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Technology Foresight: Capturing The Benefits From Nuclear Science Technology And Innovation In A Malaysian Ecosystem

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ABSTRACT

Nuclear technology history started in Malaysia with the establishment of the Malaysian Nuclear Agency (Nuclear Malaysia) in 1972. The agency was established to promote the peaceful applications of nuclear science and technology for national development. Since then, nuclear science and technology for peaceful purposes have effectively advanced in various sectors, including industry, healthcare, food and agriculture, natural resources, energy, and nuclear safety and security through research, development, commercialization and innovation (RDCI). Scientific advancements through RDCI activities contribute substantial impact on the advancement of nuclear technology. New demands placed on the public R&D infrastructure are also influencing government research priorities. Many governments believe that establishing a definite longer-term science and technology policy is essential in a time of escalating economic competitiveness. Therefore, in order to focus resources and achieve the greatest economic and social benefits, the most promising research fields and new technologies shall be determined using technology foresight. Technology foresight is a method used to evaluate the revolutionary influence of new emerging technologies on the economy and society over the coming years, given the sustainability of RDCI in nuclear technology in Malaysian Nuclear Agency. The goal of technology foresight is to identify the fields of strategic research and emerging technologies, with the involvement of scientists, industrialists, government officials, and other stakeholders. This study proposes a conceptual model framework of the technological foresight exercise and its implementation stages for in Malaysian Nuclear Agency. Through this foresight exercise, Malaysian Nuclear Agency is expected to close the gap between the adoption of the foresight recommendations and the subsequent use of nuclear technology in social and economic sectors, by working with relevant industries, communities, and government agencies to match products, technologies, and services.

Keywords: emerging technologies; nuclear technology; policy; strategic research; technology foresight