

## **Governance for Sustainable Development for Nickel Project in Indonesia**

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### **Abstract**

*The paper investigates the governance and administrative process in the nickel project in Indonesia and offers suggestions to apply governance for sustainable development concept for creating an eco-mobility industry in Indonesia. This paper is a case study using qualitative methodology and governance for sustainable development theoretical framework. In applying qualitative methodology, this paper is supported by previous research publications, local press publications, and interviews. The governance for sustainable development is used as a strategic guideline in mining project to develop Indonesia's eco-mobility industry further. This paper has three findings. First, the nickel project in Indonesia is part of bilateral cooperation between Indonesia with the National Strategic Program and China with the Belt and Road Initiative program. Thus, the concept of governance is not only applied in domestic policy but also bilateral cooperation. Second, non-technical issues have been identified during the governance and administrative process of nickel project in Indonesia. The governance concept must be applied to resolve the project's non-technical problems and make it sustainable. Third, all the governance stakeholders in the nickel project must adopt a sustainable governance development framework. Indonesia should avoid further setback and refrain from the previous oil-booming phenomenon in the 1970s. The governance sustainable development concept requires all the stakeholders in the mining project to cooperate inclusively. It comprises extraction, production, recycling-waste management, e-vehicle industry, social acceptance, and rehabilitating the environment (land, air, water, and the living beings) affected by mining activities. This paper highlights Indonesia's experience in creating an eco-mobility industry, using the nickel project as the key driver under investigation.*

**Keywords:** *nickel project; governance; sustainable development; eco-mobility industry; indonesia*

## INTRODUCTION

Governance sustainable development is the concept based on the combination of governance mechanism to enhance social quality livings with environmental friendly approach (Meadowcroft, 2011).

Governance for sustainable development is a concept based on the combination of governance mechanisms to enhance the social quality of livings with an environment-friendly approach (Meadowcroft, 2011). Accordingly, Indonesia must embrace sustainable development for the nickel project in the country, expanding the focus on extraction activity only. It also epitomises the United Nations' sustainable development goals by 2030 (UNDP, 2021). The potential amount of nickel in Indonesia is regarded as the 1st level in the world, with an estimated total reserves of more than 21 million tons (Bisnis, 2020). Previous research and academic publications related to Indonesia's nickel project are used as valuable information for this paper.

Nickel project in Indonesia adopts project governance principles among the countries and stakeholders as the basis for statutory decision-making (Bekker, 2015). For example, the rights of project sponsor, equitable treatment for all the actors, social, economic, and environmental care, ethical conduct, and responsible committee. Indeed, Indonesia's nickel project is recognized as part of China's Belt and Road Initiative (BRI) to help significantly develop economic development in ASEAN countries.

Many areas in Indonesia are blessed with minerals, but the concept of governance for sustainable development is still not being applied in mining projects. Local or indigenous people whose livelihood areas were excavated should be helped to increase their community's living. Thus, governance for sustainable development in the nickel projects in Indonesia aims to improve national and local government revenue by creating new smelter industrial areas to process raw ore materials into several mineral products. It is also expected to enhance local workers' technological knowledge with assistance from Chinese expert workers in the nickel project. It is profound as a subject of research in the public administration field, es-

pecially in the context of governance for sustainable development for mining projects.

Indonesia has to embrace a more ambitious plan but keep rational by maximizing the massive investment from China in the nickel project. Also, Indonesia should aim for a governance for sustainable development concept in the nickel mining project. Therefore, the following research questions (RQs) are identified:

1. RQ1: What are the governance and administration problems in creating sustainable development for Indonesia's nickel project, and what strategy has been developed to overcome the shortcomings?
2. RQ2: What should all the governance actors embrace to achieve governance for sustainable development for Indonesia's nickel project?

