

CHAPTER 1

Introduction

The involvement of the social studies participation in life sciences research activities in Indonesia has been remarkably prominent in the recent decade regarding how economic policy-making shaped by scientific works as well as how research activities are influenced by economic development planning. The government has been starting to encourage deeply awareness on how national economic development and growth are led by the contributions from research in science and technology by bringing them into useful, marketable products or others results related to infrastructural public services and needs. This policy is one part of the emerging innovation-driven economy in which the government reinforces economic through research activities, entrepreneurship, knowledge sharing, and collaborative work among institutions within and across countries, particularly for Indonesia economy.

I have been collecting the research demand characteristics and distributions based on several aspects, such as research theme and focus, the degree of education, skills and experience requirements (mandatory and/or preferable). There is an upsurge increase in social researcher vacancies, from only ten vacancies in 2017 to 22 vacancies until midyear of 2018 portrayed from 34 job vacancies from various sources of social media distributed publicly. This initial finding shows that there is a significant number of positions for social researchers to be involved in multiple research project within its distribution on job position and the education requirement. The table indicates the distribution of social researcher demands which are in the life sciences, especially in health sciences projects, are very demanding. There are more job opportunities available for social researchers for working on life sciences subject, public health, agricultural, certain emerging diseases and, environmental issues compared to the subjects in community livelihoods, poverty, migration, and education.

Table 1. The distribution of research demand based on topic

No	Subject	Number	
1	Public Health and Sustainable Economy	2	
	Public Health and Infectious Disease	6	
	Public Health and Disease Eradication	4	
	Public Health and Infant Care	1	
	Basic Research	9	
2	Education	2	
3	Green Economy	Environmental renewal	1
		Sustainable energy	1
4	Marine and Fisheries	3	
5	Community Livelihood	Poverty and Policy	1
		State and violence	2
		Labour and Migration	3
		Identity and Belonging	2
Total		37	

Source: Data collected from three main websites providing job opportunities with key words for the search: researcher, social researcher, research project with addition from the job vacancies shared in WhatsApp and facebook group

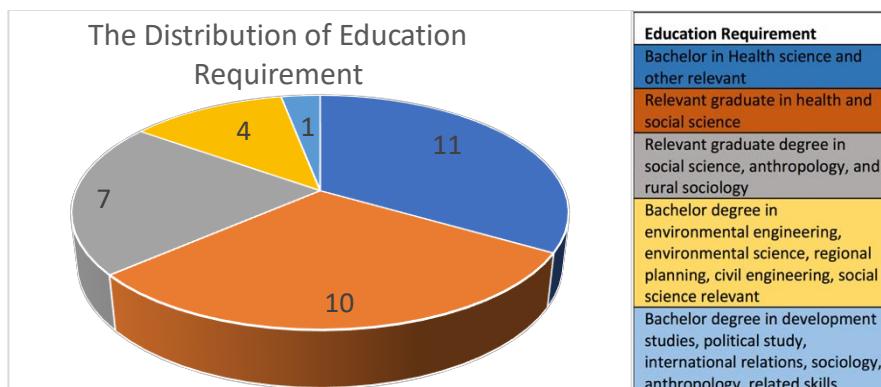
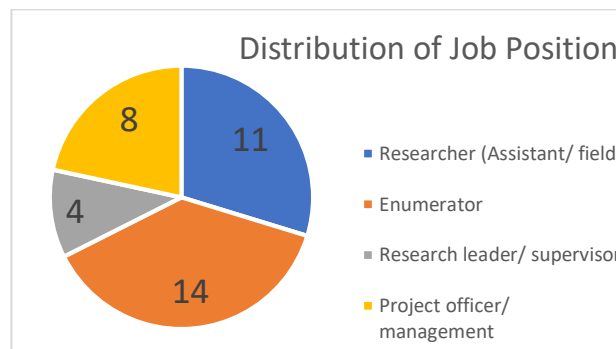


Figure 1: the distribution of job positions among research projects. Figure 2: the distribution of education requirement. Data for both figures are collected from three main websites providing job opportunities with keywords for the search: researcher, social researcher, a research project with addition from the job vacancies shared in WhatsApp and Facebook group.

This increasing demand on interdisciplinary research projects was triggered by the efforts of the government to maximize research activities into its economic agenda. Indonesia government has been developing long-term policy agenda outlined in several program, such as MP3EI (Master plan for acceleration and expansion of Indonesia economic development (2011-2025) (Moeliodihardjo et al. 2012) as well as the implementation of biotechnology in Nawa Cita since early 2014 (Kompas, 2014) reflected the emerging discourse on the opportunities to leverage knowledge-driven development. Such economic growth is part of the global agenda in bioeconomy development in a recent decade.

Bioeconomy, one of global megatrend is defined as the economic development that derived from the scientific research, particularly in the field of Biology (i.e., Biotechnology and Molecular Biology) and health sciences, to provide environmentally sustainable production throughout the development of the diverse range of products and innovations. The potentialities of economic and environmental contributions lie in the considerable knowledge production and knowledge sharing in addressing the global challenges such us health disease, global hunger, poverty, resource, and energy scarcity, environmental degradation, and other resources and services. These considerations gain essential aspect for both research agenda and policy development in across country.

