Quadruple Helix Model in Efforts to Fulfill Human Security in Kemijen Village, Semarang City

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ABSTRACT

The concept of Security in International Relations had traditionally been defined as "freedom from war". However as time passes the concept's definition starts to shift into a much more collective and wider meaning, one that constitutes three different pillars: "freedom from want, freedom from fear, and freedom to live in dignity". Unfortunately, the implementation and obedience to such pillars of Human Security is something that is complicated and not simple. The Triple Helix Model that includes the government, academicians, and businesses as actors to fulfill the pillars of Human Security only causes the society to be neglected, due to the fact that they are only positioned as object wherein which they are supposed to actively participate as an actor. This article uses a descriptive qualitative approach by combining literature reviews and interviews. By using the study case of Human Security in Kemijen Village, Semarang City, this article argues that the Quadruple Helix Model is much more precise in fulfilling the pillars of Human Security through the addition of society as an active actor. The Quadruple Helix Model also allows the people of Kemijen Village to be involved as a subject through Focus Group Discussion.

Keywords: *Human Security, Kemijen Village, Quadruple Helix, society*

ABSTRAK

Konsep Keamanan dalam studi Hubungan Internasional secara tradisional diartikan sebagai bebas dari perang. Namun, seiring berjalannya waktu, konsep ini mulai bergeser menjadi konsep keamanan manusia yang lebih luas dan kolektif meliputi tiga pilar penting yaitu: kebebasan dari keinginan, kebebasan dari rasa takut, dan kebebasan untuk hidup bermartabat. Sayangnya dalam penerapan dan kepatuhan terhadap pilar Keamanan Manusia tersebut, sejatinya rumit dan tidak sederhana. Strategi/model Triple Helix yang melibatkan negara, akademisi dan kelompok bisnis sebagai upaya memenuhi pilar keamanan manusia yang selama ini diterapkan ternyata mengakibatkan posisi masyarakat terabaikan, karena mereka hanya diposisikan sebagai objek dimana seharusnya mereka juga yang berperan aktif sebagai aktor. Artikel ini menggunakan pendekatan deskriptif kualitatif dengan memadukan studi literatur dan wawancara. Dengan menggunakan studi kasus isu keamanan manusia di Kelurahan Kemijen, Kota Semarang, tulisan ini menemukan bahwa strategi/model Quadruple Helix lebih tepat untuk memenuhi pilar keamanan manusia dengan menambahkan peran masyarakat sebagai aktor aktif. Model Quadruple Helix juga memungkinkan masyarakat Kelurahan Kemijen untuk terlibat menjadi subyek melalui Focus Group Discussion.

Kata Kunci: Keamanan manusia, Kelurahan Kemijen, Quadruple Helix, masyarakat

Introduction

The concept of "national security" still leaves room for confusion,[1] where traditional groups see the concept of full security with elements of the use of force. One of the traditional definitions of security states that "security is a relative freedom from war, coupled with relatively high expectation that defeat will not be a consequence of any war that could occur".[2] Furthermore, traditional groups have received criticism from deepeners or wideners that the dimension of state security must be able to realize human security.

Human Security can be interpreted as a concept, idea, or world issue that is part of the science of International Relations. For many people, today's world is an unsafe place and full of threats on many fronts. The existence of a prolonged crisis, violent conflict, human trafficking, climate change, persistent poverty, epidemics, international terrorism, and economic decline make it difficult to achieve peace, stability and sustainable development.[3] Thus, Human Security is needed as a comprehensive approach to address these various threats in an integrated manner by strengthening values about democracy and human rights.

The concept of Human Security was born since the end of the Cold War in mid-1990, and it also highlights several issues in the world of politics, such as political crimes within a country, barriers to community development, and a number of transnational threats. The concept of Human Security is adopted from National Security carried out by the state to maintain the integrity of a nation and the freedom of the state to have its own sovereignty. Global developments have brought the threats to become increasingly complex and have led to the concept of "Collective Security" which is jointly

pursued between countries. The concept of shared security in its implementation is not only limited to maintaining the sovereignty of the state, but also protecting the security of citizens. Thus, the emergence of the concept of Human Security is intended to give attention to people who experience a sense of insecurity in a country. The conflicts that occurred since the mid-1990s in Bosnia, Kosovo and Afghanistan finally had a big influence in the framework of the country's development.[4] This concept is a new development from a centric society that requires security in everyday life. As stated in the UN General Assembly Resolution 66/290, that every citizen has the right to 3 important pillars of Human Security, namely: *freedom from want, freedom from fear*, and *freedom to live in dignity*[5]

An area in Semarang in which Human Security could be stated to be unfulfilled as of now is in the village of Kemijen, Semarang. The reason for this being that the area still ranks as a place in which the citizens still suffers from poor condition of living. This is exemplified by the poor hygienic condition in the area. The Banger River, a river located in the middle of the village, was stated by the residents to be "foul-smelling". This condition is also exarcebated by the existence of Anak Kali Banger and Banjir Kanal Timur in the area. The Banger River also heavily contributes to much of the area's problems, wherein which Kemijen Village is also prone to flooding, tidal flooding, and land subsidence. Water quality was also stated to have not changed since the past, described as "black and smelly" by the residents. The floods have been occurring since the 1970s in the area meanwhile Coastal floods (or so called rob in Bahasa) began

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[1] Wolfers, A., National Security' as an Ambiguous Symbol, *Political Science Quarterly* (pp. 483), vol. 67, no.4. 1952

[2] Bellany, I., Towards a Theory of International Security, *Political Studies* (pp. 102), vol. 29, no. 1. 1982

[3] United Nations. (2020, February 29). What is Human Security?. 2003. Retrieved from https://www.un.org/humansecurity/what-is-human-security/

[4] Tadjbakhsh, S., Human Security: Concepts and Implications with an Application to Post-Intervention Challenges in Afghanistan (pp. 5). *Centre d'etudes et de recherches internationales: Sciences Po.* 2005.

[5] GPPAC. (2020, February 29). Human Security, 2018. Retrieved from https://www.gppac.net/human-security

to hit in the early 1990s, when the coast of Semarang began to be reclaimed.

Specifically, one of the reasons why Kemijen Village is an especially vulnerable area is due to the fact that they are closely located to a field terminal owned by an extractive corporation in Semarang. Due to that, it could be seen that Human Security is a worrying issue that has to be catered in the area.

