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ABSTRACT

An Investigation into Technology and Technological Change and their Special Relationships with Engineering and Development.

Timothy Michael Lewis, Economic and material welfare is founded upon industrial development. The engineering sector is critical to effective industrial development. Technology is the key to the efficiency of any industrial sector. Hence, there is a strong chain of dependence that links the socially important concepts of development, engineering and technology.

Given that development is generally considered desirable, there is a need for an understanding of how it can be brought about or encouraged. This can best be achieved through factors over which control can be exercised, such as the growth and improvement of engineering and technology.

There is little clear knowledge about the nature of technology or of its relationship with science or engineering. In order to overcome this deficiency, an

attempt is made to develop an understanding of the concepts individually, and of how they interrelate.

What people mean when they use the word 'technology', is investigated and a definition proposed. The definition resulting from this exercise is used to examine the concepts of technological change and technology transfer specifically as they relate to the development process.

The crucial roles that knowledge and the advancement of knowledge play in technological change are highlighted and compared with their roles in science and engineering. In engineering, some of the knowledge involved has shortcomings and the implications of this are examined.

The roles of technology, technological change and technology transfer are examined in relation to economic development. The importance of deciding what development means for a specific society is emphasised. The impact of this on what a society elects to make for itself and on its cultural aspirations and their effects on the selection of appropriate technology are discussed. The relationships between engineering and technology in this development process are examined.