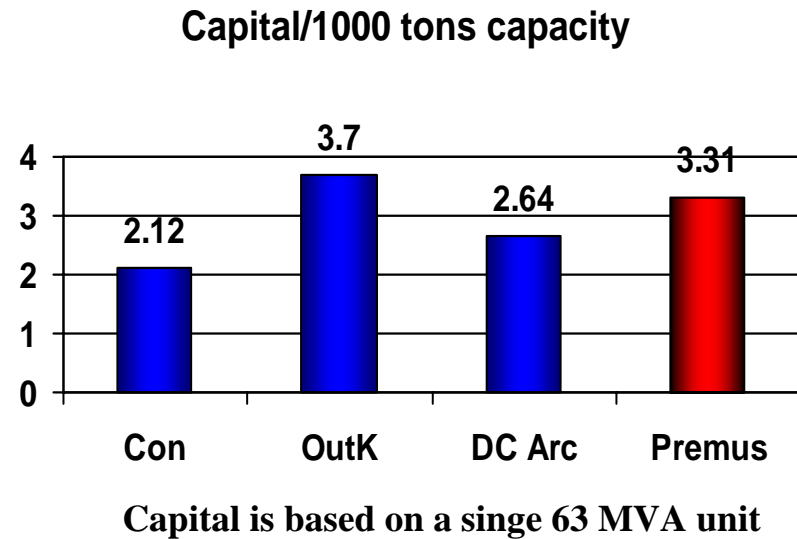
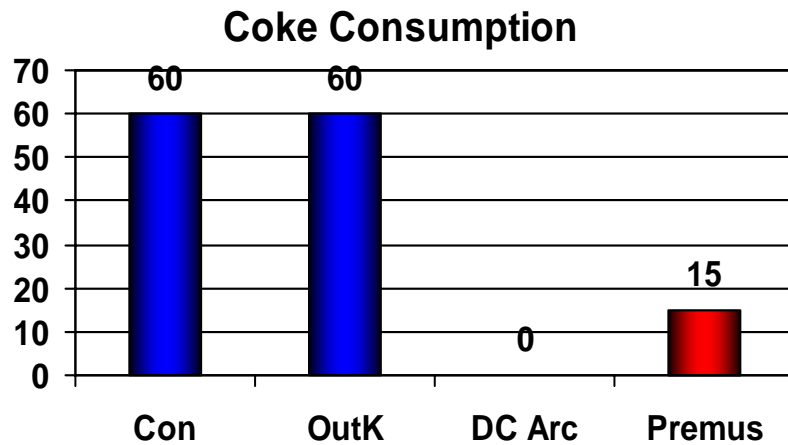
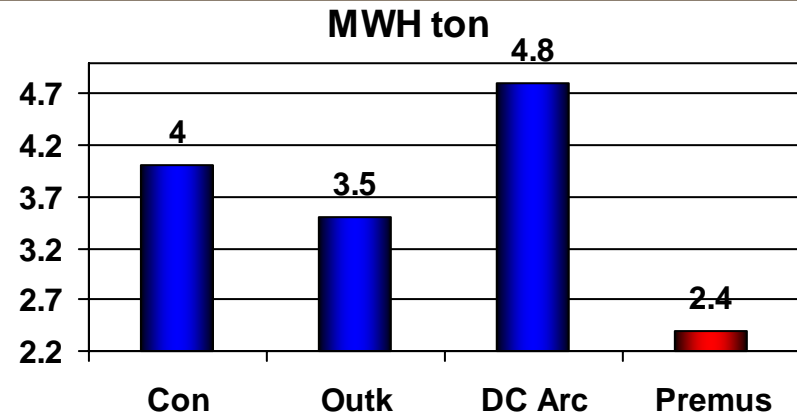
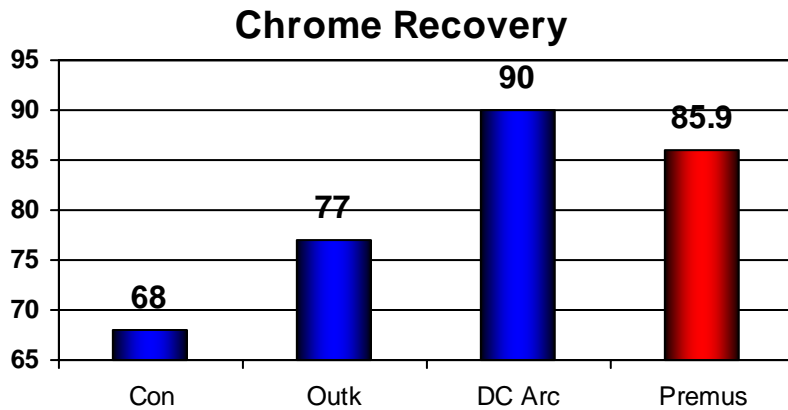
The China factor.