Geographically, Kemijen Village is located in East Semarang Sub-district in the astronomical position of 6 ° 96'44.62" to 6 ° 95'02.09" South Latitude and 110 ° 44'10.38" to 110 ° 43'09.54" East Longitude. Kemijen Village has an area of approximately 140.90 hectares in the form of dry land. The area of dry land use includes yards, buildings and yards covering an area of 129.60 hectares, ponds, ponds and swamps covering an area of 5.30 hectares, as well as other uses covering an area of 6 hectares.

The boundaries of the Kelurahan Kemijen are as follows:
1. North side: Tanjung Mas Village, North Semarang Sub-district
2. South side: Rejomulyo, Mlatihrjo, and Mlatibaru Villages, East Semarang Sub-district
3. West side: Tanjung Mas Village, North Semarang Sub-district
4. East side: Tambakrejo Village, Gayamsari Sub-district

In the effort to fulfill Human Security, the main actor who plays an important role is the government. Even so, it must be understood that in order to achieve a higher level of success, it requires cooperation and collaboration from various actors. After initially appearing the Triple Helix concept where government actors, business and academics unite and work together, the next concept refinement is Quadruple Helix. In Quadruple Helix, the fourth actor to emerge is society itself. Assuming that people understand their needs best, it makes perfect sense for society to complete the puzzle piece by

becoming the fourth actor in the Quadruple Helix in pursuing Human Security. Therefore, seeing that the fulfillment of Human Security is a substantial issue in Kemijen Village, one that is yet to be catered by any strategy nor model, it is very interesting to see how the dynamics of the four actors in the Quadruple Helix play a role in efforts to fulfill Human Security in Kemijen Village, Semarang City.

The implementation of compliance with Human Security is complex and not simple. This paper argues that in the Triple Helix model, the position of society is neglected because they are only positioned as an object where they should also be the one who play an active role as actors. Therefore this paper would be proposing a new model to be able to fulfill the Human Security that is needed in Kemijen Village, Semarang City, through the use of Quadruple Helix model that includes the government, businesses, academicians, and the community as actors in its execution.

Research Methodology

This study uses a descriptive-qualitative approach by combining literature studies and interviews. Interviews will be conducted on community members of the Kemijen Village who are considered to represent the variables in this study. Interviews will also be conducted on representations of each existing Helix. The interview method was carried out directly by visiting the location. Another interview method is to carry out long-distance correspondence using call and electronic mail. Literature studies will be carried out through literature reviews of books, articles and other relevant secondary sources. Literature studies can provide sufficient information about the variables needed so that it becomes a complementary method for data collection techniques with an interview approach.

Data analysis in this study used a qualitative method, which translates to collecting

data from interviews and other notes. This research underlies its qualitative nature for the conjecture of Miles and Huberman[6] that qualitative methods reduce and provide data, then conclude, and finally verify it.

The Concept of Human Security

The concept of Security is a concept in the realm of International Relations that has been growing rapidly ever since the end of the Second World War. At first, the concept is defined solely as security from war and conflict, more commonly known as Negative Peace. Due to that, scholars in the realm of International Relations such as Hobbes, Machiavelli, and Rosseau only analyzes how countries acts among one another, and how these countries could gain national security.

This state-centric conception of security could be seen in the works of past IR scholars, where scholars whom adopted the Neo-Realist school of thought such as Kenneth Waltz and John Mearsheimer became examples of those who adheres to this definition of security. For them, security (or the lack of it) is the result of the anarchic structure of the international society, and due to that every single action that has been taken by a state is to achieve national security from threats that are posed by other countries[7].

Yet as time progressed, the conception of both peace and security progressed. While at first only covering security from direct violence, Johan Galtung in his article "Violence, Peace, and Peace Research" (1969) tried to widen the definition of Peace. According to Galtung, peace is not only the condition when someone is secure from direct violence, but is also the condition when someone is secure from indirect violence.

What he means by indirect violence is structural violence, where the social structure of a society actively prevents an individual from fulfilling their daily necessities and needs, referring to conditions such as poverty. Due to that, Galtung refers to Positive Peace as the ideal peace, because that condition prevents the emergence of conflict instead of just ending the ongoing conflict/violence[8]

The same is applicable for security, in which the current conception of security does not only talk about national security, but also the security of the individuals living inside the country (better known as Human Security). This change happened after the end of the Cold War, where in which many scholars realized that threats towards the human condition is much more varied than once thought. Threats in the sector of environment, economy, or politics area also threats that are very dangerous for the security of individuals inside a country

The Human Security Approach was first introduced on the Human Development Report on the year of 1994. This report raised to important topics that is central to the idea of Human Security: Freedom from Fear and Freedom from Want[9].

a. **Definition of Human Security**

As stated before, the definition of Human Security according to the Commission of Human Security is every effort to protect fundamental liberties that serves as the essence of an individual's life. What is meant by this is protecting individuals from critical and expanding threats, which involves the process of building people's aspirations while also forming political, social, environmental, economic,

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[6] Silalahi, U., Metode Penelitian Sosial. Bandung: Unpar Press. 2006

[7] Baylis J,, The Concept of Security in International Relations, *Uluslararasi Iliskiler 5*, no. 18 69–85, 2008. Retrieved from https://doi.org/10.1007/978-3-540-75977-5_37.

[8] Galtung, J., Violence, Peace, and Peace Research, *Journal of Peace Research 6*, no. 3. 167–91. 1969.

[9] Oscar a. G. & Des Gasper, Human Security: A Thematic Guidance Note for Regional and National Human Development Report Teams. 1-16. 2013. Retrieved from http://hdr.undp.org/sites/default/files/human_security_guidance_note_r-nhdrs.pdf.

military, and cultural systems that would later serve as foundations for a respectable life for many.

From there, it could be deduced that the process of Human Security focuses on the process of human empowerment, with the hope that the empowerment would lead to a much more resilient society. That too is in line with the definition of Human Security that was disclosed by former Secretary General of the United Nations, Kofi Annan:

> *"Human Security, in its broadest sense, embraces far more than the absence of violent conflict. It encompasses human rights, good governance, access to education and health care and ensuring that each individual has opportunities and choices to fulfill his or her potential."[10]*

It could then be seen that the concept of Human Security is directly correlated with the concept of Positive Peace, where societal and human empowerment is expected to contribute to the fulfillment of Positive Peace. With the occurrence of community empowerment and positive peace, it is expected that problems in society could be prevented and solved before it escalates to a conflict, while also fulfilling the essence of Human Security explained above, which is Freedom from Fear and Freedom from Want.

