

# Environmentally friendly technology development at era industrial revolution 4.0 in Indonesia

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**Abstract.** Nearly 200 countries reached a historic agreement to tackle climate change in Paris December 2015. The Paris agreement binds countries to limit greenhouse gas emissions with the aim of limiting global temperature rise to 2 degrees Celsius relative to pre-industrial levels. The smoke crisis created in 2015 was the worst because El Nino made the rainy season delayed and caused many areas to experience drought. In fact, this year's fog may even be the worst in history, with Indonesia itself reporting the death toll and half a million people suffering from respiratory diseases.

Nobody knows when doomsday will happen. But now, the world has begun the process of mass extinction, and humans can become one of the first victims of the mass extinction process. Experts agree to call it the sixth mass extinction. One researcher, Paul Ehrlich, a Stanford University biology professor said that in the 4.5 billion years of Earth's life, there have been 5 mass extinctions that occurred, mass extinctions occurred 65 million years ago, which brought the extinction of dinosaurs. The fourth industrial revolution is a big leap for the industrial sector, where information and communication technology is fully utilized. Not only in the production process, but also throughout the industry value chain, giving birth to new business models with digital bases to achieve high efficiency and quality products. better. This writing will review the "Environmentally Friendly Technology Development at the Era Industrial Revolution 4.0 in Indonesia" which can minimize the current era of species extinction.

## 1. Introduction

The 4.0 industrial revolution can be a hope and challenge for Indonesia, especially in the environmental sustainability sector. Jalal an observer of corporate governance and political ecology from Thamrin School of Climate Change and Sustainability, explained the notion of industry 4.0 in the environmental sector is where all elements improve and favor the carrying capacity of the environment.

Since the industrial revolution between 1600 and 1900, a study shows that human activities have killed species every day and this continues. More than 400 vertebrates more than expected have vanished. Disappeared animals included 69 mammals, 80 birds, 24 reptiles, 146 species of amphibians, and 158 species of fish, and now the shadow of extinction has covered more than 26 percent of all mammal species and 41 percent of all amphibians. Humans are part of the ecosystem, humans are the managers of the system. Humans influence nature and vice versa, humans who ultimately face themselves.

Deforestation is accelerating due to technology. The use of air conditioning (AC) which is increasingly mushrooming also affects the damage to the environment, because the AC produces CFC (chloro fluoro carbon) gas which can cause holes in the ozone layer. The use of motorized vehicles also contributes greatly to the destruction of the environment. Not to mention the impact due to the rapid economic development so that nuclear research is also

increasing and the increasing number of aircraft in the air and ships as transporters, energy as a support for industrial processes and many other things that sometimes raises the question whether humans will continue to compete and be ignorant of warnings natural disasters that are increasingly common everywhere because the environment's carrying capacity are increasingly worrisome. The El Nino and La Nina phenomena often occur in the production and availability of food in Indonesia. Global warming, floods, landslides. The acceleration of environmental destruction has occurred along with increasingly sophisticated technological developments.

The data also shows that, life style, the current thinking patterns of the Indonesian people tend to lead to western cultures which tend to emulate negative behaviour. The level of drug use is very alarming, their style and behaviour are negative in their daily lives and today are known as "slang kids". The rise of free sex among teenagers. The development of pornography because of technological advances that have not been overtaken by the world of education has become the consumption of underage children incorrectly.

Technological sophistication also resulted in the news that hoaxes spread easily. "At present the symptoms of national division are increasingly felt because identity politics is getting thicker," Mahfud said while attending the declaration of the Suluh Kebangsaan movement in Yogya Wednesday 9 January 2019. Mahfud sees the symptoms of hoax news as such that events never happened repeatedly the incident seemed to be clearly very dangerous. Indonesia too, said Mahfud, could be even worse than Syria, which had been chaotic because of its control of the ISIS group. "Do not say that what happened in Syria cannot happen in Indonesia if it is not anticipated correctly," Mahfud said.