- Catering for rapid increases in future demand from China would be easier with the new facility in place as a platform.

Capacity utilization.

- The need to have capacity to counter the extreme high differential between winter and summer energy cost (a 60% differential in cost).

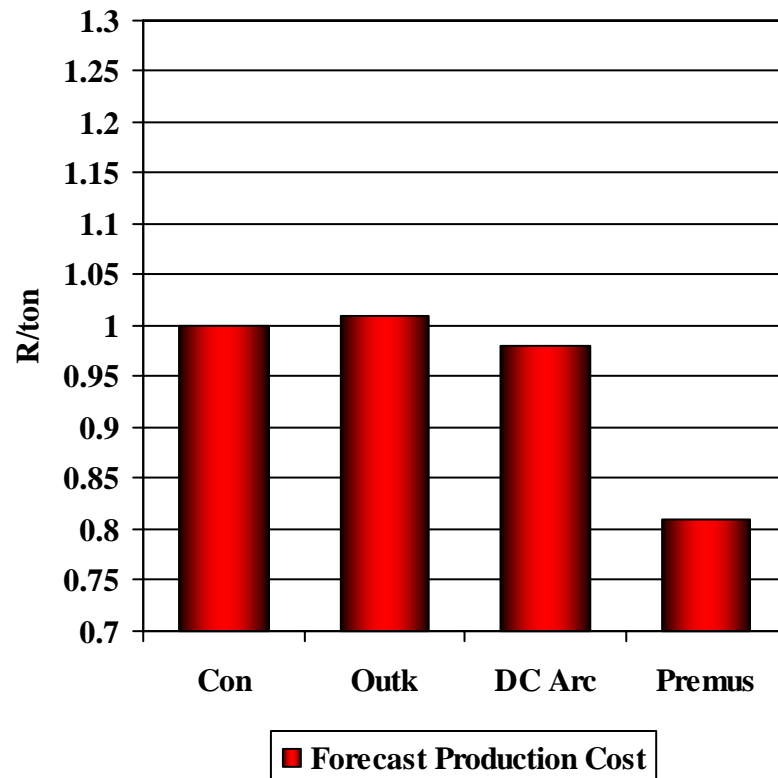
Comparative Resource Consumption



Comparative Forecast Production Cost



Cost of Production



Conventional assumes 70% lump material

Outokumpu based on known SA chrome costs

DC Arc disadvantaged by energy consumption

Premus assumes 40 to 50% metallisation

Pure Premus benefit of <> 20% over other commercial process

Phase 1.

- Consists of two furnaces and associated equipment.
- Capital cost of R1,67 bn including mine.
- Construction phase.
 - **Duration 18 months.**
 - **2300 contractors at peak.**
- 468 Permanent employees.
 - **Anticipated 765 secondary employment opportunities. -**

Equipment

- **Rotary drier – 4.2 X 30m**
- **Mills (2) – 4 X 14m**
- **Grates (2) – 26m**
- **Kilns (2) – 5.5 X80m**
- **Furnaces (2) – 63MVA**

Mine Community and Rural Development



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- Utilize and support local business and communities during project phase:
 - Established a procurement data base.
 - Establishment of local labour desk
 - Target of 75% recruitment from local communities on project.
 - Effect in operational phase R1000 increase in per capita earnings.

BEE.