Freedom from Fear is the first component of Human Security. This concept at first emerged on Franklin Roosevelt's speech in the year of 1941, but back then this concept is still correlated with the traditional definition of security, which is a condition where a country does not fear the threats of its neighbours. The modern definition of this concept appeared in a speech that was spoken by Aung San Suu Kyi, a Human Rights activist from Myanmar, in which he stated that Freedom from Fear is a man's struggle to achieve their fundamental rights, which is an individual's right to live and achieve their political, social, and economic aspirations.

The second component is *Freedom from Want*. As a part of Human Security, this concept talks about the process of how someone would achieve their economic and social security, and how a society could also develop from an economic, social, and political perspective. It has to be understood that both of these concepts is highly complementary to one another, and so they are also mutually reinforcing.[11]

b. Dimensions and Principles of Human Security

In the Human Development Report that was released in 1994, it was written that there are seven important dimensions for us to understand so that we could apply the Human Security Approach effectively. These seven dimensions are economic security, food security, health security, environmental security, private security, communal security, and political security.

- Economic Security means that an individual has enough income for them to be able to sustain their livelihood.
- Food Security means that everyone deserves the same and an equal access to food.
- Health Security means that an individual should have at least enjoy a minimum amount of protection from disease and unhealthy.
- Environmental Security is focused on protecting individuals from the long term impact of natural and man-made

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[10] United Nations. Secretary-General Salutes International Workshop on Human Security in Mongolia. *United Nations Meeting Coverage and Press Release*. 2000. Retrieved from https://www.un.org/press/en/2000/20000508.sgsm7382.doc.html.

[11] Hanlon R. J., & Chrisie K., Freedom From Fear, Freedom From Want: An Introduction to Human Security, University of Toronto Press. 2018.

disasters. Two of the biggest threats are climate change and global warming.

- Personal Security focuses on the protection of an individual from physical harm, be it from the government or from an independent actor.
- Communal Security aims to conserve traditional values of a community while also protecting that community from ethnic/sectarian violence. This sector of human security usually focuses on the communities that are in direct harm or are currently being threatened.

There are five principles of the Human Security that has to be fulfilled to do an effective approach. The five principles are people-centered, comprehensive, context-specific, prevention-oriented, and protection and empowerment.[12]

Starting from *people-centered* as the first principle, this principle explains that the process of building human security has to be inclusive and accepting to all layers of society to participate. This approach has to take into account the various conditions that could threaten the live and dignity of all people and their community, especially for those whom are most vulnerable.

The second principle is *comprehensive*, wherein this approach has to be done in a thorough manner, in accordance to the complex and interconnected nature of threats. By following this principle, it is expected that the approach would be involving all of the actors that are needed to respond to the threats.

The third principle, *context specific*, means that there is no one way to apply this approach. The fact that different governments and societies has varying capabilities while also having different causes for their problems means

that there is no one solution to solve a varying number of issues.

The fourth principle, *Prevention Oriented*, and the fifth principle, *Protection and Empowerment*, means that the Human Security Approach is designed to empower communities while also giving sustainable solutions to prevent later conflicts. These two principles also function to build a working framework in order to overcome threats to human sustainability.

c. Implementation of Human Security in Indonesia

When discussing about Human Security, the discussion would never stray far from the agenda of Sustainable Development Goals (SDG) that was proposed by the United Nations in the year of 2015. This is due to the fact that this agenda functions to push different countries to work together with the purpose of forming an international community that is resilient and safe from threats such as poverty, starvation, disease, and violence, all of which is intended to fulfill the three pillars of Human Security that was discussed earlier. In a sense, the concept of Human Security becomes an important lense that helps pushes how the SDGs agenda operate, one of which that prioritizes societal participation in its execution.

> *"world free of poverty, hunger, disease and want ... free of fear and violence ... with equitable and universal access to quality education, health care and social protection ... to safe drinking water and sanitation ... where food is sufficient, safe, affordable and nutritious ... where habitats are safe, resilient and sustainable ... and where there is universal access to affordable, reliable and sustainable energy."[13]*

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[12] Human Security Unit of the United Nations, HUMAN SECURITY HANDBOOK: An Integrated Approach for the Realization of the SDG's, no. January. 1–47. 2016

[13] Human Security Unit of the United Nations.

In the 2019 Voluntary National Review that was released by United Nation's Economic and Social Affairs, it was recorded that Indonesia has been making good progress on the field of Human Security. From 2015 to 2018, Indonesia's GDP rose 5% per year, while its poverty rate managed to drop from 10,96% to 9,66% with the Gini Ratio also dropping from 0.414 to 0.384. This shows that Indonesia is succeeding in reducing inequality in the society, while also experiencing a sustainable and inclusive economic growth.

Aside from that, Indonesia has also succeeded in raising its level of education. From 2015 to 2018, attendance level in Senior High School rose form 78.02% to 80.68%, while attendance levels in higher education also rose from 25.6% to 30.19%. This is also accompanied by an equal access of education to both genders and all income group on the levels of Primary and Junior High School.

From the data above, it could be concluded that Indonesia is currently experiencing progress in its effort on strengthening Human Security. Not only that, greenhouse gas (GHG) levels had also dropped 22,5% from the years of 2015 and 2017, which also shows that Indonesia is also progressing on the sector of environmental security.[14]

But even so, in the year 2020 UNDP reported that Indonesia's Human Development rate is still on the rank of 111 worldwide.[15] This means that even if progress does happen on several sectors, Indonesia still has to increase their efforts in developing and achieving Human Security for its citizens.

Due to that, in an attempt to achieve security and better human development, then a proper strategy is also needed as a way to implement an effective approach of Human Security. A possible strategy that could be implemented to achieve this approach effectively is the Triple Helix concept, which is a concept that draws on three different actors to foster sustainable growth in the community. The three actors that were included in this concept were academics/scholars, the government, and businesses.