This paper starts by discussing the chronology of the governance and administration process of the nickel project, how and when the project was officially initiated, and the key actors, challenges, and strategies for addressing the shortcomings of the nickel projects (RQ 1). This paper is a case study, adopting governance for sustainable development theory as its framework, supported by interviews and document analysis. Besides, the governance for sustainable framework strategy is adopted to maximize Chinese investment in Indonesia's nickel project and prevent it from becoming another "oil-booming" phenomenon (RQ 2). The paper ends with a summary, discussing the findings and reviewing further suggestions for the nickel project to avoid other setbacks. Thus, this paper has three theoretical implications in the context of governance. First, nickel projects in Indonesia will become sustainable only by adopting governance. Second, the governance approach is adopted not only in domestic policy but also in bilateral cooperation. Third, governance theory is essential guidance for mining projects to extract minerals with environmental responsibility.

*The Governance for Sustainable Development theoretical framework on the mining project context*

Governance for sustainable develop-

**Table 1. Research Informants**

Interviewee	Role	Occupation
A	Chinese Company	Specialist Officer for Foreign Business
B	Chinese Company	Chinese Investor and Company Owner
C	Local University Lecturer	Local Expert in Sulawesi Mining Project

ment for mining projects means that land expropriation activities should positively contribute to both humans and the ecosystem in the long term (Hodge, 2011). Yet, it is merely a slogan regarding the mining project's practical experience if the challenges for sustainability are being overlooked or treated wrongly (Hickson and Owen, 2015). Thus, the challenges for governance for sustainable development are related to internal and external stakeholder paradigms over the mining project.

The nickel project in Indonesia should be developed into a sustainable development, particularly for local benefit. Therefore, the governance actors in Indonesia's nickel project should ensure the internal and external stakeholder paradigm will support sustainable development. Based on Hickson and Owen (2015) and Meadowcroft (2011), the governance for sustainable development framework elaborates on the internal and external stakeholder paradigm. They describe its challenges, range, and aims as follows:

Many mining companies see the non-technical issues as cost risks rather than value drivers. External stakeholders see non-technical issues as project impediments rather than potential project allies. (Hickson and Owen, 2015, p.108).

There are several requirements for sustainable development (Meadowcroft, 2011, p.536-537). First, it is really all about governance. In other words, achieving sustainable development without a governance concept is impossible. This is because the concept requires the cooperation of all actors from different expertise but with the same goals. Sustainability can be achieved only by continuously including all the actors, ele-

ments, or aspects into circulation from the beginning to the end, like a circle-chain.

Second, it embodies an implicit perspective of societal steering. Sustainable development can only be achieved under a conducive social situation. In a society where much turbulence and conflict often happen, maintaining order and pushing further development would be impossible. Therefore, social stability is a crucial part of sustainable development.

Third, it implies a change agenda. Sustainable development should carry a spirit of change into society. The change agenda means better development for living conditions. It includes social, technological, economic, environmental, and politics (STEEP). This STEEP aspect should be a part of the change agenda in sustainable development.

Fourth, it requires collaboration among all societal actors, including businesses, civil society organizations, and ordinary citizens. The business is the engine to inject money and jobs into society. However, civil society organizations should be able to control or re-check city business development. It ensures that businesses help society grow, not destroy or diminish it. Lastly, ordinary people are consumers and workers who help businesses keep developing in the city.

Fifth, government at all levels will be expected to play an active role due to the financial, organizational, and legal resources. The government holds control in maintaining development to become sustainable. It has economic power, bureaucratic advantage, and legal legitimacy in society. Thus, government in all aspects should have a synergy from top to bottom level to support sustainable development.



**Figure 1. The Nickel Mining Area, Smelters and Battery Factory in Indonesia**

Sixth, democratic governance is critical, aimed at checks and balances between all actors in the process. All actors have equal positions in the process; no actor is more powerful than the others. They will have the optimal capacity to contribute to the governance process according to their skill and expertise.

Furthermore, the non-technical issues include social acceptance, environmental protection, permit issues, land access, health, and safety, and extreme weather (Molyneux, 2013). In the context of governance for sustainable development for mining project concept, the social and environmental concerns are the main discussion.

Social acceptance is built by connecting local community needs, addressing their complaints and advice, and supporting their community's growth (Parker, 2013). Local community support is essential to maintain the mining project and make it sustainable. Countless mining projects have been cancelled because of rejection from the local community. Therefore, such a project should improve the local community's quality of living by providing jobs, empowering local community goods consumption, and improving their skills and knowledge.

