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Investment Incentives in Environmental Projects in Indonesia: An Analysis of Legal Potentials & Challenges

Richard Harris[1*], Rina Shahriyani Shahrullah[2], Nurlaily[3]
[1-3] Faculty of Law, Universitas Internasional, Indonesia
*Corresponding email: 2252020.richard@uib.edu

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Abstract

Environmental sustainability is an issue that needs serious support, not just from within the exclusive realm of legal environmental protection, but also investment law, which fosters better partnership between the government, local communities, and the private sector. In an effort to promote sustainability, Indonesia can't solely rely on the prevention of environmental degradation, but also has to constantly seek for ways to navigate around climate change concerns, and strive for innovations that can solve environmental problems, particularly through environmental projects. This research aims to analyze the potential of investment incentives in promoting investments in environmental projects in Indonesia. By using normative legal research method and statutory approach, analysis of this research finds that there is a lack of environmental constitutional will, manifested within the Investment Law, along with the lack of nation-wide regulation support to provide incentives for environmental projects. Analysis of this study suggests that the revision of the Investment Law can help fill the normative gap, along with streamlining nation-wide efforts in realizing Sustainable Development Goals.

A. INTRODUCTION

Indonesia as one of the mega diverse countries in the world, holds a significance in the effort to tackle climate change and its impacts (von Rintelen et al., 2017). Climate change itself has been a global concern, threatening the livelihoods of billions of people around the world (Race et al., 2023). Climate change can also threaten the livelihoods of future generations, essentially infringing their right to healthy, clean, and sustainable environment (Cima, 2022). The impacts of climate change can significantly affect the continuation of socio-economic, and even cultural well-being around the world, with effects ranging from short-term to even long-term damage. These impacts have the potential to cause further and more complicated societal problems, leading to other issue such as inequality. Sustainability thus came as the core concept in the global agenda to tackle climate change (Smita & Chaudhuri, 2019).

Sustainability as an agenda is encapsulated within a broader framework of goals, known as Sustainable Development Goals (SDGs), to provide a blueprint for

a more sustainable future (Fischer et al., 2023). Before SDGs, sustainability was a part of the Millennium Development Goals (MDGs), particularly MDG 7 which puts a great amount of focus on sustainable environment (Kotzé & Adelman, 2023). As the successor of MDGs, SDGs became the main framework of goals to solve many global issues leading up 2030, including environmental issues. The emphasis on environmental efforts to tackle climate change and its impacts has been one of the most important themes in the sustainability agenda, particularly in Indonesia. Indonesia's role a mega diverse country and a home to nearly 300 million citizens spread across the Indonesian Archipelago, make SDGs an important part of Indonesia's present and future developments. The impacts of climate change in Indonesia can lead to serious problems, with many of its islands being at risk of sinking due to rising sea levels (Sakharina et al., 2022). Extreme weathers have also had harsh impacts on the livelihood of many Indonesians, causing many natural disasters with financial damages and even casualties. The urgency to tackle climate change impacts are also pushed by Indonesians themselves, whose concerns are growing immensely with the frequency of disasters that have happened in recent times (Kedhaton & Arif, 2023).

Part of the important aspects of applying the SDGs agenda is the development of environmental project as an effort slow down the climate change trajectory and mitigate its impacts (Ha & Dhakal, 2013). Ultimately, environmental projects serve the purpose of developing a new sense of social awareness regarding the importance of preserving the nature. In turn, this can also help kick start the transition of sustainable energies and eventually sustainable way of living at general. Therefore, environmental projects can be considered as an integral part of SDGs, because it directly translates the goals encapsulated within the SDGs into real life. However, the development of environmental projects can be quite challenging, especially when new technologies and even new scientific knowledge are involved. This issue makes research and development (R&D) inseparable from any environmental projects, to understand new technologies or analyze traditional elements that can be utilized. R&D itself is a resource consuming aspect, and by itself can't guarantee the success of a project. Rather, R&D can make sure that progresses are being made and that a project is working in the right direction, by outlining input, output, result, and impact indicators (Trigkas et al., 2016).