However, after noticing several inefficiencies in the Triple Helix Model, one that is caused from the lack of societal participation in fulfilling Human Security, the concept was later perfected into Quadruple Helix, which added the community itself as an actor in addition to the past three actors. From there, this research would examine the process of implementing Quadruple Helix in the village of Kemijen, Semarang City, as an effort to increase the level of human sustainability and security in that area.

Research Implementation in Kemijen

The Village of Kemijen is located in the city of Semarang, more specifically in the Sub-district of East Semarang. This village which is comprised of an area of 140.90 Ha, is used for many different purposes, where buildings, ponds, and yards takes the space of about 129.60 Ha, swamps take about 5.30 Ha, while the other 6 Ha left is used for other purposes aside from these two.

Flooding has been constant problem that has plagued the village since the 1970s. It is stated that piles of trash that clogs the flow of water in the river if there happens to be a storm or a high-intensity rain causes floods in the area. This problem is worsened when the city-government of Semarang tried to do reclamation on its coast at the 1990s, wherein which it caused the sub-district to start experiencing rob (coastal floods). An inefficient drainage system during the tide is the reason why rob started

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[14] UN High-Level Political Forum on Sustainable Development, Voluntary National Reviews Database, *Sustainable Development Knowledge Platform*. 2019. Retrieved from https://sustainabledevelopment.un.org/vnrs/.
[15] United Nation Development Programme, Human Development Indicator Indonesia. 2020. Retrieved from http://hdr.undp.org/en/countries/profiles/IDN.

entering the residential areas, and there has not been any sustainable and massive action taken by both the government and residents of the area to mitigate this issue of rob. Not only floods and rob, this village is also currently experiencing land subsidence. The hot and dry weather of the area is caused by its geographic location that is located near the beach, directly bordering the Pantura route, and also due to the huge number of industrial activities that is done in the area.

To facilitate easier access for the local community to travel, there exists a highway that they could use, albeit it is full of potholes. This sub-district also has a few facilities that is used to support the livelihood of the local community, the facilities of which are in the sectors of education, religion, healthcare, and public facilities. For education, there exist four units of kindergarten, six units of primary school, and three units of playgroup. The religious facilities that could be accessed in the area is seven units of Mosque, fourteen units of musholla, and three churches. For healthcare, there exists eleven posyandu (integrated healthcare center) and one unit of polyclinic. For other public facilities, there exists six units of RW Buildings, one art building, four units that acts to provide sport facilities, and four units of MCK.[16] In the residential areas itself, there are still houses that were made out of plywood and built above piles of trash, and there are also houses that were made with concrete and steel.

The residents of this sub-district are scattered over 82 RT and 11 RW, where they take care of administrative in RW/RT 01. At the start, this village only has 5 RW, but as time progressed and the area expands, finally in 1983 the area increases, in which it took several area that was formerly part of Rejomulyo's village into its own. The Kemijen Village's population

amounts to 13,413 people with 3,928 families. The number of males living in the area is estimated to amount to 6.733 people and the females are estimated to 6.723. If studied based on age, then the population of Kemijen amounts to 3510 people from the age of 0-15, 7798 is in the age of 15-65, and 2105 is aged 65 and above.

Life in Kemijen is very harmonious and diverse, where religions such as Islam, Catholic, or Protestant live together without one feeling superior to another. This harmony is proven by the existence of both Mosque and Churches in the area and the lack of conflict between the different religions. The professions that are undertaken by the inhabitants of the village are diverse too, where many works as labors, entrepreneurs, driver, businessmen, honorary employees, civil servants, and some even owned Small to Medium Enterprises (SMEs). The SMEs (or UMKM) in the area usually operates in the sector of food processing or culinary, producing foods such as bandeng presto, grilled chicken, pempek, and others. Other than that, many of the SMEs also produces convections, pillows and beds, and traditional snacks. However many of the SMEs in this area went out of business, due to the fact that it is not seen as a main source of income, and also due to many of the inhabitants' lack of capital. Even with such a diverse pool of professions, many inhabitants of the area are still living in poverty. According to data, as many as 670 KK or around 1340 inhabitants are living in poverty

Beside from poverty, the rate of school dropout also becomes a huge problem in the area. Even if educational facilities exists in the area, many children in the sub-district eventually dropped out of school due to environmental factors and their friendship circle. There have been many reports of brawls between teenagers in the area, even if the inhabitants didn't instigate several of those brawls. According to data in December 2018,

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[16] Monograph Map of Kemijen Village as of December 2018

citizens that are currently enrolled in primary schools amount to 5,046 people (or 38.45% of the population) the number of those who are enrolled in Junior High amount to 4,507 people (35.6%), the ones enrolled in academy amounts to 242 people (1.35%), the ones enrolled in university (undergraduate) amounts to 89 (0.38%), and lastly only 3 of the inhabitants (0.02%) has enrolled to post-graduate programs.[17]

Community Development in Relations to Human Security

In this research, researcher would focus on the fulfillment of Human Security in the Village of Kemijen. This area is located on the outskirts of the city and is currently facing a lot of different problems in relations to human security, such as poverty and low levels of education. From there, it is understood that there needs to be efforts to fulfill the different sectors of human security in the area, and it is expected that by including the community in the process then the concerns of Human Security could be optimally fulfilled.

In order to achieve this then, a number of different actions were done in order to help the fulfillment of several sectors of Human Security in the area.

a. Economic Security

The dimension of Economic Security aims to ensure and guarantee that the society would enjoy a sustainable basic source of income. This dimension intends to combat poverty, unemployment, debt, and a lack of income for an individual. To realize the fulfillment of economic security in Kemijen, several programs were held for the inhabitants of the area. In those programs, the community was trained to use convection screen-printing to produce T-Shirts, making eco-bricks, while also being trained in financial management for

convection screen-printing. Aside from training, the inhabitants were also given convection machines and was also trained in making a website in order to market the products that they made. Help was given to vulnerable individuals through embroidery trainings, training them to make batik, training them to paint painting, and training them to play traditional instruments, which was all done as a way to help them fulfill their economic security. Considering that there are a lot of children who dropped out of school in the area, the tutoring center "Ceria" was opened. Before opening the tutoring center, campaigns and recruitments was held, alongside a training of trainers for all of the tutors who had been recruited. It was hoped that the help that had been given on the field of education would fulfill Human Security from an economic point of view, because education could contribute to breaking the cycle of poverty in the Kemijen Village.

