HIGHLIGHT # 5 – SCIENCE ENGAGEMENT

Phase 1 - Chemical Industries Resource Pack

c*change's strong involvement in the successful development of a Grade 12 Chemical Industries Resource Pack, viz. teaching materials for the new school Grade 12 Physical Science syllabus, needs to be highlighted. A new Grade 12 Physical Science syllabus required learners to study the chemical industry in South Africa, with particular emphasis on the manufacturing of petrochemicals and synthetic fuels, chlor-alkali derivatives, fertilisers and batteries. It had been recognized that teaching materials for this part of the new syllabus were lacking and, as such, c*change initiated the compilation of similarly-styled material to the very successful industry-sponsored Grade 11 Mining Resource Pack released in 2008. The Chemical Industries Resource Pack contains (i) a 64-page teachers' guide with practical worksheets and research assignments, (ii) a poster and 12 double-page A4 information sheets for each of the four chemical industry sectors, (iii) a periodic table, and (iv) a DVD with videos and animations.

The materials were developed by an ex-school teacher based at the UCT Department of Chemical Engineering and her team, with help in terms of technical content from some c*change members and industrialists.

After extensive development and school trails of the Grade 12 Chemical Industry Pack in 2009, further refinement and finally printing in 2010, 2011 saw the start of the national roll-out phase after a successful and well publicized launch function held at SciBono Science Centre on 30 March 2011.

The goal of this project was to provide one copy of the Chemical Industries Resource Pack to every high-school teaching mathematics and science in the country. For this reason, it was estimated that approximately 6,000 resource packs would need to be printed. The teacher's guide was written under a Creative Commons Attribution Non-Commercial Share Alike License, allowing the user to copy and distribute the material, provided the appropriate attribution of work by specific authors or licensors contained therein and it is not used for commercial purposes. This therefore allows teachers not only to utilize the materials but also to pass it on to other teachers or learners.

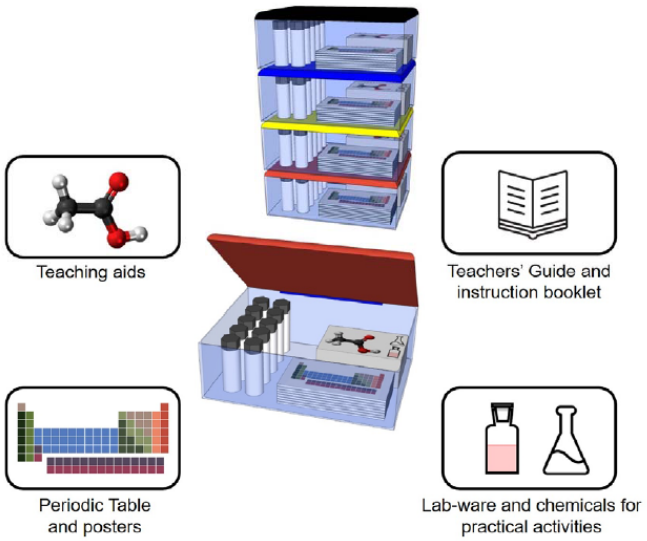
Together with industrial sponsorship for printing and distribution and involving 18 organisations (universities, NGO's, education departments and private sector organisations), some 57 workshops were held nationally attended by 2,000 teachers, with a total of over 6,000 resource packs being distributed to schools countrywide.

The Chemical Industries Resource Pack content is available on-line at the following websites:

- http://www.sasol.com/learners/index.htm

Phase 2 - c*hemRoots Practical Resource Pack

Building on the previously developed Chemical Industries Resource Packs, a practical resource pack for high school teachers closely aligned to the national curriculum to empower teachers to demonstrate theoretically taught material with various practicals was developed. The c*change team worked on the project coined c*hemRoots in 2017 and developed a clear vision for a long-term intervention. Through three workshops with teachers, held in Cape Town, Potchefstroom and Johannesburg, the actual needs of teachers were canvassed and the first developments focusing on the 'acid base chemistry' trialled. The acid base pack was produced (200 kits) and launched at a teachers' conference in the Western Cape late in January 2018 (120 teachers were present). The overwhelmingly positive responses from the different workshops led the project team to develop a business plan in collaboration with the Schools' Development Unit (SDU) at UCT. The plan envisages the development of resource materials in five curriculum aligned topics over three years and the distribution of said materials through workshops to approximately 500 teachers each. To increase the impact and ensure lasting interaction, credit bearing short courses supporting the developed materials will be developed and are planned to be offered to teachers by the SDU. Additionally, an online platform for exchanges between teachers to establish a community of professionals will be developed. The total cost of the project is approximately R8 200 000 over three years. We are in contact with the Development and Alumni office of UCT, as central fundraising organisation, and are approaching various role-players ourselves. While interest was signalled from industrial players such as SASOL and SAB-ABInBev, no clear funding commitment was obtained. With Jive Media a further potential partner for future developments was identified.



Late in 2018 c*hemRoots distributed acid base packs to the Cape Town Science Centre and the Unizulu Science Centre. Both centres have taken the developed kits up into their offerings from which teachers can select when visiting with learners. The c*hemRoots team is currently adopting this approach as possible main distribution pathway and is re-formulating the previously developed business case accordingly. The likely cost reduction with only minimally smaller impact might be attractive for outside funders.

Through the collaboration with the Cape Town Science Centre c*hemRoots has also updated a previously developed (for Chemical Industries Resource Packs) periodic table. Under the umbrella of the International Year of the Periodic Table, this free high-resolution resource will be distributed to teachers and learners by the Science Centre and digitally beyond.

In 2019 some 10 c*hemRoots kits were distributed to different schools upon request. The project was also presented at two CoE meetings initiated by the CoE CREST and the DSI/NRF.