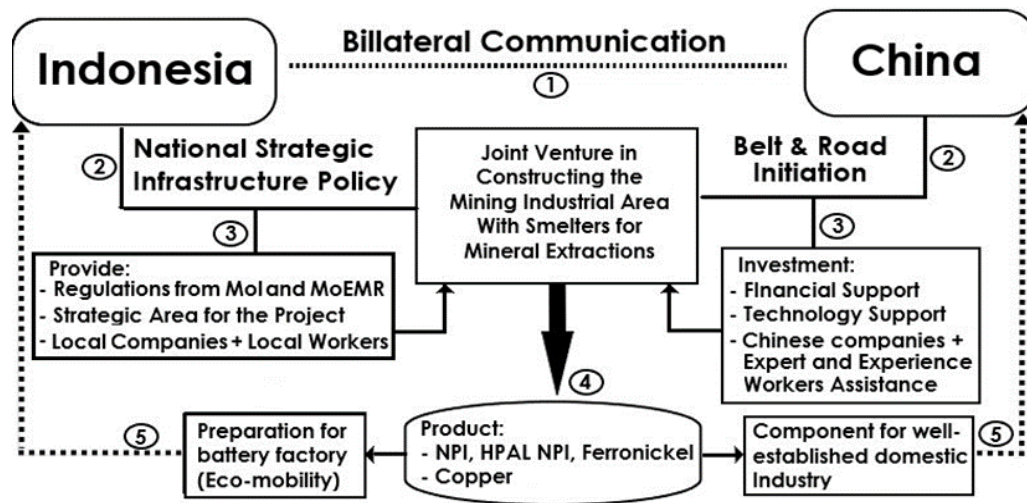
Meanwhile, environmental protection is related to the mining project activity during the extraction phase and the waste man-

agement from mining activity. The extraction phase would cause the land to deteriorate. Also, the extraction phase would cause physical disturbances, soil, water, and air contamination, and public safety (Hudson et al., 1999). All the ecosystems in the mining project area will be removed, which could cause unbalanced habitat livings. Therefore, every mining company should plant trees immediately because it takes years to normalize ecosystem living.

Besides, managing mine waste is related to waste rocks dumps and tailings dams (Khorami et al., 2019). Reclamation, soil treatment, and preventing water contamination and smelter emissions are the best practices to minimize the harmful effects of the mining project (Hudson et al., 1999). In addition, recycling from e-waste and recycled metals is the alternative for the needs of new metal mines.

Furthermore, the governance for sustainable development concept in the mining project aims to promote the area impacted by mineral excavation activity to become a sustainable industrial region. Thus, in the context of nickel, it is one of the crucial battery parts for electric vehicles. The electric vehicle is perceived as an eco-mobility innovation in intelligent mobility (Nicolaï et al., 2018).

Therefore, it is important to promote



**Figure 2. Governance and Administrative process on the Nickel Project in Indonesia**

*Notes:*

1. Indonesia and China develop bilateral communication to discuss possible economic cooperation.
2. President Jokowi introduced the smelter project as part of national strategic infrastructure policies under his campaign, and President Xi Jinping offered economic investment under the Belt & Road Initiative. After the common understanding had been founded, Indonesia and China agreed to construct the mining industrial area with smelters, especially for nickel processing.
3. Indonesian government provides regulations from MoI and MoEMR, a strategic area for the project, and a scheme for local companies + local workers to support the project. Meanwhile, the Chinese government introduced a company that provides financial, technology, and expert workers to help with the project.
4. The smelter processing produces NPI, HPAL NPI, Ferronickel, and Copper.
5. The products support China's domestic factory demands and are the crucial material for battery factory initiation in Indonesia.