To accommodate all the necessities required to create successful environmental projects, one of the most important aspects of support is funding. Funding is an essential part of environmental projects, due to the fact that R&D itself requires financial commitments, which might be significant and requires long-term continuation (Zhang & Chen, 2017). The nature environmental project itself is often filled with trials and errors (Kolstad et al., 2019), which might end up costing even more for it to be fully ready to be utilized. Therefore, there needs

to serious efforts on realizing sustainability through environmental projects from all stakeholders, including the government. The government needs to facilitate the growth in sustainable trend, particularly sustainable projects. This can be done by providing incentives for investments that are made to support environmental projects. Through fostering R&D with investment incentives, the government can further accelerate the realization of SDGs, particularly the ones about environment sustainability

Sustainability as a fundamental concept in today's society has shifted the perspective on the importance of protecting the environment, which has raised the level of awareness regarding the importance of sustainable environment, as explained by a study (Civero et al., 2021). The study also highlighted that this awareness had even affected people's consumer behavior, as a part of projecting the intent to save the environment. An even further manifestation of sustainability, as underscored by another study is the focus on achieving SDGs, especially the ones about preserving the environment, as an important right of the future generations (Scholz, 2023). This human rights-based approach is also by another study, which underscored the concept of intergenerational justice, to make sure that all processes to realize SDGs are done with the context of future generations in mind (Paaske, 2021). The study also highlighted the necessity of realizing intergenerational justice as an integral part of preventing inequalities that exist today and those that can potentially happen in the future.

There's a significant research gap on how the promotion of investment can be enhanced, and how the government plays a role in it, particularly in Indonesia. This research is done to fill that gap as a part of continued research on environmental projects within the context of SDGs. As a country with diverse socio-economic, cultural, and natural landscape, Indonesia provides a unique perspective on how investments can be supported through investments by the government. Analyzing this will eventually help expand the literature on SDGs in general, which is especially relevant for Indonesia as a mega diverse country with immense wealth of natural resources to protect.Based on the provided introduction , the issues that are formulated and be discussed in this study are: 1) what is the urgency of sustainability and efforts to tackle climate change impacts?, 2) what are the impacts of investment policies on R&D and environment-related projects?, 3) what model can be proposed for the development of regulation on environmental project incentives?

B. RESEARCH METHOD

This research utilizes the normative legal research method to analyze the existing normative structure within the Indonesian legal system. A normative legal research typically includes analysis regarding the substance of laws as written in the form of legal norms in primary legal sources (Tan, 2021), which is fitting for the

purposes of this research. Analysis is supported by statutory approach, using secondary data in the form of primary law sources. Secondary data used in this research are *Undang-Undang Dasar* 1945 (the 1945 Constitution), Law No. 25 of 2007 on Investment, Law No. 23 of 2014 on Local Government. Data collection technique used is literature study (Benuf & Azhar, 2020) supported with descriptive data analysis technique, which is selected according to the small amount of data (Disemadi, 2022).

C. RESULTS AND DISCUSSIONS

Urgency of Sustainability and Efforts to Tackle Climate Change Impacts

The conceptualization of sustainability is more than just a mere trend to raise social awareness regarding responsible practice of consumption and daily activities (Hales & Birdthistle, 2022), but also a response to the growing environmental concerns (Hyde, 2022). Even though sustainability itself has been expanded to cover many aspects of society, environmental concern remains one of the most, if not the most common association of the term. Environmental concerns underscore the critical need to mitigate the detrimental impacts of human activities on the planet, encompassing issues such as climate change, pollution, deforestation, and habitat destruction (Sarathchandra & Haltinner, 2023). These concerns not only demand immediate attention but also call for systemic changes in how we approach resource management, by addressing crucial issues such as overexploitation of natural resources and the overall coexistence of humanity with the natural world (Onoh et al., 2024).

The weight of environmental concerns on society is significant, as it can affect the already-in-progress climate change (Hartley, 2018). The irresponsible utilization of resources, mass exploitation of nature, and damages done to the environment through all kinds of wastes, have created significantly changed the way the way climates affect weather, creating irregularities and extremities (Olayide et al., 2024). The consequences of these actions manifest in rising global temperatures, more frequent and severe natural disasters, loss of biodiversity, and disruptions to ecosystems. These profound changes not only pose immediate threats to vulnerable communities and species but also have far-reaching implications for future generations, making it imperative for society to address environmental concerns with urgency and responsibility (Eskiev et al., 2023).