b. Food Security

Another dimension of human security is Food Security. Not everyone is privileged enough and has the access to be able to provide nutritious food for their children due to economic factors. Food Security is intended to end hunger and overcome an individual's economic difficulty so that they can access food. To fulfill this dimension, then help was given in the form of food for toddlers. This help is meant to fulfill a toddler's needed nutrition, because for a child to be able to develop to its maximum capability then they would need their nutrients to be fulfilled since an early age, and this is especially important due to the fact that many of the inhabitants of the area still lives in relative poverty.[18]

c. Health Security

Another dimension in Human Security is Health Security. The issue of health has become a huge problem, especially for the elderly. The elderly is very prone to be infected with diseases,

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[17] Monograph Map of Kemijen Village as of December 2018

[18] *Ibid.*

be it minor illnesses such as the flu or major illnesses such as cancer. For those who are conscious about health would maintain a healthy lifestyle through the foods that they eat or their sleeping patterns. But not everyone is conscious about his or her health, and this is made worse by the fact that not everyone could gain adequate medical treatments. Due to that, Health Security tries to protect individuals from diseases and unhealthy lifestyles. Besides that, Health Security while also tries to oppose and overcome problems such as inadequate medical treatment, new and repeating diseases such as epidemics and pandemics, bad nutrition, and unhealthy lifestyle. Seeing that hygiene and sanitation becomes a point of concern in Kemijen Village, there needs to be at least efforts to help the inhabitants (especially the elderly) to be able to maintain their health by making sure that enough nutritions are consumed. And so to fulfill this dimension, food was given to the elderly in the village of Kemijen.

d. Environmental Security

The village of Kemijen could be described as a "slum area", due to the existence of the Banger River that emits an unpleasant odor and is clogged with a huge amount of trash. This is very regrettable due to the fact that environmental security is one of the dimensions of Human Security, where the focus of this dimension is reducing environmental degradation, natural disasters, pollution, and the lack of resources. The program trained people to process organic waste, the procurement of garbage press machines, and the training program for the production of eco brick are attempts to fulfill human security in the dimension of environment.

Considering the huge amount of trash in the Kemijen Village, alongside its effects in causing floods, it is better for them to start recycling the trash in the area. This would reduce the amount of waste in the area and so help in fulfilling the dimension of environmental security. Aside from that, if the trashes are recycled effectively then it wouldn't only lead to the fulfillment of environmental security, but also economic security due to the fact that the waste could later be turned into eco bricks. To fulfill the dimension environmental security, more parks were made in the area and many of its facilities were upgraded.

It is hoped that the training and help that was provided could help to fulfill Human Security in the Kemijen Village. To effectively fulfill all dimensions of human security, collaboration between many different actors are needed. In this research, there are four actors that has to work together to fulfill human security, which are: the government, academicians, businesses, and the community themselves. It is hoped that with the addition of the community as an actor, the process would be much more effective because they are the ones that understand the situation and the condition of the area that they live in.

The Quadruple Helix and the Approaches to Fulfil Human Security

If past efforts that was done by different actors to fulfill human security was the Triple Helix Model, which is cooperation between government, businesses, and academicians, then this research would be applying the Quadruple Helix as a way to compare and analyze the efficacy of the Triple Helix model. Quadruple Helix is a concept that proposes collaboration between government, businesses, academicians, and the community itself in order to achieve human security.

Figure 1. Triple Helix (TH) Progression to Quadruple Helix (QH)
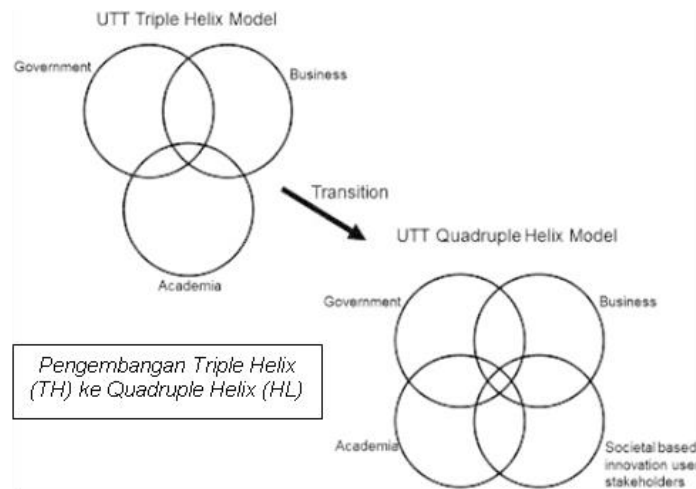
Adapted from Casaramona, the Triple Helix model is deemed insufficient for long-term innovative growth, because innovation growth is increasingly cross-disciplinary, which shows the need for the role of society as part of the innovation system.[19] This concept allows the parties to "focus on producing other kinds of innovations and applying existing technology and research knowledge and user knowledge as well".[20] The most important point that distinguishes the community helix from the other three helixes is in the form of human life knowledge, as well as businessmen's technology knowledge, academic research knowledge, and the political will of the government.

Academicians Role: Transdisciplinary. The greater the involvement of the public, the greater the demand for processes that involve multiple disciplines or are transdisciplinary. Experts are faced with the challenge of being able to elaborate knowledge with the methods of production and transfer. Cross-disciplinary knowledge can be generated through interactions between different actors, which means that it is more socially and economically applicable.

Government: Open Science and Democracy. As an actor with the power to develop a set of official rules, it is hoped that with the participation of civil society, the government can create policies and development in accordance with the preferences of the general public. The existing policies are expected to be more acceptable and efficient. Likewise, monitoring activities are expected to be carried out continuously.

Businessmen act as business actors, investors, and creators of new technology. Businesses have the ability to create new products and innovative services, strategic new markets, and form public spaces to interact and share ideas.

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[19] Andreana Casaramona, Antonia Sapia, and Alberto Soraci, "How TOI and the Quadruple and Quintuple Helix Innovation System Can Support the Development of a New Model of International Cooperation," *Journal of the Knowledge Economy* 6, no. 3 (2015): 505–21, https://doi.org/10.1007/s13132-015-0253-8.

