



Lessons for the Future: The Origins and Legacy of COMRO's Hydraulic Technology Programme

by Thomas E. Pogue

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Overview

- Development of a Hydraulic Mining System
- Research and Development during the COMRO era: A bygone system of innovation
- Towards a Comparative Analysis



Development of a Technology: Origins

- Mid-1960s, the Chamber of Mines of South Africa (COMSA) establishes research organisation (COMRO), which begins investigating development of alternative gold mining systems
- Mid-1970s, COMRO begins 10 year programme on alternative mechanised stoping technologies



Development of a Technology: A Hydro-Hydraulic Mining System

- Mid-1970s to Mid-1980s, South Africa transformed from technology follower in emulsion hydraulics to technology leader
- Late 1970s/early 1980s COMRO began looking at all water (hydro) hydraulic (HH) system
- Early 1990s HH mining system launched commercially as COMRO dissolved



Research and Development during the COMRO era: Precedents

- Before COMRO, sectoral system of innovation defined by informal collaboration and knowledge spillovers supported by industry champions
- COMSA from earliest days supported innovation
 - Patents Committee est. 1890s
 - Technical Advisory Committee est. 1922
- COMSA long but ad hoc history conducting research
 - Dust Laboratory est. 1914
 - Timber Research Laboratory est. 1937
 - Applied Physiology Laboratory est. 1954



Research and Development during the COMRO era: Features (1)

- Collaborate with equipment manufactures to foster domestic manufacturing
- "...through the participation of manufacturers in the development it was hoped to encourage the timeous evolution in this country of a viable industry manufacturing mining equipment to supply the eventual requirements of the mines" (Salamon, 1976, p. 71).



Research and Development during the COMRO era: Features (2)

- Collaboration with equipment manufacturers so as to:
 - Ensure market viability of its technologies and incorporate manufacturing know-how into the technologies' development as well as realize economies of scale and speed in development of the technologies through the broader base of multiple participatory organization



Research and Development during the COMRO era: Features(3)

- Brought together spectrum of technologies under long-run focus on developing alternative technological system.



Towards a Comparative Analysis

- HH mining system indicative of COMRO era
 - Systemic technologies
 - Explicit promotion of economic development of local industry
 - Collective learning
- Is the current system forging ahead, catching-up or falling behind?