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- Established procurement policy.
 - **Directed to maximize opportunities towards BEE businesses.**
 - **Preference to local suppliers.**
 - Supplier registration.
 - **Advertised in papers.**
 - **Database to be circulated to other companies.**
 - Development of suppliers.
 - **Current suppliers.**
 - **Future suppliers.**

SKILLS DEVELOPMENT



Skills Development Centre (8m)

The Skills Development Centre is being built in order to:

- Provide skilled employees from surrounding communities to both Project Lion and the Mining Division**
- Increase recruitment opportunities for Communities (marketable skills)**
- Accommodate existing development programs i.e. Office Management, Bridging courses (Edumap)**

Skills Development (Cont)

Learnerships:

Artisan Bridging Course (1.6m over 1.5 years)

- 47 Candidates completed bridging course
- Content: Maths, Science, Technical drawing, Theory, Chess
- 3rd Group to start 1 October (35 Learners)

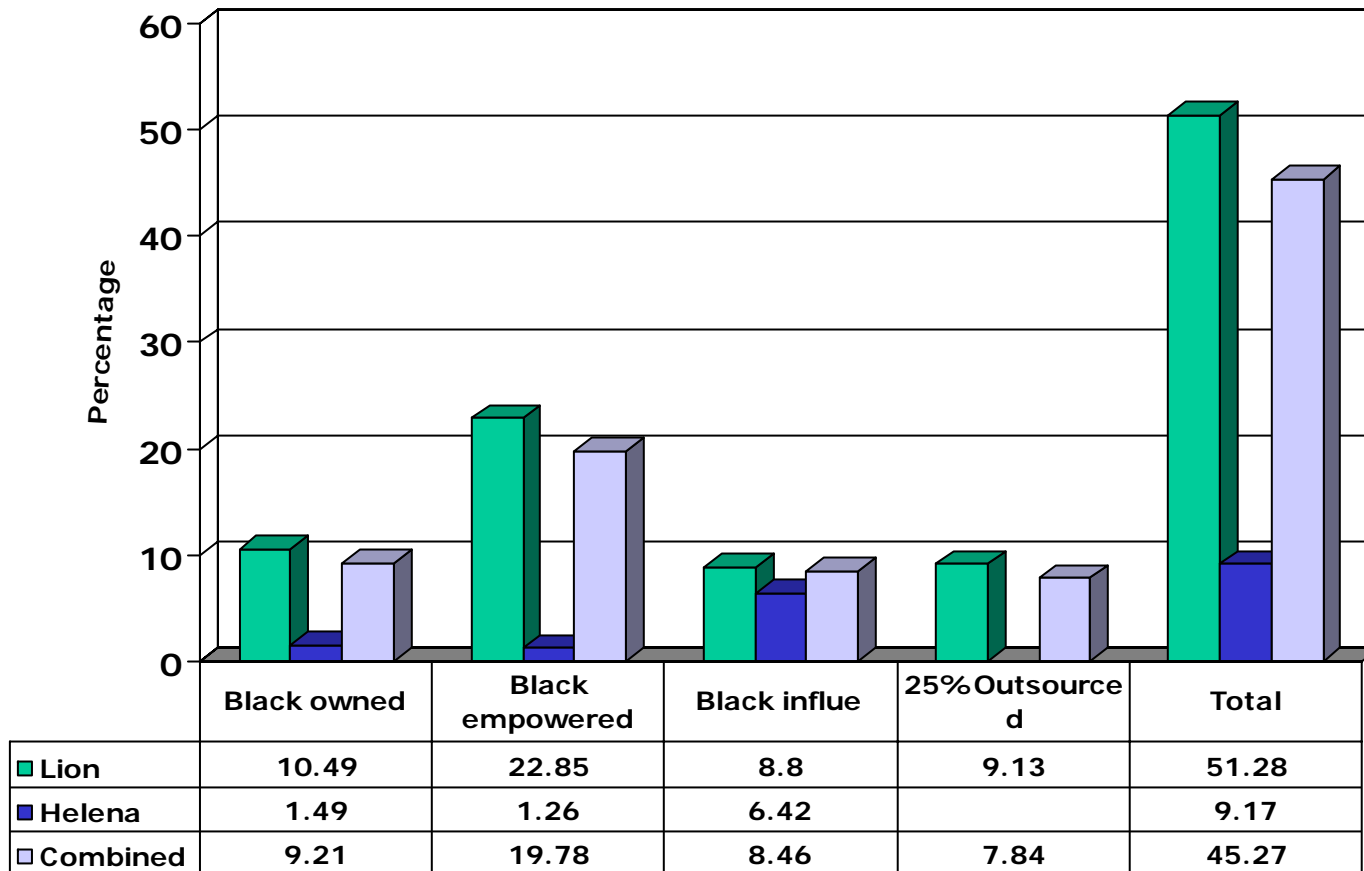
Artisan learnerships (R165/person per day – continuous)