[20] Robert Arnkil et al, Exploring the Quadruple Helix: Report of Quadruple Helix Research for the CLIQ Project, Work Research Centre University of Tampere, 2010

Figure 2. Quadruple Helix Innovation System Visualization
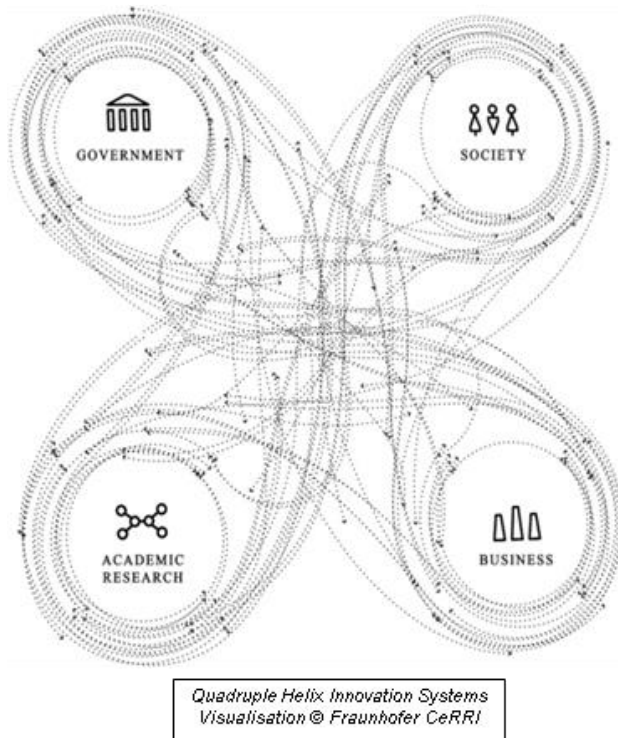
Source: Fraunhofer IAO, Center for Responsible Research and Innovation (CeRRI), Berlin, Germany

Social mapping is now commonly used as an approach in dealing with social problems. When traced literally, the word "mapping" refers to the process, method, and deed of making maps, while the word "social" simply refers to society. As for terminologically, Suharto (2005) provides an explanation that social mapping is a process of describing a systemic society and involves collecting data and information about the community including profiles (history) and social problems that exist in that community.

Long before that, Netting, Kettner and McMurty in 1993 provided a brief overview of social mapping. They describe or explain social mapping as social profiling or profiling a

community.[21] One form or the end result of social mapping is usually a map of the area that has been formatted or designed according to its function, to portray an image of social problems in the community. When referring to the views of Netting, Kettner and McMurty, there are three reasons why a systematic approach is needed in social mapping,[22] including:

1. The view of "the person in the environment" (the person in the environment). For this context, society is interpreted as someone who has a certain figure, covers the various problems faced, to explain what resources are available to deal with these problems. Community development will not proceed well without an understanding of these community influences.

2. Community development requires an understanding of the history and development of a society and an analysis of the status of this community.

3. Society is constantly changing. Individuals and groups are moving towards changing power, economic structures, sources of funding and the role of the population. Social mapping can help in understanding and interpreting or interpreting these changes

More specifically, academics and companies provide the necessary conditions for an integrated innovation ecosystem; the government provides the regulatory framework and financial support for the implementation of innovation strategies and policies. Civil society does not only use and applies knowledge and demands innovation in the form of goods and services, but also becomes an active part of the innovation system. Information and communication technology also works as a supporting factor for bottom-up civil society participation.

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[21] Edi Suharto, Membangun Masyarakat Memberdayakan Rakyat: Kajian Strategis Pembangunan Kesejahteraan Sosial dan Pekerjaan Sosial, Bandung: PT. Refika Aditama, 2005
[22] *Ibid*

The four actors interact with each other in a dynamic, multi-layered, and two-way interaction. This process implies two elements: effective interaction between at least academics and business people (i.e. traditional technology-based innovation) and citizen contributions to the innovation model. This requires a shift from technical innovation to social innovation.[23] The presence of the community means this model is bottom-up, so it is hoped that it can explore innovative potential; investment that is right on target; and better policy making.

With the addition of the community as an actor in the quadruple helix, it is hoped that the approach would be much more effective because they are the ones that understands the situation and the condition of the area that they live in. Yet, many academicians still debated about the right appraisal method to provide help to people. The appraisal stage is interlinked with social mapping, and it becomes an important stage because social mapping becomes a central factor in determining the success of community development/empowerment.

As time progresses, the appraisal method that was at first mostly top-down then shifted to be bottom-up. This change brought several impacts in appraisal methods, in which it became much more decentralized than it is centralized, it starts to prioritize learning from community than relying on a blue print, and doing a much more local approach, alongside shifting the surveying method that used to be extractive to be much more participatory. This shift then brought out two different approaches, which are *Rapid Rural Appraisal* (RRA) and *Participatory Rural Appraisal* (PRA).

a. Rapid Rural Appraisal (RRA)

RRA aims to gather information that are relevant, on time, accurate, and could be used cost effectively. To gain accurate information, then a principle of RRA is data triangulation. Data triangulation is seeing and evaluating a problem that emerges with diverse perspectives, or looking at the problem with a variety of disciplines (multi-discipline), using a few different tools and techniques with individuals and groups that represents the diversity of the community. This triangulation is used to reduce data and information bias so that the information and data that is gained would be accurate, no distortion of reality occurs, and comprehensive. To gain information then a direct, semi-structurized interview is needed with a respondent. The important goal of RRA is to overcome complexity, diversity and interdependence, and to recognize problems and problem-solving context efficiently. RRA has eight different instruments, which are:

1. Transect walks: a trip done by the researcher, in which they are accompanied by villagers to see the physical geography and the topography of the area, physical characteristics such as land, trees, and rivers which are then documented.

2. Mapping and modeling: participative mapping is a proses in which villagers produced a visual image from the locations that they lived in.

3. Seasonal analysis: representation from societal patterns that contrast the difference of seasonal patterns and repetitions. An example of this is information in regards to agricultural cycles.

4. Trend diagramming: representation of the changing life and resource base of the society. This trend diagram is used to identify forest resources, fuel economy, price developments, marketing

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[23] AN Praswati, Perkembangan Model Helix dalam Peningkatan Inovasi, Muhammadiyah University Press, 2017

opportunities, land use patterns, including analyzing specific gender changes that has access to resources or control over them.

5. Matrix ranking: matrix ranking are grande that represents relative value or preference by creating a hierarchy of activities or item.

