

PART 3 – AROMA CHEMICALS from PETROCHEMICAL FEEDSTOCKS

13 SOCIO-ECONOMIC IMPACT ASSESSMENT

13.1 Potential Direct Jobs Created

The output of the optimised Aroma and Fine Chemical portfolio as defined above is in the region of R 325 million.⁴⁴ Based on this product portfolio, a manning structure has been developed using a similar manning philosophy by an existing fine chemicals production facility in South Africa. This manning structure is attached as Appendix 8.

A site providing the service, effluent and utility services would be required, however as the site is currently undefined, the nature of the utility and service provider is unclear and therefore the manning associated with such an entity has not been included in the direct job creation count. On this basis, it has been estimated that the number of jobs that will be created by expanding output through implementing a Petrochemical Aroma and Fine Chemicals project will be in the region of 140 to 150.

In terms of the jobs created, employees will range from highly qualified managers, engineers, scientists, technologists, and technicians, intermediary-level administrative and sales workers to less qualified process operators and general workers. The estimated number and occupational distribution of jobs expected to be created, is shown in the table below. In the table, the occupational categories is the same as that presented in the HSRC report on “Skills Needs in the Chemical Industries Sector in South Africa”

TABLE 40: Occupational Distribution and Potential Jobs Created – Petrochemical Aroma Chemical Plant

	Number of Jobs	Occupational Distribution (%)	Chemical Industry Average (%)
Managers	10	6.8	6.5
Professionals	8	5.4	8.0
Technicians	41	27.7	15.4
Clerical / Sales	18	12.2	19.0
Artisans	12	8.1	8.8
Operators	59	39.9	28.9
Elementary	0	0.0	13.3
Total	148	100.0	100.0

⁴⁴ \$ 46.5 million at an exchange rate of R 7/US\$

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The occupational distribution of the workers required for the envisaged plants closely mirrors the average distribution of the overall chemical industry. The absence of jobs in the elementary sector is as a result of the cluster concept which states that the services associated with jobs such as security, cleaners and other manual labourers will be outsourced to the utility and services provider. These jobs, as well as the other occupation categories listed, although not included in the table will nevertheless be created by the manning requirements of the utility and service provider.

The skill set requirements identified for the successful manning and operation of the aroma and fine chemicals facility is shown in the table below.

TABLE 41: Type of Skills Needed for the Petrochemical Aroma Chemical Plant

	Skills Needs
Managers	Specialised Aroma & Fine Chemicals business knowledge Functional specialisation International Marketing Strong soft skills
Professionals	Technical skills Functional specialisation Legislative compliance Management skills ICT
Technicians	Technical skills Functional specialisation Operational training ICT PLC
Clerical / Sales	Generic skills Functional specialisation Global marketing
Artisans	Millwright Instrumentation technician
Operators	Technical skills Operational training Basic skills Functional specialisation Legislative compliance

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The creation of these jobs must be viewed in the context of the customised sectoral skills needs research undertaken by the HSRC on behalf of the Department of Trade and Industry. This report has concluded that it is mainly at the managerial, professional and technician occupational levels that difficulties in recruiting new staff are experienced where vacancies exist. However, employment equity candidates with experience in the chemicals field are hard to find in all occupational levels, with the exception of elementary workers.

In the Commodity Organic sub-sector specifically, a lack of skills has been identified in areas such as artisans e.g. instrument technicians, as well as for more specialised processes. The lower level skills such as operators are mainly supplied by means of continuous in-house training. Workers in this sector are generally less skilled than elsewhere. Innovative skills and operational excellence, which it is felt would give local producers a competitive edge, are not readily available. Although workers are generally less skilled than elsewhere, they are coping well. It has been recognised that higher skills levels would help in areas such as problem solving and taking of responsibility.

In the fine chemical sector, the Department of Trade and Industry has identified skills gaps mainly related to process operators, formulation technicians, plant superintendents, warehousing and distribution, engineering and maintenance, administration and general management. There is a general shortage of research and development technicians in the sub-sector.

The results of the Department of Trade and Industry study are therefore directly relevant to the manning of this new value chain.

In addition, it has been reported that there are gaps in the higher skills categories (MSc and PhD). This is in line with the general low number of PhD per capita in South Africa which is 10% of that in Australia and 16% of that of Korea.⁴⁵

13.2 Potential Indirect Job Creation

Focusing on the direct labour for the Petrochemical Aroma and Fine Chemicals facility therefore does not give a complete indication of the potential job creation as it ignores the fact that additional jobs will also be created in the production of the various inputs for the chemical plant such as the supply of raw materials, energy, cleaning and security services, catering etc. The creation of additional output therefore has a “knock-on” effect, as other sectors of the economy must also expand output in order to supply the new business.

The South African Computable General Equilibrium model has data on the different labour intensities for various sectors of the South African economy.^{46, 47} The model takes into

⁴⁵ NACI/DACST publication: South African Science and Technology, Key Facts and Figures. 2002

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account the fact that additional production in one sector requires resources in other sectors and has quantified the magnitude of these “indirect” effects. The Computable General Equilibrium table for the different sectors of the South African economy is attached as Appendix 9. The employment multiplier for the chemical sector is 3.62.

Hence, based on the number of direct jobs created by the Petrochemical Aroma and Fine Chemicals facility, the potential number of indirect jobs in other sectors of the economy expected to be created is 500 - 550.

⁴⁶ Policies to create Growth and Employment in South Africa: Jeffrey D Lewis, The World Bank Southern African Department, July 2001

⁴⁷ South African CGE Model