Therefore, it can be said that environmental concern is easily one of the biggest global concerns, as the impacts are not just local, but also global (Hutter, 2017). However, it's important to underscore the fact that despite the impacts of climate change are global, their severity can vary. Areas that are already suffering from many environmental damages are prone to even more serious concerns such as the loss of animal habitats, the loss of habitable place, or even climate related disasters. The impacts of these concerns, if they end up happening, can also vary

from person to person and group to group, depending on different factors. For example, farmers from certain areas are more threatened by extreme weathers and seasonal weather irregularities than those from another areas, as they potentially face higher risk of natural disasters, threatening their livelihood, which relies on the success of their crop harvests (Shaffril et al., 2018).

In this context, the relationship of environmental concerns with socio-economic factors becomes crystal clear. Environmental issues not only affect the natural world but also have profound consequences on many societies all around the world. Perhaps the darker reality of this problem is the disproportionate impact of environmental degradation on marginalized communities and vulnerable populations. Low-income communities often find themselves in areas with poor air quality, limited access to clean water, and inadequate infrastructure to withstand climate-related disasters (Leichenko & Silva, 2014). These communities face the brunt of the environmental crisis, enduring health problems, economic difficulties, and even worse, displacement due to environmental factors. Moreover, the global nature of environmental challenges means that even those who may not directly experience the immediate effects of climate change and environmental degradation can still feel the ripple effects through disruptions in global supply chains, food insecurity, which can ultimately increase the vulnerability of modern society (Andreoni & Miola, 2015). Recognizing this intricate web of interactions is crucial in crafting comprehensive and equitable solutions to address environmental concerns and ensure a sustainable future for all.

Ultimately, the development of environment-related projects to improve sustainability might require a personalized approach, depending on the climate-related problem and climate change impact that it's trying to tackle. As stated before, there are disparities in the types and severity of climate change impacts on the lives of many communities, making a generalized approach not only inefficient, but also almost pointless. The connection between climate change impacts and socio-economic factors as already highlighted also adds to the complexity of this issue. To be able to better adapt to these varying challenges, governments must remain flexible and ready to adapt to the changes brought by climate-related problems. As this might be hard to be accommodated through just one comprehensive legal framework, decentralization might be the necessary component for the development of policies that can actually support environmental projects, particularly in Indonesia, where the geography is rather challenging and the climate change impacts are diverse.

Impacts of Investment Policies on R&D and Environment-Related Projects

Investment policies hold a notable significance on the advances of research and development (R&D) projects, particularly the ones related to environmental sustainability. These policies serve as the financial backbone that influences the

allocation of resources, shapes innovation, and often times, disproportionately impacts the course of many projects that are aimed to tackle environmental issues such as climate change impacts or the preservation of critical ecosystems and biodiversity (Kariuki et al., 2023). Investment policies embody a complex relationship that simultaneously promotes technological advancement through R&D while addressing critical environmental concerns. They can also reflect government's direction in promoting sustainability and development agenda overall, which is particularly relevant with the trend of sustainability as extensively idealized by Sustainable Development Goals (SDGs) (Zhan, 2021).

Investment policies can serve as powerful drivers for sustainable R&D efforts and developments. Governments and institutions can incentivize businesses and organizations engaged in R&D activities that prioritize environmental concerns, as a way to indirectly support the growth of R&D, diversification of the energy portfolio, and also environmental sustainability (Dechezleprêtre et al., 2019). Incentives such as financial support and tax benefits can not only stimulate innovation but also encourage the development of solutions for environmental challenges, along with fostering scientific innovations. By channeling resources into eco-friendly technologies, waste reduction, and renewable energy, investment policies play a pivotal role in tackling climate change impacts and advancing milestones in environmental progress (Chowdhury et al., 2021).

Furthermore, investment policies are closely related with regulatory frameworks governing environmental impact assessments. Many states have established legal mechanisms to evaluate the potential environmental consequences of large-scale investments and R&D projects. These assessments are essential in mitigating environmental harm by imposing necessary safeguards and ensuring compliance with environmental standards (Ahmed et al., 2015). Investment policies complement these regulatory frameworks by providing funding for comprehensive environmental impact assessments, thereby promoting environmentally responsible R&D. From this perspective, projects that are aimed specifically at the advance of efforts to tackle climate change impacts and improving green living in society, are automatically the preferred beneficiary of many kinds of incentives that the government can offer (Archibugi et al., 2020).