6. Wealth ranking: a tool that is used to determine relative wealth of each members of the society, including difference based on gender in regards to wealth.

7. Chapatti diagrams: representation from social relations in the society that is used to show relative importance of an individual or a group in the society.

8. Strengths, weaknesses, opportunities, and limitations analysis: a tool to document local evaluation from an activity and also to evaluate strength and weakness, as well as identifying possible problems and solutions. SWOL is also used to identify difference based on gender on

b. Participatory Rural Appraisal (PRA)

The Participatory Rural Appraisal Method, or PRA, aims to allow the community to increase and analyze their knowledge about village life or the village's condition, and also to make concrete plans and actions. PRA itself has a few principles, among which is: learning and sharing experiences with one another, an outsider as the facilitator, triangulation concept, as well as optimization of result, practical orientation, and the program's sustainability. PRA aspires to make the community as the researcher, planner, and executor of the development, and not just an object of the development. To realize this aspiration, then the entire community needs to play an important role in the whole activity. PRA is purposeful, and so has a higher chance for community to play a part. It is hoped that the community's involvement would make the program suitable and appropriate with the needs of the community.

In its implementation, PRA has three principles: *one*, you could not cut someone off while they are talking. *Two,* you are not allowed to steer the discussion so the participants think according to the facilitator's wishes. *Three*, you could not give any clues, which means that the facilitator has to be neutral and not steer the discussion in accordance to his own opinion.

Generally, the execution of community development with the PRA method is divided into four*: first*, doing social mapping through filed survey. *Second*, doing focus group discussion as a form of validation of the social mapping that has been done. *Three*, making recommendations of an event that is effective based on the community. And *four*, supervising the CSR that is currently being done.

The implementation stages of the PRA method could be spelled out as follows: *the first stage* is the initial mapping, which aims to understand the community's characteristic/condition. *Second*, building a relationship with the community so that the researcher and the community would have a stronger bond. *Third,* setting the research agenda, which would be started by selecting a group in the community to help with the implementation of the research. After a particular group has been chosen, then an in depth interview would be done to be able to formulate a plan that will be done in the particular area. After a plan has been found, the program would be continued by a forum group discussion to discuss the result of the in depth interview. This stage is a form of effort to push the community to then actively participate in the program. *Fourth* stage would be mapping the participation, which aims to discuss an issue in

the community. *Fifth*, formulating a problem that is complained by the community. *Sixth*, forming a strategy or action to solve the problem. *Seventh*, organizing resources and potentials, which aim to form action groups that would later be able to empower the community independently.

To compile data, both RRA and PRA have the same method, which is by using primary and secondary data. Primary data that could be used are visual observations and interviews. Visual observation is monitoring firsthand the phenomena and characteristics of the object that is being reviewed. Another way to gain qualitative data is by doing a structured interview. Interview is a face-to-face way of communicating, or question and answer. Meanwhile secondary data could be gained through examining governmental policies such as constitutions and others forms of policies. Analyzing governmental policies are done in the end of the execution as to make sure the program does not overlap with government rules. Another way to gain secondary data is by examining planning documents, in which we analyze the real phenomena on the field so that it could be made as the foundation for decision-making. The third and last way to gain secondary data is by examining literatures that are related as to gain deeper understanding and knowledge.

Fulfillment of Human Security through Quadruple Helix

As discussed above, the main objective of the Quadruple Helix model is the creation of dynamic collaborations between top-down and bottom-up solutions. As far as we know, the implementation of Corporate Social Responsibility (CSR) activities is usually only done top-down, or in other words, it is more focused on the role of external parties in society, such as the government, businesses and academicians. Even though the Triple Helix

model has been implemented since long, but the consensus taken may not remain targeted because it ignores the needs of the CSR recipient community. Basically, the focus of CSR is on the community and their needs, although not all of them is able to be fulfilled through CSR. Therefore, the community needs to be involved in the formulation of activities and policies, which aimed to develop and empower the areas they live in so that the actions are more well targeted. In this paper, security fulfilment in Kemijen Village was carried out using the Quadruple Helix model.

a. Community Involvement in Focus Group Discussion

The implementation of CSR in Kemijen Village is carried out through several processes. In accordance with the PRA approach, the main things that are very important to do first are area observation and social mapping. The main objective is to know and understand well the needs of the Kemijen community as well as to build relationships with the community. The results of this social mapping are not immediately formulated into CSR activities. The next step, which is also important, in implementing the Quadruple Helix model is the execution of Focus Group Discussion (FGD).

The FGD that was conducted involved several community figures who have a vital role in the Kemijen Village. These community figures were chosen as representatives of the community. They were considered to be more aware of the actual situation in Kemijen Village and the basic needs of the Kemijen community than the external parties that came outside the community. Through the FGD process, community empowerment efforts will be mutually agreed upon according to their needs.

The FGD event started by dividing the participants into several groups. There were groups that aimed to discuss some of the issues that have arisen in the Kemijen Village, such as

environmental issues, health, education, human resources, etc. There was also a group that was asked to draw the Kemijen Village map and they described some of the potentials possessed by the Kemijen Village, such as natural resources or human resources. This grouping facilitated community figures to convey their opinions and observations on different area in Kemijen Village. These community figures who come were also a leaders who have different roles and positions in Kemijen society. They also live in different administrative units within Kemijen Village, so that they can represent the neighborhood unit they live in. Kemijen Village is actually quite a big area, with diverse citizens, as well as diverse problems, thus it took several people to be able to represent the conditions in each neighborhood.

The community figures who came then conveyed ideas that could be used to help solve problems in Kemijen Village. Afterwards, academicians from Undip took notes, summarized them, then led the large group discussion. These two actors then collaborate to formulate several CSR activities that is aimed to overcome some of the problems that had occured. The activities referred to, for example, are providing additional food for toddlers and the elderly, implementation of an organic waste processing training program and making eco bricks, forming tutoring, and several others.

b. The success of Top-down and Bottom-up Collaborations in Fulfilling Human Security

The implementation of the FGD described earlier is a way to collaborate the top-down and bottom-up approaches. That way, the role of society is not neglected and the fulfillment of human security can be done more effectively and well-targeted. FGD is a way to connect the roles of government, businesses, academicians and the community. The four actors have their respective roles which are

equally important. In particular, the community plays a role not only as a recipient of assistance, but also as the party who will established every CSR activity for a long-term so that human security can continue to be fulfilled independently in the community.