After 2009, the global economy has been entering the second generation of bioeconomy, namely the knowledge economy (OECD, 2009). OECD has released a report about designing a policy agenda in future bioeconomy to 2030 as the global challenges regarding how biological sciences and technology could contribute to solving human living and environmental complex problems. There are at least three elements involved in the long term development of bioeconomy that are fundamentally different from the previous economic system. The three elements are,

“ 1) the use of advanced knowledge of genes and complex cell processes to develop new processes and products, 2) the uses of renewable biomass and efficient bioprocesses to support sustainable production, and 3) the integration of biotechnology knowledge and applications across sectors” (OECD, 2009:8).

OECD also addressed the challenges that the development of bioeconomy requires innovative and collaborative research. Biotechnology R&D development as an alternative solution, "...must be performed, paid for, and result in commercially viable products and products. This process is influenced by many factors, including regulatory conditions, intellectual property, human resources, social acceptance, market structure, and business model." (OECD, 2009: 11). Such complexity indicates the necessity of collaboration and the circular process of sharing knowledge and contribution among parties. Andreas Pyka (2017: 4) has asserted, these economies "organize innovation systems composed of different actors which establish a creative environment for mutual learning and knowledge creation."

The initiative for developing biotechnology industries or maximizing life sciences research in the humanitarian program in Indonesia might not be sufficient yet for realization due to their limitations and challenges. Many national newspapers reported that the limitations of the development of biotechnology industry in Indonesia are due to the budgeting support (Harnas, 2015) and the legislation and policies are under-developing (Kompas, 2016) while the researches on biological fields are continuously growing (Biotek LIPI, 2016). National Geographic (2015) reported that the initial agenda to develop Bioeconomy, especially in the industrial sector, the development of biochemical products had increased significantly from 1.8% in 2005 to 12% in 2015. Data from The Bioeconomy to 2030 from OECD (Organization for Economic Co-operation and Development) stated that in 2009, around 80% of the investment in biotechnology research was invested in medical biotechnology (OECD, 2009).

In earlier 2015, a national newspaper reported for the initial realization of this vision, KTNA (*Kontak Tani Nelayan Andalan/* National outstanding farmer association) asked Jokowi to develop biotechnology industries immediately, specifically improve yielding in corn and sugar cane (Bisnis, 2015). Many scientists became optimistic in improving better services to the people (Kompas, 2016).

Interestingly, on 9 August 2017, President Jokowi in the opening speech of the social sciences congress in Surakarta, Central Java, called for more intensive and serious involvement of social researchers in development processes for field-based decision-making policies.

"Everything should be seriously thought about, and we must anticipate this matter [evidence-based decision making] from now on. We must prepare a policy framework, both economic, political, and social, which can be used to anticipate those changes. The change is already in front of us, already entered in our country. The courses taught are also not to be monotonous, nor linearly in a single view, we need to adjust to the developments that occur. "

Such an appreciative involvement, the social scientists and researchers should respond to how we could contribute it in cross-disciplinary and interdisciplinary kind of thought since the economic problems raised in diverse aspects. The question arises, what factors make such scientific productivity increase?

Recent studies have been conducted to measure the impacts and/or influence of growing numbers of publication regarding the scientific productivities over the last ten years in the different institutions. Amelia and Laksani (2016) found that the majority of Indonesian population—derived from 1.829 valid respondents conducted from the research of Indonesian Public Perception of Science and Technology Survey in 2014—still lack and have limited knowledge, particularly in the issues related to science and technology, compared to the issues on terrorism and e-commerce.

The growing number of publications in Indonesia supported the development of scientific index infrastructures. First, the Indonesian Institute of Sciences provided InaSTI (Indonesia Science and Technology Index) in 2016 (InaSTI, 2018). Second, the Ministry of Research and Technology developed SINTA (Science and Technology Index) (SINTA, 2018). Third, Portal Garuda, more independent publication index, initiated by the Institute of Advanced Engineering and Science Indonesia Section (IAES, 2018). Fourth, Neliti, an index was built by Indonesia National Library in collaboration with Indonesia Institute of Sciences and data analyst The Conversation (Neliti, 2018). Besides that, Centre for Scientific Documentation and Information in Indonesia Institute of Science

initiated accessible internet-supported system journal database earlier in 1996 (Tambunan, 2012a; 2012b). Those indexes are developed to measure the performance of researchers, institutions, and journals in Indonesia as well as triggering the collaborative moment of knowledge sharing.

Considering the enormous potentialities of research productivities, it is essential to understand the research publication disseminated in indexed journals. Kompas (12 April 2018) took an analysis on scientific productivity based on Scopus database shown that Indonesian researchers have published 5.125 articles from total articles listed until April 2018, under Malaysia (5.999 articles) then followed by Singapore (4.948), Thailand (3.741 articles), Vietnam (2.185 articles) and Philippine (675 articles). In another area, Rahayu (2014) studies focused on all publication published in Bogor Botanical Garden Publication from 1994-2012. Concerning these data, it is crucial for further inquiries on the relation between scientific work within social context through the education process, which mediated the business purposes and scientific progress as well as how such statistical productivity might impact to other fields.