It is quite frightening for technological developments that are not balanced by strict law enforcement. Some of the steps that Indonesia is trying to do based on the government's strategic plan are (1) the Master Plan for the Acceleration and Expansion of Indonesian Economic Development (MP3EI). MP3EI is a manifestation of national economic transformation with an orientation based on strong, inclusive, quality and sustainable economic growth; (2) Creative Economy Program for 27 Ministries and Regional Governments. The movement itself is still running today in the form of a national campaign that continues to run in various domestic products such as clothing, accessories, entertainment, and tourism and so on. (in the Ministry of Trade RI: 2009: 17); (3) the Ministry of Cooperatives, SMEs (Small and Medium Enterprises) and IKM (Small and Medium Industries) are actively conducting development and empowerment of KUKM (Cooperatives and Small and Medium Enterprises) directed at improving product quality and standards, in order to improve KUKM performance to produce products that are highly competitive; (4) enhancing the capacity and quality of infrastructure such as road infrastructure, railways, land transportation, sea transportation, air transportation, communication and informatics, and electricity; (5) in order to provide quality education services, the government has built adequate educational facilities and infrastructure, including rehabilitation of severely damaged classrooms. Data from the Ministry of Education and Culture in 2011 showed that there were still around 173,344 primary and junior high school classrooms in a state of severe damage. (in RI Bappenas Book I, 2011: 36); (6) Efforts to take action against Corruption Crime (TPK) are increased through coordination and supervision carried out by the Corruption Eradication Commission to the Attorney General's Office and the Police.

Various hopes and dreams to be achieved in the future, including the Indonesian nation. The hope of the Indonesian people for the government in going towards a sovereign and prosperous country is according to the purpose of the existence of the Indonesian state which

is stated in the fourth paragraph of the 1945 Constitution. The government, legislative, executive, judiciary, people and other related parties must join hands in: Eradicating corruption, collusion and nepotism, price stability, opening employment, improving the quality of education, resolving human rights issues, increasing child protection efforts, handling horizontal conflicts, reduce import dependence, increase infrastructure development, bureaucratic cuts and the start of good cooperation between institutions in the government and many more things that need to be addressed in the era of industrial revolution 4.0, the era of globalization and this era of uncertainty.

## **2. Problem Statement**

- The damaged people's mindset and lifestyle of the Indonesian people in the generation of President Soeharto's administration for 32 years.
- Culture does not want to know and does not want to learn and is satisfied with a poor life or the term surrender to fate.
- Unemployment is caused by the low quality of human resources or the term high class unemployment because there is a lack of synergy between education and available employment where the link and match between practitioners and academics has not been synchronized.
- According to Greenpeace data, in 2017 coal dominated power plants in Indonesia (58.3% of total installed power), followed by gas (23.2%) and petroleum (6%). The potential dependency on fossil fuels as a source of electricity seems to continue until 2025. This is clearly seen from the General Draft of Electricity Supply (RUPTL 2018-2027, Ministry of Energy and Mineral Resources), where the portion of coal is 54.4%.
- Non-environmentally friendly technological developments in corporate companies.
- Developmental issues 3P (People, Planet, Profit) are ignored.
- Facing an unfriendly Industrial Revolution made panic the development of the Indonesian economy.
- A hit and run mind set will damage the next generation.
- Negative western lifestyle.

## **3. Research Questions.**

- How to make the Fourth Industrial Revolution benefit to Indonesia people?
- Is this 4.00 industrial revolution the answer to human interests being modern humans without the need for a moral touch, meeting, to make a transaction?
- Is this industrial revolution 4.00 a point of environmental destruction?
- Is this 4.00 industrial revolution a race to enrich each other's country regardless of the cries of other countries?
- What is the best solution to Indonesia as a developing country in facing the era digital?
- How is the sustainable development that suitable to Indonesia in developing the country?

## **4. Purpose of The Study**

- The purpose of this study is to provide an overview of the conditions that are being faced by the state of Indonesia due to the development of industrial revolution 4.0 and to anticipate the environmental awareness assistance in the development.
- Giving a clear pictures, how Indonesia nowadays and what should be done next in consideration the needs of the generation.
- To improve the crises in 3P (Planet, Profit, People) technologies' development mind set.