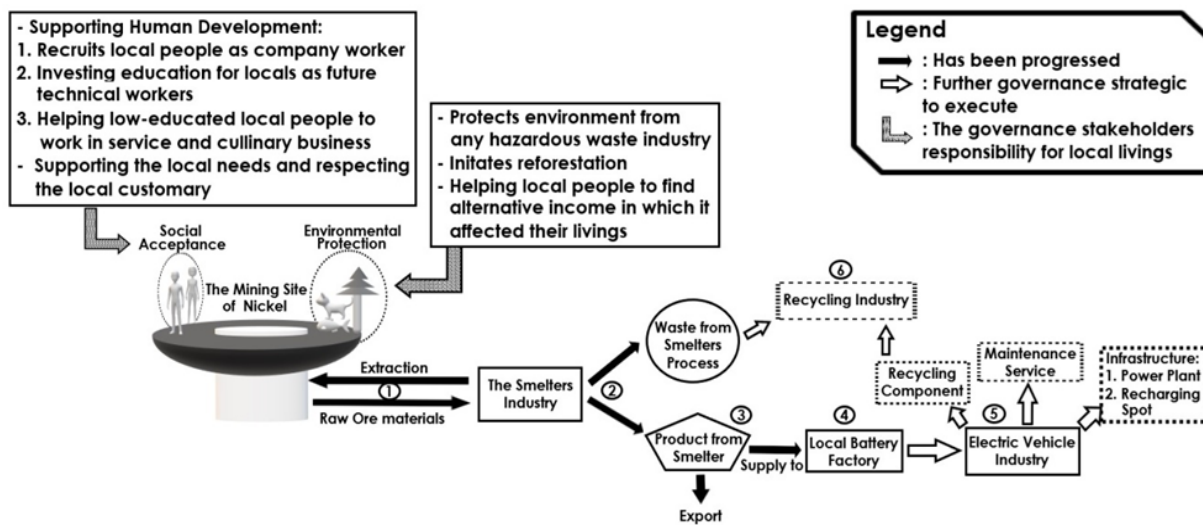
the overall system for eco-mobility as the strategic plan for governance for sustainable development of Indonesia's nickel project. It includes electric vehicle production, infrastructure recharge system, and electricity distribution grid (Arena et al., 2013). Yet, every developing country has to overcome the financial and technology gap, as well as the expertise and experience requirements to initiate an overall eco-mobility system. Accordingly, Indonesia has already commenced building electric car factories in Bekasi and Morowali after successfully building eight smelters (see Figure 1).

**METHOD**

This paper discusses the need for governance for sustainable development concept to be applied on ongoing nickel project in Indonesia. Based on the concept, the Indonesian government should be concerned not only about the impact on the locals (the min-

ing industrial area) but also about using the nickel project as momentum to become one of the pioneers in the eco-mobility industry. Thus, it will encourage the Indonesian government to spur the development of the green-tech industry.

Besides, reviewing Indonesia's nickel project governance, administrative process, and related events is essential. The Chinese investment in creating industrial areas will enhance economic development and technological innovation, particularly in the east region of Indonesia. The nickel smelter construction will generate more governance collaboration between local and foreign investors. Thus, it will create more job opportunities and cooperation in the eco-mobility industry. The nickel project in Indonesia is a profound case study for providing empirical evidence in governance for sustainable development discourses.



**Figure 3. Governance Sustainable Development for Nickel Project in Indonesia**

Notes:

1. The mining company extracts soil from nickel mining sites. Thus, raw ore materials are delivered to the smelter industry.
2. The smelting process produces NPI, HPAL NPI, Ferronickel, copper, and its industry waste.
3. The product from smelters is exported and supplied to local industry.
4. By using smelter products, the national government started to initiate battery factories.
5. Local battery factory is perceived as the first step to building the electric vehicle industry (eco-mobility business). Thus, Indonesia should begin designing the overall system for the eco-mobility industry, consisting of infrastructures (power plant, recharging spot), maintenance service, and recycling components.
6. To complete a sustainable governance industry, Indonesia should develop a recycling industry that will process waste from smelters and electric vehicles.

