

INTRODUCTION

Triple helix model is a revolutionary concept in education, which is based on a cooperation between industry, government and university. Triple helix model is a key enabler for a number of innovations. It has been for instance applied in South Korea to adopt CDMA technology in Korean's telecommunication market, knowledge transfers in Sweden, and to identify the factors and actors to promote innovation in Quebec, Canada [1-2]. In engineering education, a number of approaches have been developed for creating the triple helix model, e.g., living labs, problem-based learning, combined active learning methods, etc [3]. The role of Challenge Driven Learning (CDL) in the triple helix model for low-income countries, in this paper, is being presented in the context of the electrical power system in Tanzania. The collaboration or link between Industry and Higher Learning Institutions can be globally taken as an important aspect, especially in developing countries where there is none or inadequate practice of such kind. Statistics confirm that industry-academia cooperation in low-income countries is weak or does not exist compared to developed countries [3]. Local firms in low income countries would rather sponsor entertainment events and not research or innovative activities through academic institutions. This atmosphere could be fostered by the non-realization of the importance of industry cooperation with academic institutions and the benefits both parties could get [4]. Reference [4] states that when companies/industries and universities work in tandem to push the frontiers of knowledge, they become a powerful engine for innovation and economic growth. World-class research universities are at the forefront of pioneering such industry-university partnerships. Universities are designed to run longer, invest more, look farther ahead and enhance the competitiveness of companies, universities and regions. In short, universities transform the role of the research and fasten it as a vital centre of competence to help tackle social challenges and drive economic growth. For an elite group of world-class research universities, this kind of strategic collaboration is a top priority. The benefits have long been obvious to these institutions: substantial streams of external funding, enhanced opportunities for professors and graduates to work on ground-breaking research, vital inputs to keep teaching and learning on the cutting edge of a discipline, and the impact of delivering solutions for pressing global challenges [4]. Industries in developing countries have to see this partnership as a driving force to economic growth. When industry-academia partnerships work well, they can facilitate research discoveries reaching the people who need them and serving the purposes for which they are required, at affordable prices. Additionally, the combined credibility and influence of academia and industry can achieve beneficial results for society more readily than when the sectors work in isolation. Governments and international organizations can encourage, embrace, and actively facilitate such partnerships. However, partnerships need careful design, implementation, and monitoring to meet local, regional, and global needs, and to ensure that science benefits society [5]. Authors in [6] show that industry and academia are dependent on each other. Industrial leaders with respect to technology, set the standards for applied research. The opportunities for research solutions to industrial problems can only be developed on the basis of earlier long term research which has created competence and insight. Academic competence established through long term and industrial research is transferred to students in education who will later be able to define new and more advanced requirements for applied research. It is the intention of this paper to show the role of CDL in building and strengthening the cooperation between industries and academic institutions in low-income countries. It should be pointed out that the formal procedures of inviting the clients were in line with the execution of the CDL curricula. The methodological approach used to implement the collaboration between the industry and university can be considered as an inspiration to other universities in developing countries who did not had this potential collaboration for the benefit of the respective societies.