- 9 Completed training at CTC
- 29 Completed Phase one – 2 Female
- 33 Start Phase 1 – September 2005

Production Learnerships (4.5m over 2 years)

- 100 Learners to be recruited in September to October for various Production Learnerships

BEE Projection



Improvement to an economically depressed area



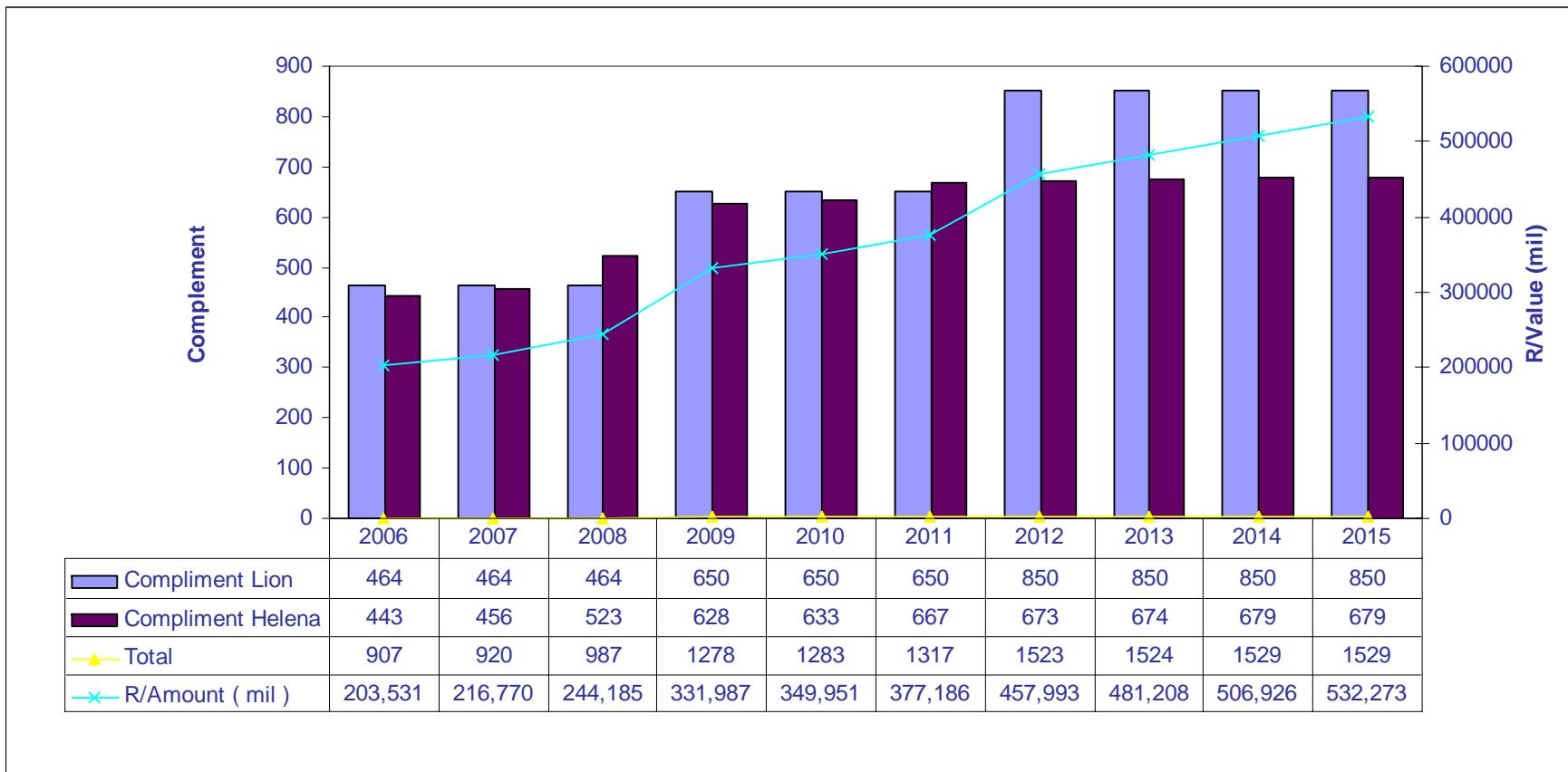
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- Dependency factor is 4.81.
 - 40% of population over the age of 15.
 - Unemployment is 73%.