As a case study research, this paper uses document analysis and interviews as its foundation (Yin, 2013). It starts with a literature review of relevant international journals, academic articles, and international and local press. According to the literature review and document analysis, the author identifies the need for Indonesia's nickel project to develop a governance for sustainable development concept. The author also highlights information from relevant interviewees, especially from the investors and workers as Chinese experts, also local experts in Indonesia's nickel project, to enrich the desktop analysis. The list of interviewee and interview outline is presented in Table 1. The outline of our interview is pertaining the personal view about the present problems, solutions, and future planning for the nickel project.

## FINDINGS AND DISCUSSION

Indonesia's nickel project with China started during the final year of Susilo Bam-

bang Yudhoyono's (SBY) presidential campaign. President SBY and President Xi Jinping made an investment agreement in business lunch Jakarta in October 2013. An investment agreement regarding the nickel smelter project was discussed, but raw nickel exports were still allowed under the SBY regime.

In 2014, President Jokowi forced all the nickel mining companies in Indonesia to process raw nickel materials by building smelters. It impacted the source of China's nickel imports, causing them to depend solely on the Philippines to access nickel (Camba et al., 2020). However, the dispute over maritime claims from China during President Aquino's regime has caused major Chinese nickel firms to be kicked out of the Philippines (Camba, 2018). Arguably, this impacted Chinese investors' confidence, and political stability is the primary concern for every investor (Aggarwal, 2019).

Indeed, besides the massive numbers from potential nickel reserves in Indonesia, the political stability under the Jokowi re-

gime has given Chinese investors more confidence in building smelters. 23 smelters will be completed in 2021 and placed in Sulawesi and West Kalimantan, Maluku, Papua, and West Java (detikNews, 2021). The smelter construction is perceived as part of long-term cooperation between China and Indonesia to produce Nickel Pig Iron (NPI), Nickel HPAL, Ferronickel, and Copper, and the battery factory (see Figure 1).

#### *Constructing a new industrial area in nickel mining territory as part of the National Strategic Project*

President Jokowi uses Chinese investment in implementing many national strategic projects (CNNIndonesia, 2023; Inews, 2023). Constructing a new industrial area (smelters) in nickel extraction territory is one of the national strategic projects. In the context of nickel, it is recognized as crucial for making batteries along with other minerals such as lithium, graphite, cobalt, and manganese. Interestingly, China has been a leader in processing minerals for green energy transition (IEA, 2021). Besides, all the construction for new industrial areas in nickel mining territory is a joint venture between Indonesia's local and Chinese companies.

However, it requires financial support and technology knowledge from Chinese company, which Indonesia's local company lacks. According to the IMIP CEO, nickel as the mineral target is initially unfamiliar to the locals, and local workers still lack the expertise and experience in the smelter project (Kompasiana, 2019). Thus, it encourages Chinese companies to help local students as project experts. For example, GEM, as one of the Chinese companies in the Indonesia nickel project, has facilitated 20 Indonesian students to finish their master's degree in hydrology major, which is crucial for the project (interview with a specialist officer). In addition, most of the nickel mining area is far from transportation and road accessibility. Thus, it added more challenges to the governance of nickel smelter project in Indonesia.

The first industrial area for nickel mining activity is the Indonesia Morowali Industrial Park (IMIP). It is located in Morowali, part of Central Sulawesi Province,

considered the most potential industrial area for Chinese investors. This is due to the highest smelter capacity in Central Sulawesi Province for the input and output quantities in nickel processing (Kontan, 2020). Besides, IMIP has a strategic location near direct sea access; it gives access advantage for industrial activity. The IMIP construction is part of a joint venture investment agreement between President SBY and President Xi Jinping in 2013, perceived as the new start of BRI in Indonesia (Tritto, 2018).

Furthermore, in executing the national strategic infrastructure policy for the nickel project, the national government provides special regulation under the Ministry of Industry (MoI) and Ministry of Energy and Minerals Resources (MoEMR) for licensed smelters. These national ministries have similar requirements for smelter locations but differ in reporting obligations, company license terms, transfer of shares, and application procedures. Uniquely, a smelter license can be acquired by choosing standard requirements from MoI or MoEMR. In addition, local workers are involved with scheme 1. A Chinese worker is supported by 5 or 7 people (detikNews, 2020). The Chinese worker in the job is hired as an expert and has experience in the smelter project. This scheme worker is intended to give knowledge and transfer expertise from Chinese workers to local workers.