Investment policies are closely related to EIA, as the EIA stands as one of the essential requirements for the establishment of many projects in Indonesia, playing the role of an important instrument in preventing pollution and environmental damage (Yakin, 2017). In the context of environmental projects, this connection is even more evident, as the projects themselves are developed to address environmental issues. An overwhelmingly strict EIA can deter potential investors from investing in a project, as it has been found that stringent environmental regulations can deter investments (Bialek & Weichenrieder, 2021). There's qualitative evidence showing that investors of green assets and firms have higher

risk seeking, with some even willing to forgo returns for the purpose of achieving societal impacts (Kräussl et al., 2024). This noble and environmentally-aware perception must be supported by adequate incentives to ensure that this becomes a trend, and can generate actual returns in the future as sustainability

Investment policies can also facilitate technological and scientific, allowing nations to transition directly to advanced, environmentally friendly technologies, through major breakthrough in R&D regarding environment sustainability. Governments often provide incentives like tax credits, grants, and subsidies to encourage green investments and the adoption of sustainable practices. These policies can significantly accelerate the deployment and integration of clean energy solutions and other environmentally beneficial technologies, while also contributing to global efforts in tackling climate change and its dangerous impacts. However, it is imperative to acknowledge the potential challenges and drawbacks associated with investment policies. In some instances, these policies may inadvertently prioritize short-term financial gains over long-term environmental sustainability, resulting in detrimental practices. Additionally, factors such as economic viability can constrain the effectiveness of investment policies, necessitating a careful balance between promoting R&D and ensuring environmental protection (Gaur et al., 2021). Transparency, accountability, and adaptability in policy implementation are key to addressing these challenges effectively.

Indonesia mainly governs investment policies through Law No. 25 of 2007 on Investment (Investment Law). The Investment Law through Article 1 number 1 defines investment as all activities involving the injection of capital, whether by domestic or foreign sources, to engage in business within the territory of the Republic of Indonesia. Within the general provision of the law, it's mentioned that incentives are given to businesses that utilize products and materials such as machines or other tools that are made in Indonesia. There's no other mention of incentives throughout the law. However, it's important to note that the basis of providing incentives is based off of the constitution. Article 28H of the 1945 Constitution states that everyone is entitled to have a physically and spiritually prosperous life, while also having a place to reside, with access to a healthy living environment as well as the access to healthcare (Muzaki et al., 2021). Another article supporting this is Article 33 paragraph (4) which states that Indonesian economy shall be conducted democratically under the principles of togetherness, efficiency with justice, sustainability, environment insight, autonomy, as well as by safeguarding the balance of progress and national economic unity. This means that there's a lack of constitutional manifestation within the Investment Law.(Puja Pangestu et al., 2021).

Another aspect that can be important in the R&D of environmental project is intellectual property rights (IPR) protection. Environmental projects are done

to solve environmental issues, making them innovative in nature. This requires adequate IPR protection from the Indonesian legal system. Indonesia's fragmented legal framework for IPR can accommodate the technicalities of these innovations, but this doesn't mean it's enough to attract innovators and investors to develop their environmental projects in Indonesia. Unfortunately, the existing legal framework for investment and intellectual property doesn't provide any incentives for environmental projects that can be significant in tackling environmental problems. The patent regime through Law No. 13 of 2016 on Patent (Patent Law) only governs the prohibition of unauthorized utilization of patented technology, along with the possible negative impacts that can cause harm to the environment, through Article 160, 161, and 162. This highlights the lack of emphasis on the importance of green inventions, particularly through the patent regime, which can propel Indonesia's achievement for sustainable goals further.

It's also important to note that incentives can be given by local governments, as a part of local autonomy and a manifestation of the spirit of decentralization. It's mentioned in Law No. 23 of 2014 on Local Government (Local Government Law), specifically in Article 278, that local government needs to get the private sector and the relevant local communities involved in regional development, which can be done by providing incentives and/or facilities to the community and/or investors through local regulation by referring to the provisions of laws and regulations. However, due to the serious urgency and Indonesia edging closer to the deadline of SDGs which is due in 2030, Indonesia needs to make a nation-wide effort in pushing for environmental sustainability, by incentivizing environmental projects. This means that the Indonesian government can't rely on the local government to conduct all the due processes of analyzing environmental projects, while also pushing for its acceleration. The solution here is a nation-wide regulation, instead of local regulations.