Gaining research productivity and innovation for economic development is triggered by collaborative research and establishing partnership (Pyka, 2017). In the national context, it is reflected when the Ministry of Research and Technology and Higher Education assigned the regulation to open up foreign universities to expand and establish a partnership with Indonesia. Kompas (30 Jan 2018) reported that by 2018 there are ten universities are establishing in Indonesia, such as Central Queensland University, University of Cambridge, National Taiwan University. These universities offer study programs focusing on STEM (Science, Technology, Engineering, and Math) and Business of Technology. The government initiated this agenda to intensify five indicators of higher education services, including teaching, research, citation of publication, international prospect and industrial concerns (ibid). Himawanto (2016) has studied the proportionality scientific publication as part of knowledge dissemination and investment in energy research and development. Himawanto stated

international collaborative contributed to pulse of energy research in Indonesia and successful level able to offset gains achieved developed countries. However, there is a gap in which the author did not mention how does the high intensity of publication might impact on gaining economic opportunities, such investment in research and development and the readiness of human resource as he said that the researcher should collaborate with international companies and universities. Wahyono (2001) found the challenges to support these bioeconomy programs that Indonesia needs to invest in human capital or biotechnology enterprises. Other research concerning this human capital has been done by Reswita (2009) in Centre for Indonesian Plantation Biotechnology Research in Bogor that can be considered the extent to which such research centers need to be audited. Her study shows that the researcher faced the challenge of a hierarchical problem in delivering responsibilities and concern to their organization. This condition restricts them to create innovative research and development.

Based on the initial exploration above, this research will explore the relationship between the emergence and establishment of innovative research conducted through the collaboration among university or researchers, firms or industries and governments in foster the research productivities in which the knowledge productions are communicated and circulated. These topics allow us for the sufficient understanding on the meaning of productivities and readiness for skilled researcher demands facing with the issues of emerging economic sharing, a collaborative moment in research, interdisciplinary trends and its consequences for future management research in Indonesia.

Research Question

The questions raised from the introduction above would be as follow:

1. How does research management should be adapted and appropriated to the development of knowledge of economic sharing in UIG partnership as well as the emerging issues in research collaboration in life science in Indonesia?

- a. How do social researchers (anthropologists/ ethnographers) need to develop the study and then be able to deal with such changes in the research context that at least refer to three key users in contexts of the anthropological profession, including the academic environment, market needs, and research subjects?
 - b. How do the scientists whether in university or private institutions define the demand for further knowledge production for the development, improvement, and application of scientific research to the relative cultural diverse communities?
 - c. How does the government put its effort to support and encourage research activities?
 - d. How do the firms encourage researcher in utilizing research productivities or define the need for using life-science-based research to solve a particular problem?
2. What are the challenges, opportunities or implications that should be considered for research management in the future research management and its actualization in Indonesian economic policy?

Research Objective

This research thesis proposes to examine how do the social scholars adapt to the current change of research activities, knowledge sharing, research productivities, and the emerging issues in Indonesia life science research collaboration in UIG partnership. The essential roles of collaborative and multidisciplinary work in life science research, the efforts of fostering research productivity in the knowledge-based economy, the huge demand on field researchers and lack of studies in research management within an anthropological point of view in Indonesia create a significant research gap in both practical and theoretical implications. The current studies, explored in the literature review section, intended to provide the organizational and institutional relationships, particularly on collaboration among university-industry-government to provide insightful perspective and empirical evidence that bridges the gap by explaining the process of establishment of collaborative space for research management and the circulating of knowledge production. In so doing, this research attempts to discuss and identify the implications of the use of ethnographical thinking and researcher skill for life sciences research projects in the context of increasing demand in collaborative life sciences

research in Indonesia and for the future of international collaboration. It is accomplished in the current discourse and study by addressing the following research questions.

Scope of Work and Limitation (Activities)

To accomplish the objective of the study, this research is designed to explore how actors are dealing with such demand and challenge whether in individual, organizational or triple-helix relationship (university-government-industry). Such examination could help to understand the future implications and opportunities in life science research, research management and its actualization in Indonesia economy and policy. Taking into account that the experience and methodological reflection in this paper is not intended to provide a comprehensive ethnographical inquiry, instead of putting the study into a dynamic engagement to build a professional work and management research for future life sciences-based research projects in Indonesia. This research has been conducted by a single researcher within one semester with limited resources and capabilities. Given the broad topic explored, a lack of financial resources limits both conduct the methods and communication process by juxtaposing any sources of relevant information. The relatively short timeframe and the limited network of potential participants present restrictions to data collection. To simplify the study given in the research scope, the research subjects are selected by purposive sampling with the detailed elaboration in the research methods section.