Advantages of the Project

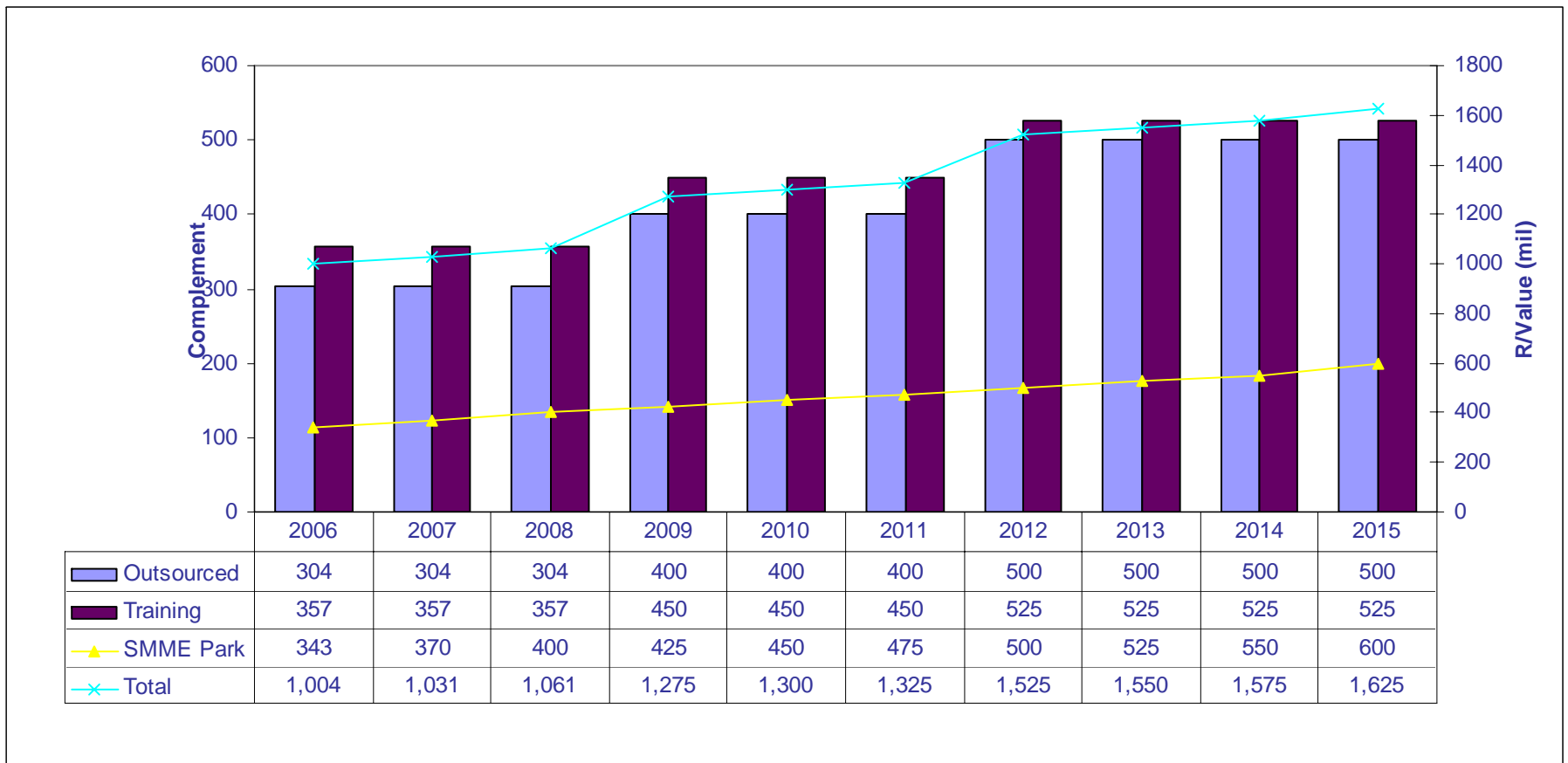
- SMME procurement expected to be between R60 & R70m/a.
- Direct & indirect employment cost is expected to be in excess of R250m/a this represents R1000 per capita income per annum.
- Upliftment of skills through the skills development centre
- Upliftment of SMME procurement via the Industrial Supply Park



Direct Job Creation



Indirect Job Creation



Questions?