Some of the CSR activities that have been carried out have also fulfilled several goals set out in the United Nations Sustainable Development Goals (SDGs).[24] In an effort to achieve SDG's goal number 8, which is to support inclusive and sustainable economic growth, a full and productive workforce and decent work for all, there are several CSR activities that have been carried out. Among them were training in the production of convection screen printing shirts, training on making eco brick, financial management training for convection screen printing, adding convection machines and also training on making websites to market convection products, providing assistance to vulnerable people in the form of training in embroidery, batik, painting, and playing traditional music. Moreover, there was also the establishment of "Ceria" tutoring center with the hope that the community can break the chain of poverty through better education as well as fulfilling SDGs number 4, that is ensuring an inclusive and quality education, as well as supporting lifelong learning opportunities for all communities.

Furthermore, there were also some efforts to realize SDGs number 2, that is providing assistance in the form of additional food for toddlers. The provision of food is intended to fulfill nutrition for toddlers because at the age of five, nutrition needs to be considered so that children's growth and development can be maximized. This CSR activity is expected to realize SDGs goal number 2 regarding better nutrition for the community, which in this case is specifically for toddlers.

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[24] The 2030 Agenda for Sustainable Development. (2021, March 11). Retrieved from https://sdgs.un.org/goals

This is at the same time to fulfill human security in the food sector. Food security here is intended to eliminate hunger and overcome difficulties in economic access to get food for children under five years old. This goal is also complementary with CSR activities in the form of providing additional food assistance for the elderly. This activity simultaneously fulfills health security as it seeks to combat and overcome problems for the elderly in Kemijen Village, such as inadequate health care, new and recurring diseases including epidemics and pandemics, malnutrition, and an unhealthy lifestyle. Therefore, the two CSR activities in Kemijen Village also fulfilled the goal of SDGs number 3, which is to ensure a healthy life and support the welfare of all ages.

The CSR activities carried out also cover environmental security, such as the implementation of an organic waste processing training program, procurement of a waste press machine, and training in making of eco brick. Of course, those activities were in accordance with the conditions of the Kemijen Village, where there was a lot of garbage which then causes flooding because it clogs the river flow. In addition, if the waste is properly processed, not only environmental security, but also economic security can be realized because the recycled waste can be reused, one of which is used as an eco-brick. Therefore, the CSR included SDGs goal number 11 regarding inclusive, safe, durable and sustainable urban and residential development by implementing waste management; as well as goal number 13 regarding preventing climate change and its impacts.

Through FGD, the people of Kemijen can play a role in carrying out activities that are useful for their environment by providing education regarding the environment issue for residents and practical ways to protect the environment. This is what is called community empowerment; the empowerment which from, by and for the community. Eventually, it is society that must primarily experience the human security. When important figures in society are involved, such as Karang Taruna, religious leaders, political figures or PKK (Pembinaan Kesejahteraan Keluarga) women, the process of internalizing human security values is easier to achieve and implement. In the process, there is top-down and bottom-up collaboration. Academicians from Universitas Diponegoro have proposed solutions by combining observation data and the science knowledges, combining them with the resources that can be provided by businesses or private actors, then community leaders play a role in conducting community empowerment. When the community has succeeded in realizing human security in their area, this can be used as material for the government to review each policy that will be taken, specifically for Kemijen Village, so that the policies taken is in accordance with the preferences of the Kemijen community. The existing policies are expected to be more effective and well-targeted.

The CSR activities above certainly would not have been able to be carried out if the community was not involved in the discussion. The solutions provided are also a combination of ideas from society and knowledge from academicians. We can see that involvement of the community in Kemijen through FGD enables CSR activities to fulfill four of the seven types of human security, that is economic security, food security, health security and environmental security.

This research proves that the evolution from the Triple Helix to the Quadruple Helix is utmost important because the fulfillment of human security is more precisely targeted and all the dimensions mentioned are more optimal. The people of Kemijen Village are not only involved to become subjects who attempt to fulfill the human security, but also objects who will experience security itself. If this continues to be

done as a habit, the people of Kemijen Village can also independently empowering their communities and striving for human security for their citizens.

Conclusion

Based on the data and analysis that has been written, there are several conclusions that can be drawn. Fulfilling human security cannot be borne by the government alone. Collaboration with other actors, such as businesses and academicians, is required, which is also known as the Triple Helix model. However, this model ignores one actor whose actually is the main concern, that is society. Society should be the one who understand their needs best, for they have been living in their area and build community in there for a long time, thus it makes perfect sense if society completes the puzzle piece by becoming the fourth actor in the Quadruple Helix model.

This research proves that the Quadruple Helix model is more effective in fulfilling human security. Some of the ways that have been done include the implementation of social mapping and FGD with community figures in the Kemijen Village. Through FGD, the people of Kemijen was able to collaborate with academicians who offer solutions based on scientific studies, so that the study is not only one-way, but tailored to the needs of the people of Kemijen Village. From there, the community could take part in formulating several CSR activities which later aim to address several security issues in the Kemijen Village. As a result, community involvement through FGD enables CSR activities to fulfill four of the seven types of human security in Kemijen Village, namely economic security, food security, health security and environmental security. On the other hand, these CSR activities have also fulfilled several SDGs goals, among them are goals number 2, 3, 4, 11, and 13. Thus, the evolution from the Triple Helix to the Quadruple

Helix is utmost important because the fulfillment of human security is more precisely targeted and all the dimensions mentioned are more optimal.

Furthermore, top-down and bottom-up collaboration can produce solutions that are more well-targeted and meet the needs of the community. The Quadruple Helix model also allowed the people of Kemijen Village not only to be involved to become subjects who attempt to realize the human security, but also objects that experience the security itself. When important figures in community are involved, the process of internalizing human security values can be easier and more effective to achieve and implement. Thus, Quadruple Helix also allows the conduction of a community development that is created through community empowerment, because eventually, human security is sought from the community, for the community and by the community itself.

Of course this is in line with the government's intention to improve the welfare of its citizens. Indeed, the main role of the government is to guarantee the welfare of the country. However, state welfare and human security will be implemented and guaranteed better if there is good cooperation between the four actors, that is the government, businesses or private actors, academicians and society.

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