

Editorial

Theo E. Wong^{1,*}, Salomon B. Kroonenberg² & Tom J.A. Reijers³

¹ Department of Geology and Mining, Anton de Kom University of Suriname, Paramaribo, Suriname

² Delft University of Technology, Delft, The Netherlands

³ Retired SIPM exploration geologist / Geo-Training & Travel, Anderen, The Netherlands

* Corresponding author. Email: theowong@yahoo.co.uk



Fig. 1. Dr Eddie Jharap.

This special issue of the *Netherlands Journal of Geosciences / Geologie en Mijnbouw* contains the proceedings of the Conference on the Economic Geology of Suriname, held on 16 January 2015 in The Hague, the Netherlands, to honour Dr Eddie Jharap (Fig. 1), founder and former Chief Executive Officer of Staatsolie, Suriname. At this conference the President of the Royal Netherlands Geological and Mining Society (KNGMG), Drs Lucia van Geuns, awarded him the prestigious Van Waterschoot van der Gracht Medal, the highest honour available to an earth scientist in the Netherlands. Dr Jharap expressed his gratitude in a warm and humble speech which highlighted both his strong personal motivation to contribute to the development of Suri-

name, and his astonishing accomplishments since the 1980s in founding and developing Staatsolie.

Eddie Jharap, born in 1944, recalled in his speech: 'I graduated in 1970 with a master's degree in geology and returned very inspired to Suriname. I took a job as a field geologist with the Geological and Mining Service of Suriname (GMD), and dreamed of finding a mineral deposit and developing that all by ourselves. But Suriname was not prepared yet for my wild ideas. "We have neither the knowledge nor the experience, nor the capital required," was the general reaction. I spent 10 years at the GMD, looking for an opportunity. Those years were very educational for me, and laid the foundation for what I later did. As a field geologist I gained better knowledge of the geology of Suriname, its mineral resources, and learned to work with limited funds and tools. Suriname is a multi-ethnic society, and I learned to work and deal with people who did not "look like" me. I was able to gain their trust, and to motivate and to mobilise them to make "wonders" happen. "For the first time, we are being treated as human beings," the Afro-Surinamese and the American Indian fieldworkers would say.'

After the February 1980 coup, Eddie resigned from his GMD position and the new government gave him carte blanche to develop hydrocarbon exploration and production facilities in Suriname, initially through production-sharing agreements with Gulf Oil. He dedicated a large part of his speech to thanking the American petroleum experts who showed him the way: Jack Bradford, Nick Gengiz and Ed and Sherry White. Jharap was highly successful in attracting both expertise and funding from a great number of companies, banks and institutions, including LummusCrest BV, ABN Bank, Ernst & Young and TNO, the Netherlands Organisation for Applied Scientific Research, all of which were extensively thanked in his speech.

Eddie enjoyed immediate success with his first onshore exploration wells in the Saramacca area. He explained: 'The petroleum in this area is found in small point bars that are deposited in rivers and creeks of Paleocene age, unconformably on the top of the Cretaceous, and are now buried at about 300 m in

the Tambaredjo area. The depositional environment is fluvial-deltaic. The thickness of the point bars can reach up to 15 m, and lengths up to 200 m. The sands are unconsolidated, with porosities up to 30% and permeabilities of 20–30 darcies [$20\text{--}30 \times 10^{-12} \text{ m}^2$]. The point bars are separated by clay deposits, but there seems to be some communication between these sand bodies. The oil-bearing sands are sealed off on the top by a well-developed and continuous clay layer of 10–20 m thickness.'

At present, Jharap explained, 'the State Oil Company Suriname, STAATSOLIE, is founded as a shareholders company in accordance with the commercial laws of Suriname, and is totally owned by the Republic of Suriname. Its shares are not transferable or sold. As of 2015, Staatsolie is the sole producer of petroleum in Suriname, with a daily production of 17,000 barrels, which amounts to the total volume of petroleum consumed in the country. Staatsolie has grown today into the biggest company in Suriname, with annual gross revenues that exceed US\$1 billion, and accounts for more than 15% of the gross domestic product (GDP) of Suriname. During the last three years, Staatsolie has contributed to the State Treasury US\$250–350 million annually in income taxes and dividends. In addition, Staatsolie provides high-quality employment to about 2,000 people. The Surinamese community affectionately calls Staatsolie "the Pride of the Nation".'

Jharap has become a role model for self-reliance in Suriname. He states: 'For me Staatsolie is also tangible evidence of confidence in our own abilities in Suriname. By producing petroleum ourselves, we have demonstrated that we Surinamers also can make big dreams come true. I retired in 2006. I now visit schools for motivational talks and tell the students, pointing to Staatsolie: "If this little 'coolie boy' from the paddy fields could build such a modern and technologically advanced company like Staatsolie, then you also can make your special dream come true."'

This special issue has expanded to encompass much more than the economic geology of Suriname. It has become a thorough update of scientific knowledge on the geology and min-

eral resources of Suriname. We are proud that six of the eight papers in this issue have a young Suriname geologist as first author, the fruit of very successful newly established BSc and MSc programmes in Petroleum Geology and Mineral Resources at the Anton de Kom University of Suriname, partly funded by Staatsolie and the Rosebel Gold Mines of IAMGOLD and by the Suriname Environmental and Mining Fund SEMIF.

Two papers are dedicated to petroleum exploration and production, the first by August Nelson about onshore geology and activities by Staatsolie, the second by Jérôme Kelly and Harry Doust about offshore exploration in the Guiana Basin and in the West African shelf, its mirrored counterpart at the other side of the Atlantic. Dewaney Monsels offers new insights into bauxite origins on both sides of the Atlantic, and Kathleen Gersie and co-authors study the impact of the construction of the Afobaka dam, built to provide energy for Suralco's aluminium smelter, on bathymetry and sedimentation in the Suriname River and in the coastal zone. Nicole Kioe-A-Sen and co-authors present new insights into gold mineralisation and mining in the Rosebel Gold Mine concession area and beyond. Ginny Bijnaar and co-authors discuss the origin of the unusual kyanite quartzites at Bosland in the greenstone belt. Renoesha Naipal and co-author report an in-depth study of the sedimentology of the Armina Formation in the greenstone belt, and Salomon Kroonenberg and co-authors give an update on the geology of the whole Precambrian basement, the first review of its kind in 30 years. In this way a fairly complete picture of new developments in geology and mineral exploration and production in Suriname is presented in this issue, just as in the previous Suriname issues of *Geologie en Mijnbouw* in 1953 and 1969.

We as guest editors of this issue express our appreciation for Jharap's unique accomplishment and KNGMG's fitting decision to honour him. We also thank the organisers of the symposium Wim van den Bosch, Klaas Maas, Tom Reijers and Theo te Winkel, and all Eddie's contemporaries during his geology studies in Leiden and Delft for their initiatives. Without their stimulus this issue would not have been produced.