- Provide an appropriate view for Indonesia to adopt sustainable environmentally friendly technology development.
- Provide solutions for the peoples to have a sustainable development in Indonesia.

## **5. Research Methods**

According to Soerjono Soekanto: "Research is a scientific activity based on an analysis and construction that is done in a systematic, methodological and also consistent and aims to be able to reveal the truth is as one manifestation of human desire to be able to know about what is being faced". This research is a type of field research (field research) with a qualitative approach. The study of this paper will use the utility theory of "greatest happiness for the greatest number", pioneered by Jeremy Bentham, supported by R. Edward Freeman in his theory, "A Stakeholder theory of the Modern Corporation".

## **6. Findings**

- 2019 is a political year that becomes a priority and becomes a game phenomenon of political elites who forget the interests of the people.
- In this revolution, emerging technologies and broad based innovation are diffusing much faster and more widely than in previous ones, which continue to unfold in some parts of the world. This 2nd industrial revolution has yet to be fully experienced by 20% of Indonesia people, as nearly 50 million people still lack access to electricity. This is also true for the 3rd industrial revolution, with more than half of the Indonesian's population, 132 billion people, lacking internet access.
- Conditions in Indonesia are not far compared to other developing countries. Technology and Information in Indonesia can be fairly advanced, but not evenly distributed. Only large cities have access to this latest technology.
- Indonesia has one fatal problem, namely the magnitude of the landscape. More sea than land makes the transfer of renewable technology very slow.
- Great quality of Indonesian human resources. Not a few Indonesian people are great in terms of technology and settled outside Indonesia and did not return because they were not considered in Indonesia.
- In the era of modernization like now, humans are very dependent on technology. This makes technology a basic need for every person and industry. From old to young people, experts to ordinary people also use technology in various aspects of their lives. Moreover, the Indonesian is an agriculture country.
- According to the former Minister and Head of the National Development Planning Agency, Armida Alisjahbana, technological progress in Indonesia is still low. There are several indicators that prove the low level of technology in Indonesia, such as the lack of contribution of science and technology in the industrial sector, policy synergy is still weak, and the small number of scientists in Indonesia.

## **7. Conclusion**

- Back To Nature Concept.
- The Environmental Protection and Management Law No.32 of 2009 Article 2, has explicitly supported the principle that is in the Rio 1992 Declaration in the form of the principle of state responsibility, sustainability, harmony and balance, integration, benefit, prudence, justice, Eco region , biodiversity, polluters pay, participatory, local wisdom; environment, good governance, and regional autonomy.

- Indonesia is expected to develop technology Panels consisting of solar cells which have long been known for their ability to convert light into electricity because the strongest source comes from sunlight. Solar panels are also often called photovoltaic cells which mean electric light. 'These cells depend on the photovoltaic effect to absorb solar energy so as to make current flow between two opposite charged layers.
- Wind can be a good alternative energy source to replace fossil fuels. The vane of the wheel will rotate and move when there is wind energy that drives it. In addition to replacing fossil fuels, windmills also function as power plants and help channel water in immigration. In terms of utilizing environmentally friendly energy, windmills are able to maintain environmental cleanliness, because they do not cause air pollution at all.
- Animal manure is known to produce biogas energy that is useful for meeting human needs. Biogas is a gas produced by fermentation activities from organic materials which are not only in the form of animal waste, but also human waste and domestic waste. Carbon dioxide and methane are the main constituents of biogas which can be used as vehicle fuel or to generate electricity. Biogas can produce fuel while reducing waste.
- Indonesia is included in the category of State that is ready to run the 4<sup>th</sup> Industrial Revolution by focus to Indonesia natural resources and human resources.
- Besides being used as a means of tourist attraction, waterfalls are also used to move the windmill. The faster the current flows faster the water wheel rotates and the greater the electric current produced.
- Indonesia embraces the principles of Kinship, Togetherness and Mutual Cooperation.
- The Environmental Protection and Management Law No.32 of 2009; and Nawacita program is the right supporting to Indonesia problems and in line with the SDGs, should be fully supported by the law enforcement.

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