



Chapter 1

Environment and Technology as the Foundation of Indonesia's Sustainable Development

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The COVID-19 pandemic has hit the whole world, including Indonesia, since 2019. In 2022, the COVID-19 pandemic began to recover and activities in the world, including Indonesia, gradually returned to normal. However, the word “normal” here does not become “normal” as it used to be, but a new term appears, namely a new normal. This new normal situation can pose a threat to Indonesia as the largest archipelagic country with the fourth largest population in the world. However, the government cautiously views it as an opportunity to take Indonesia further. Therefore, an idea emerged to make this pandemic the initial fundamental to achieving digital and economic transformation in Indonesia (Kusnadi & Hikmawan, 2020). The Indonesian government website states that the government's current focus is to implement a national recovery policy strategy.

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The national economic recovery policy strategy is a formula made by the central government so that Indonesia can still carry out the work targets that have been set nationally and ensure that these policies can be implemented consistently. In practice, this strategy seeks to maximize communication between the top and bottom to achieve adequate, reasonable, and smooth national integration. In general, the central government will act as a regulator that takes a holistic economic recovery policy. Meanwhile, the local government will play a role in implementing the policy so that the people of Indonesia can feel the new development (Evans & Yen, 2006). In addition, its implementation requires continuous communication and collaboration between the government, the civil society, practitioners, the business world, and academia.

This book tries to present the right ideas for Indonesia's recovery after the COVID-19 pandemic from an environmental and technological perspective. As an archipelagic country with 17,491 islands, it is not surprising that this geographical advantage needs to be utilized by Indonesia to realize the strategy that has been set. The environment itself has become a pressing issue worldwide, including in Indonesia. In this case, we see that if Indonesia can appear to bring about environmental issues, this will have a good impact. In addition, today's technological developments have become a factor that cannot be separated from human life. Almost all sectors and communities cannot be separated from technology. This proves that technology has been proven to bring changes in business processes in a country. In this regard, we also see that technology can transform the system in Indonesia so that it becomes a comfortable, safe, and reliable system for all people in Indonesia.

As we know, today's technological advances have had environmental impacts and humanitarian issues (Aithal & Aithal, 2016; Shurtleff, 2002). These two impacts cause a significant influence on rapid ecological changes and affect the relationship between humans with humans and between humans with nature. In addition, with existing technological advances, the development of a country is based

on technology-based development. If we look at this development, it is certainly good because it builds civilization, but it also has issues that have the potential to emerge new problems. In the development process, natural resources play a critical role in life, and the utilization of natural resources should run in balance with development (Inose & Pierce, 1984). However, in reality, this is not the case; we usually find that exploitation of natural resources is excessive which makes the development's ecosystem or environment is damaged. On the other hand, development in this era has a good side and improves existing facilities, increasing the community's economy around the development. Development is also a sign that an area is progressing. Technology-based development also can make society becomes more modern.

Based on this brief explanation, we can conclude that the role of the environment and technology in changing Indonesia for the better is essential. Through this, we, the environmental and technology commission under the auspices of Perhimpunan Pelajar Indonesia Dunia (PPID) or Overseas Indonesian Students Association Alliance (OISAA), try to share the thoughts of Indonesian students to help the development of Indonesia in the future with a focus on Indonesia's post-pandemic condition economic recovery. This topic is the foundation and the primary concern of all chapters in this book. This book is divided into four major sections: disaster and greening management development, waste and pollution management development, food defense and security development, and human resource and public service development.

Section one is titled disaster and greening management development. This section focuses on the solution in disaster prevention and greening management and consists of four chapters. Chapter 2 explain the general concepts and recent progressions of defossilization technologies in the chemical industry to meet the "net-zero emissions" goal. Additionally, Chapter 3 focuses on nature-based solutions (NbS), such as the bioremediation approach, which holds great promise for improving agricultural sustainability. Chapter 4 specifically focus on

the remediation of heavy metals and Chapter 5 clearly explain and provide knowledge about geomorphological watersheds.

The second section is waste and pollution management development. This section discusses the solution to managing the waste and pollution that happened. Chapter 6 discuss the membrane technology for wastewater. Then, Chapter 7 discusses air pollution due to the rapid development of industry in Indonesia, especially industry 4.0. Chapter 8 discuss the impact of textile dyes on health and their remediation on the environment. While Chapter 9 gives information about several mitigation strategies that have been implemented by other countries and global communities that are also considered in order to keep the spread of microplastics at the lowest level. Additionally, Chapter 10 discusses the critical point that city society adapting to human life to reduce carbon emissions. Such as using green transportation, green building, green industry, etc.

The next section is titled food defense and security development. This section focus on how we can achieve food defense and avoid the scarcity of food that happened annually. Chapter 11 discuss the potential of coastal sand marginal land resources to improve food security post-Covid-19 pandemic in Indonesia. This is in accordance with one of the top priorities in the UN Research Roadmap for COVID-19 recovery, which is to develop a strategy for preventing degradation and preserving land resources to be better integrated to support food security. Chapter 12 explains the internet of things (IoT) implementations of smart packaging by a novel approach for managing food waste. Then, Chapter 13 contented the smart supply chain. It tells how technology can transform the agricultural industry in the post-pandemic era. Later, this chapter consisted of the logistic problem in Indonesia and give a strategy to change it through a smart food supply chain.

The last section is human resources and public service development. This section discusses the role of technology in creating good human resources and giving society the appropriate living service. Chapter 14 discuss the role of technology in enabling knowledge

management in the educational sector. Later, it offers guidance on building a proper knowledge management system and what we need to give attention to and consider when building information systems. Additionally, Chapter 15 focuses on transportation issues in Indonesia and how technology can help solve these issues through smart, efficient, and inclusive systems. This chapter also explains the transportation problem in Indonesia. Later, it gives recommendations based on previous research solutions, current technology, and other countries' success stories. Furthermore, chapter 16 discusses blockchain technology that creates effective e-government. This chapter talks about the emergence of blockchain technology and its use in societies. This chapter provides the utilization of blockchain for government and the recommendation to succeed government transformation using blockchain. Chapter 17 discusses a brief review of related hospital information systems. Additionally, it explains the module list in hospital information systems and how it can be a game-changer in Indonesia's medical world. Chapter 18 is related to the previous chapter but more focused on electronic health records. This chapter provides information regarding the benefits, functions, foundations, and challenges in implementing electronic health records in Indonesia.

We hope that the ideas we have written down can help stakeholders make Indonesia for the better, especially in the post-pandemic era of COVID-19. In addition, we hope that our ideas can give a contribution to Indonesia's development in the future.

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