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ScienceDirect

Procedia - Social and Behavioral Sciences 227 (2016) 545 – 552

Procedia
Social and Behavioral Sciences

CITIES 2015 International Conference, Intelligent Planning Towards Smart Cities, CITIES 2015, 3-4 November 2015, Surabaya, Indonesia

The important role of science and technology park towards Indonesia as a highly competitive and innovative nation

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Abstract

Indonesia has become the member of G20 and it indicates this nation has a splendid emerging economy. In 2014, the global competitiveness index of Indonesia was 4.56 that ranked Indonesia in 34th position. But contradictorily, among world's compliment to Indonesia economic rising, innovation in industry is still not in boast and not followed by market enthusiasm. A comprehensive solution for that can be taken by implementing a special space namely Science and Technology Park (STP). In brief, it is a center of excellence or a kind of space where productive activity is done by collaborating government, academics, community, and business. This paper reviews important ideas and arguments of the urgency to implement STP in Indonesia within 3 aspects: best practice review, indigenous situation and potency, and impact predictions. Many countries have proved the effectiveness of STP and Indonesia should learn to reveal the benefit of it.

Peer-review under responsibility of the organizing committee of CITIES 2015

Keywords: science and technology park; regional competitiveness; innovation; collaboration.

1. Introduction

Globalization and industrialization have been coming lately and a whole world should face it. Based on OECD publication, in 2025 world's population will reach approximately 8 billion people. Indonesia Statistic Bureau

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Peer-review under responsibility of the organizing committee of CITIES 2015
doi:10.1016/j.sbspro.2016.06.113

projects Indonesia will also go through this. In 2010, Indonesia population was 238.5 million people and in 2025 it will reach 284 million people. This massive population, step by step, followed by developing of technology, makes world seems like borderless. In scope of South East Asia, ASEAN Economic Community (AEC) has been touted widely (Trajono, 2013). Some people accept it as mutual challenge, but some people accept it as a threat. Despite what each person thinks, AEC requires us to innovate. Without innovation, a lot of industries and SMEs will collapse due to world creative market competition.

Economics nowadays is not only about capital resources and the amount of labor, but it focuses on intelligence, knowledge, and technology. This kind of economy is well known as knowledge-based economy (KBE). It views human and social capital as the most valuable assets (Lee et al, 2014). Many scholars believe that the biggest contributor in economic growth is the knowledge of human itself. Baier et al (2006) says that Solow's research in 1957 showed that physical capital and labor only affected 12% to US economic growth. Meanwhile, rest 88% of affected factor is due to the total factor productivity (TFP). The TFP is often related to technology mastery.

Where is the position of Indonesia among other countries? It can be seen at the global competitiveness index issued by OECD. In 2014, Indonesia had 4.56 points that ranked Indonesia in 34th position (Thailand in 31st, Malaysia 20th, Singapore 2nd), rose 4 steps than 2013 rank. But, among world's compliment to Indonesia economic rising, innovation in industry is still not in high rank and not followed by supportive national research policy. For example, allocation of the national research fund is still 0.08% of GDP which actually should be at least 1%. Actually, that little fund allocation doesn't debilitate young generations and academics to keep innovating and we can see a lot of inventions have been produced. But, unfortunately, most of their inventions have not gotten proper appreciation and rarely used. Yet market still rely its stock from import hugely instead of using indigenous potency. This missing link between government as policy maker, academics as innovator, and market as user should be regenerate. A comprehensive solution for that considerably can be taken by implementing Science and Technology Park (STP).

Science and Technology Park in brief is a center of excellence or a kind of space where productive activity is done by collaborating government, academics, business, and community. In RPJMN or National Medium Term Development Plan Year 2015-2019, STP aims to become the center of researching and making innovation products and the place to incubate that innovation product's business to community. Indonesian president for 2014-2019, Joko Widodo alongside with his vice president, has also released their master plan vision called Nawa Cita which contains 100 STPs to be built in Indonesia to generate national and regional competitiveness. It shows that government begins to appreciate the kind of "knowledge-based economy".

What is the example that innovation urgently required nowadays? The simplest example which is being viral lately is the innovation of Go-Jek, a motorcycle taxi integrated with online service application. It is praised by government because its role as an alternative to break the Jakarta's heavy traffic (Tuan and Iderlina, 2013). But the best part from its transportation service is on empowering traditional motorcycle taxi drivers to be pro-ICT, so that order and payment process can be done accurately. Another example is innovation in spicy chips namely Maicih. It blends cassava or potato chip with many levels of spiciness and the chic package. The key success of Maicih in innovation is because it is branded and marketed uniquely (Wijaya, 2014).

Those examples show us that innovation is the main cause of their success. Without innovation, any SMEs and industries couldn't be expanded and rising their profit. But innovation only is not enough. This should be strengthened by stakeholders' collaboration to maintain innovation in the future and STP can be the spatial need to make that collaboration and innovation system happened. STP as the place for creating innovation will be discussed in this paper to know what its role is and why it should be implemented.

2. A Brief Overview of Innovation

2.1. Innovation System

Innovation is a creative and interactive process which involves market and non-market institutional system (OECD, 1999). Based on the case that was explained at the introduction of this paper, innovation needs its environment and process. Innovation environment consist of stakeholders that work together in synergy. That linkage is strengthened by good institution and specific cluster to produce innovation. The innovation environment generates innovation process that begins from innovative resources to become output and ends in commercialization.