The products from the smelter process in Indonesia, such as NPI, HPAL NPI, ferro-nickel, and copper, are identified. All the products have benefits for both Indonesia and China. Indonesia has increased national and local revenue from Chinese investment and for developing other projects in the eco-mobility business. Meanwhile, China has profited from Indonesia's smelter project from its product. The products are used to support domestic factory purposes, for which they are already well-established in developing eco-mobility technology businesses. Figure 3 shows the governance and administrative process of the nickel project.

#### *Governance for Sustainable Development to avoid the nickel project setback and oil boom phenomenon*

The mining industry has contributed to Indonesian GDP growth over the years but is

still insignificant. 2020 saw a 6.44% contribution to the total GDP from the mining industry (Statista, 2021). Thus, Indonesia should aim one step further for governance for sustainable development in the nickel project by starting to promote eco-mobility business. According to the governance for sustainable development theoretical framework, it is essential to have internal and external paradigm stakeholders parallel with social and environmental concerns for the nickel project benefit. In promoting the eco-mobility business, the stakeholders reviewed the shortcomings of the current nickel project and used them as guidance to create creative and clear strategies.

Various obstacles and shortcomings have been learned from the nickel project in Indonesia. It includes the vandalism from local workers, such as burning down the nickel smelters in Sulawesi (CNBCIndonesia, 2020), a business dispute with a local company (CNNIndonesia, 2020), safety management (Beritasatu, 2019), and technology gap (expertise and experience). In the context of disputes with local people, all the related stakeholders should be consistent with internal and external paradigms supporting social and environmental development. The project governance principle should be followed and applied consistently by all the associated stakeholders.

Meanwhile, the local stakeholders are aware of the nickel project's technology and knowledge gap problem. This situation led to the issue of too many foreign workers from China recruiting from locals. Besides, the language barrier for operating the utility from China is also one of the reasons behind the fact that many Chinese workers are in the nickel project. CEO of IMIP expresses it over this issue:

The problem is the lack of technology knowledge and expertise about the smelter project among the locals. The technology utility is also imported from there (China) with their language. So, using the Chinese workers to construct the project is faster. It is logical when you buy an air conditioner, do you build it by yourself, or your payment already includes the installation service? (Kompasiana, 2019).

This is also a concern among Chinese companies, in which local acceptance is part of the non-technical issues in the project. It is important for Chinese companies to give good credibility and to get a positive response from Indonesia, especially for people affected directly by the mining activity. One of the specialist officers in a Chinese company explained:

Not many local workers are involved as much as we would in the nickel project. We had just entered the project's first step: constructing the smelters for processing the raw materials. Later, when the project enters the production phase, more local workers will be recruited. (Specialist Officer – Interview).

According to the interviewee's explanation, the local workers will be recruited more after the smelters' construction is completed. All the stakeholders in Indonesia's nickel project must give clear information. Also, local government should be more proactive in protecting industrial areas and preventing any project nickel setback. As mentioned in the governance for sustainable development theoretical framework, a good working environment in an industrial area is fundamental for the nickel project. Nickel investment has increased local government income, with a total investment number ten times higher than annual local government revenue, based on information from the governor of South East Sulawesi Province (detikNews, 2020).

Furthermore, it is salient for all the governance actors in the nickel project to promote the project's progress with local universities and schools by periodically inviting them to academic activities, such as seminars, company visits, or research programs. Thus, it will create an engagement with the academic community about the existence of the industrial area in their region.

Indeed, all the stakeholders should be responsible for enhancing community living and protecting the environment from quality degradation to achieve governance for the sustainable development of the nickel project. Thus, it could only be achieved if all the stakeholders in the nickel project did not treat the industrial area as a temporary business. In other words, all the governance ac-



tors should not consider the nickel project as an 'Automated Teller Machine (ATM),' and then they will stop the operation after it runs out of cash. This concern has been understood by the Chinese company as explained by the interviewee:

We are not the company which, after ten years of operation, then we will run away. We want to develop more and more cooperation in the future. Indeed, we need more Indonesian people to work on our project, especially students who have studied in China. It is because they already understand Chinese culture and Indonesian culture. The combination of these will benefit us and bring more understanding between us in the project (Chinese investor and Company owner – Interview).

