

Vision for the chemical engineering profession in South Africa

A. Current State

1. Professional Societies & Institutions

1.1 Mission

SAChE and IChemE have near identical missions in regard to advancement of chemical engineering to societal advantage.

1.2 Membership

SAChE is the leading professional society for chemical engineers in South Africa, though some chemical engineers will be associated with kindred societies eg SAIMM. SAChE is recognised as a voluntary association by the Engineering Council of South Africa (ECSA) which permits a range of professional development advantages. SAChE currently has 930 active members though a total \approx 2855 members are on record of having historical membership with the Institution.

IChemE has 355 members in South Africa.

2. Member groups

SAChE has a 50 year association within South Africa and has built up branches supporting local member activity in Gauteng, KwaZulu-Natal, Vaal, Highveld, and Western Cape. Gauteng and KZN are the most active with others dormant and in need of stimulation.

3. Corporate overview

Chemical engineers work in a wide range of industries across South Africa. These include the petrochemical industry, metallurgical refining plants, contractors, plants for manufacturing fertiliser and cement, food industries, biotechnology and research laboratories. In South Africa most of the chemical engineers work across the following companies:

Manufacturers	Contractors	Miners	Power	Fmcg	Bio & food
<u>Sasol</u> SAPREF (<u>Shell</u> BP) <u>Engen</u> <u>Petroleum</u> (Petronas) AECI Omnia NATREF(Total) CALTEX <u>PetroSA</u> AFROX DOW BASF Croda SAPPI (pulp) Mondi (pulp)	WP KBR Foster Wheeler Fluor Technip Jacobs Uhde Linde Lurgi	<u>Anglo Platinum</u> <u>Impala</u> <u>Kumba Iron Ore</u> <u>De Beers</u> /Element 6 Lonmin <u>Gold Fields</u>	<u>Eskom</u>	SAB Miller P&G Unilever	<u>Illovo Sugar</u> Hulett's GSK <u>Aspen Pharma</u>

MBENDI.COM

The leading companies typically pay for professional and ECSA subscriptions.

4. University overview

The universities in South Africa teaching Chemical Engineering are accredited by ECSA (https://www.ecsa.co.za/education/EducationDocs/List_of_AccrUniv_E-20_PE.pdf).

IChemE has worked closely with the top 6 universities offering joint SAIChE student membership. These are: Stellenbosch, KwaZulu Natal (UKZN), North Western (NWU), Cape Town (UCT), WITS and Pretoria. At the request of the universities IChemE carried out a benchmarking exercise with NWU and UKZN in 2012.

Departments where chemical engineering is taught in South Africa:

University	Techikon
<u>North West University</u>	<u>Durban Institute of Technology</u>
<u>Stellenbosch University</u>	<u>Tshwane University of Technology</u>
<u>University of Cape Town</u>	<u>University of Johannesburg</u>
<u>University of KwaZulu-Natal</u>	<u>University of South Africa</u>
<u>University of the Witwatersrand</u>	<u>University of Venda</u>
<u>University of Pretoria</u>	Cape Peninsula University of Technology

5. CPD & Training

SAIChE is licensed to register discipline specific CPD training with ECSA.

IChemE has a successful 5 day training course named *The Fundamentals of Process Safety* that has been in operation very successfully for the past couple of years (Rod Prior and Nigel Coni). The training is awarded CPD points from ECSA and relevant for those working towards professional qualifications from both ECSA and IChemE.

6. Conferencing

SAIChE has held a regular conference typically every 3 years. In 2014 this is being held in collaboration with The International Association of Chemical Thermodynamics (IACT). Previous conferences hosted by SAIChE alone have been successful and offer an important source of revenue.

B. Collaborative Vision *(delivered through joint SAIChE IChemE support to the profession)*

1. Vibrant and Expanded Professional Membership with an apex focus on professional qualification

A smooth membership transition for current active members into becoming dual members within the IChemE membership structure is essential to maintain the current status quo.

Offering a membership package at the right price point including transparency about increase in subscriptions will be appreciated by members. *A separate paper addresses the membership transition and subscription projections.*

Strong promotion of the enhanced value proposition afforded through the new joint membership model together with a range of supportive benefits such as webinars, tce, knovel etc will re-engage and stimulate the profession.

The joint membership model also offers the opportunity for greater contribution of South African chemical engineers to the profession globally. Obvious areas include Chemical Engineering Matters, Special Interest Groups such as Education, Mining etc, the IChemE Safety Centre and more.

2. Vibrant, Energised Member Groups

A plan of events from each member group will be sought and welcomed. This will aid the budget planning process and requirements for support from IChemE. A reference template example of what a typical plan of event would look like, with associated costs, that can be submitted to SAIChE IChemE steering committee for approval will be provided. Greater collaboration with the broader IChemE community and potentially relevant sister societies within South Africa eg SAIMM will help stimulate engagement.

3. More highly developed University engagement

Student membership recruitment can be addressed through IChemE's oncampus campaign offering a joint membership, to second year engineering students and above, for a one off attractive price point offering student recourses such as tce magazine, competitions, access to Knovel library and journals online. Currently, student members upon graduation will automatically qualify for IChemE Associate membership and can utilise the AMIChemE post nominals.

The key activity in engaging universities will be to invite benchmarking of course content to meeting the international standards IChemE sets with its current portfolio of globally accredited universities. This activity would ideally be in conjunction with ECSA. 6 universities identified in section x above would take priority for this activity supporting f employers' quality expectations for the talent and skills they require.

4. Stronger Corporate engagement in relation to professional qualification and development

Supporting the talent pipeline of graduate engineers feeding in from universities, SAICHE ICHEME would offer the top employers who offer graduate training schemes the benefit of international recognition and assurance of training excellence through accreditation, thus ensuring the optimum support for the graduates working towards their professional qualifications both internationally from IChemE (CEng / IEng / Professional Process Safety Engineer etc) and locally (from ECSA). SAIChE IChemE can work with ECSA through its PAC (Professional Accreditation Committee) to develop and align recognitions as appropriate consistent with leading standards.

SAIChE IChemE would further recognise companies operating best practices and can demonstrate they invest in training, supporting schools and universities and promoting the profession by awarding one of IChemE's three tiered (bronze, silver, gold) Corporate Partner awards. This would reinforce and add value to the 12 existing corporate members of SAIChE

Top companies identified for accrediting their IPD schemes and offering corporate partner award would be SASOL Engenoi (Petronas), Anglo in 2015 with other companies prioritised to follow.

There are clear possibilities to open stronger engagements with the companies listed earlier across sectors.

5. Greater Provision of relevant CPD Training

Mutual recognition of IChemE as a source of accredited training would be helpful as would expanding and promoting the range of technical training available in South Africa. Identification of other courses of benefit to the profession could be explored.

Continuing the current fundamentals of process safety course at least annually would be beneficial and extending process safety visibility to other levels within companies is seen as being important.

6. A Consideration of WNCE

7. Conferencing

SAIChE IChemE has a unique ability to bring conferencing activities to South Africa. Specifically, the creation of a Hazards programme would be valuable and there is a recognised opportunity to bring the World Conference of Chemical Engineering to South Africa.