However, many young Indonesian workers quit working in Chinese companies in Sulawesi. It is because of the lack of a clear job description and toxic working environment, although the salary is high, around 8-12 million rupiah monthly. Interestingly, many of these quit workers are from Chinese-Indonesia/Tionghoa ethnic. It will create serious problems for Chinese companies' acceptance from Indonesian people for long-term projects (Local Expert in Sulawesi Mining - interview).

Chinese companies should adapt to Indonesian culture not only by building mosques in the industry complex. They should involve Indonesian workers at the top management level, not just at the low level, without substantial influence in company decisions. Also, lousy management in Chinese companies has created a toxic working environment (Local Expert in Sulawesi Mining - Interview). Chinese companies should place young, talented workers from Indonesia according to their expertise, not merely as interpreters or unrelated to their capacity (Local Expert in Sulawesi Mining - Interview).

Indonesia should take massive Chinese investment in the nickel project as the momentum to change the economic situation and significant adjustment to the government institutions in developing the green technology industry. In the governance framework for the sustainable framework, it stresses a transformation for a better situa-

tion in all aspects of the existing institution (Meadowcroft, 2011). The nickel project boom in the country should not follow the previous oil boom phenomenon during Soeharto's regime in the 1970s. The massive profit from selling oil during the Gulf War situation was not used efficiently to further oil industry development but was directed under Soeharto's request and also financed lucrative businesses (hotels, tourism, and airline) until the oil price had declined (Ascher, 1998; Glassburner, 1976). Unfortunately, there is a high indication of corruption by local officers to support illegal mining (Local Expert in Sulawesi Mining - Interview).

Thus, President Jokowi is fully aware that Indonesia should use the advantage of the nickel boom situation to push for green technology. To achieve governance sustainable development in the green tech project, President Jokowi aims not only to construct smelters industrial areas but also to initiate battery factory development in Bekasi by building a consortium with LG Company (South Korea) and CATL (Chinese Company (Bisnis, 2021)). It is expected to create more jobs, invite more infrastructure investment, and spill over green-tech industry knowledge.

Besides, investing in battery factories is the first step to developing more eco-mobility businesses in Indonesia. As mentioned earlier, technology and financial gaps hinder the development of an eco-mobility business. Thus, according to the Minister of Investment, Indonesia started to manage the eco-mobility industry by processing the raw materials (nickel ore) in a battery factory; the latter will develop the recycling industry from e-waste (Kompas, 2021). The recycling industry agenda also includes the waste from smelter projects (KLHK, 2020). This strategy is perceived as the plan to create governance for sustainable development for the eco-mobility industry by using the nickel project as momentum.

However, such an industry should not abandon ecosystem quality at nickel mining sites. Expropriate land and tree removal should be balanced with a reforestation policy or new green space. In addition, the eco-mobility industry should improve human

living, especially for local or indigenous people impacted by industrial activity. As mentioned earlier in the governance for sustainable development theoretical framework, all the governance stakeholders should treat non-technical issues (social and environmental factors) as part of the project allies, not as the project impediment (Hickson and Owen, 2015).

Besides, local acceptance is vital to avoid setbacks in the nickel project in Indonesia. According to the governance for sustainable development theory, the mining company should mingle with local people by supporting their needs through listening and compromising. Thus, all governance stakeholders are responsible for supporting human development and environmental protection in the nickel mining area. Unfortunately, locals still do not fully accept smelter projects developed in some regions in Indonesia. Most of their concerns are protecting their land (plantation) and access to sea fishing (Chinadialogue, 2019).

Local resistance is non-technical in mining extraction activities in remote or undeveloped areas. Thus, local people should be involved and treated fairly by all the governance stakeholders in the project. All governance stakeholders' contribution to local people should be able to handle the present issues and aim for long-term benefit. The current issues are related to job availability, environmental appropriation, and industrial pollution. Meanwhile, the long-term benefits are related to developing the local people's future generation to work in the company.

As mentioned before, the company's primary concern for hiring local people is the technology and knowledge gap. Therefore, the institution that specifically educates local people about the project has been initiated to train future workers (duniatambang, 2021). Also, the nickel company in Indonesia actively contributes to logistics in some natural disasters or pandemic crises such as earthquakes and covid-19 (detikNews, 2018; Investor, 2021). This action has helped most of the nickel extraction activity and the development of the smelter industrial area, which the locals accept.

Furthermore, the Indonesian government should use governance for sustainable

development strategy to enhance local development and national economic growth by using the nickel project as momentum for the eco-mobility industry (Figure 3). The battery factory construction is a crucial component of the electric vehicle industry. The Indonesian government should prepare for further cooperation with related stakeholders in the green tech industry. Building the overall system for eco-mobility business requires massive investment, which consists of infrastructures (power plant, vehicle's recharging spot), maintenance vehicle, and recycling components.

This long-term target should involve the recycling industry from smelter and other urban-mining waste. Although the BRI was not openly accepted in Europe due to a lack of transparency, it provides a new opportunity for Indonesia to develop a green-tech industry (Farooki, 2018). Indonesia should cement the potential market for eco-mobility business and ignore any critics to discourage this policy initiation.

## CONCLUSION

This paper discusses the nickel project in Indonesia based on the theoretical governance framework for sustainable development. It was found that there is an essential step for the government to support local development in the nickel mining area while the eco-mobility industry continues to develop. As shown in Figure 1, the nickel mining area and smelter industry are mainly in eastern Indonesia. Thus, developing these areas should become governance's main focus, especially in the nickel industry. In addition, as there is bilateral cooperation between Indonesia and China, it is helpful to investigate the key drivers of the administrative governance process for the nickel project from the developing country's experience.

Three lessons have been learned. First, the nickel project is a joint venture investment from Chinese and local companies (see Figure 2). The project is part of the national infrastructure policy under Jokowi's regime with financial support from Chinese companies under the Belt and Road Initiative in ASEAN countries. Second, there were non-technical issues during the nickel project

operation. Thus, all the governance stakeholders should consistently apply the project governance principle to avoid further setback in the nickel project and increase local acceptance. Third, Indonesia should avoid the oil boom phenomenon from the past under Soeharto's regime in the 1970s for the ongoing nickel project. The initiation of battery factories in Bekasi and Morowali is a good sign from the national government to use the nickel project as momentum for further eco-mobility industry. However, corruption is still a big concern for many illegal minings in Sulawesi.

Based on the three lessons above, this paper highlights the governance and administrative process in the nickel project in Indonesia, with two contributions to scientific literature. The first is this paper's novelty, combining the concepts of governance and sustainable development. The concept of governance for sustainable development is suitable, if not a must, to be applied in the Indonesia nickel project. Furthermore, the Indonesia nickel project is part of bilateral cooperation between Indonesia and investors from China. It adopts governance concepts in developing administrative and business schemes in the nickel project. Therefore, Indonesia should embrace governance and sustainable development concepts to avoid the oil boom phenomenon in the 1970s. This paper suggests that every mining industry, especially the green tech industry, should adopt governance and sustainable development concepts. Thus, the second novelty of this paper is offering an inclusive picture of governance for sustainable development in mining activity for the green tech industry. It starts from extraction, production, recycling-waste management, e-vehicle industry, social acceptance, and environmental protection.

In addition, this paper proposes that Indonesia should continue developing the eco-mobility industry using foreign investments (China, South Korea, Japan, and Singapore), with their expertise and experience in the green tech industry. Yet, political stability should be maintained to ensure investors for long-term cooperation in Indonesia (Hairi, 2020). This also reflects the governance for sustainable development theoretical framework, which suggests all the govern-

ance stakeholders have an active role in ensuring the project would benefit all actors. If the governance for sustainable development theory is not followed, the nickel project in Indonesia may only repeat the 1970s oil booming euphoria.

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