Proposed Model for The Development of Regulation on Environmental Project Incentives

Environmental projects as an important part of protecting the environment, have been found by a study to have positive impacts overall (Zvingule et al., 2013). The metrics of analysis for assessing the impacts of environmental projects according to this study consist of relevance, efficiency, effectiveness, impact, and sustainability. These aspects are found to have provided a good analysis of whether or not an environmental project has met its goals. This is important in making sure that environmental projects do not stray away from its original purpose, which is to improve sustainability of the environment. An important thing to highlight in this research is the mention of investment as an essential part of the project, to provide a clear insight on the extent of how an investment on an environmental project affect the goals to be achieved, particularly in the effectiveness metric.

However, despite also mentioning the promotion of investment in environmental projects, there's no clear pathway on how this can be achieved legally, especially when the government is involved.

Hence, there's a need to develop a regulation that can further support the SDG agenda by using uniform normative values, that can be used as a legal basis for providing incentives in all regions within the Indonesian territory. There are some regulatory aspects that can be noted.

Table: Regulatory Aspects for Consideration in the Development of Regulation For Environmental Project Incentives

No.	Stage	Key Activities
1	Preliminary Analysis	Identify critical environmental issues.
2	Stakeholder Engagement	Consult with businesses, communities, along with central and local government.
3	Policy Formulation	Define eligible environmental projects. Determine types of incentives. Create an allocation mechanism. Develop a comprehensive compliance similar to the Environmental Impact Assessment (EIA) guidelines, focusing on solving specific environmental issues.
4	IPR Integration into Investment Policies	Protect environmental project investor's intellectual property rights by establishing clearer connection with investment policies.
5	Legislative Framework	Draft national laws or regulations. Seek public feedback.
6	Implementation and Monitoring	Establish a regulatory authority. Provide capacity building. Monitor project progress and compliance.
7	Evaluation and Adaptation	Periodically review effectiveness. Make necessary improvements.

Source: Author's Analysis

Preliminary Analysis is the initiation of the regulatory design process, consisting of identifying the most critical environmental issues that require attention, involving analysis on problems such as climate change impacts, habitat preservation, and pollution reduction to determine where incentives can have the most significant positive impact. Indonesia must acknowledge the diverse forms and severity of climate change impacts, to highlight the urgency of personalized approach for possible investment policies to support environmental projects. The next one is Stakeholder Engagement, which involves active consultation with various stakeholders, including government agencies, businesses, and local communities. This collaborative process is crucial as it gathers input and insights from those who will be affected by or involved in the incentive program, ensuring it aligns with their needs and concerns. The role of local government needs to be strengthened here as they can work closer and better identify the key environmental issues that need to be addressed and tackled through environmental projects.

In Policy Formulation, specific policies and guidelines consisting relevant norms are designed. This stage defines which environmental projects will qualify for incentives and sets criteria for eligibility. Policymakers determine the types of incentives to be offered, like tax credits or grants, and establish allocation mechanisms. When it comes to the Environmental Impact Assessments (EIAs), there must a concrete standard on how it's extensively analyzed in coordination with relevant ministries. Legislative Framework follows policy formulation, where necessary laws or regulations are drafted to formalize the incentive program. It is essential to ensure these regulations align with the constitution and other relevant laws. The Indonesian government must be able to design a comprehensive compliance modelling the existing EIA, with the support of incentives. As identified before regarding the diverse forms and severity of climate change impacts, this comprehensive legal framework can come up with classification, highlighting the nature and the urgency of climate change impacts in a certain area, while also acknowledging the role of both the central and local government.

Furthermore, the connection between IPR and investment policies must be made clearer, by integrating the appreciation and the protection of IPR into investment incentives consideration. Not only that, the government must also provide benefits for those who register intellectual properties that are considered green, particularly patents that have the potential of solving environmental issues. This incentive can be added into the legal framework, both in the Patent Law and the Investment Law. For the Patent Law, Indonesia can emphasize the ease of registration and lower registration fees, or even longer range of protection. For the investment law, the government can prioritize green patent rights holders for many forms of incentives, which can both boost the protection and IPR, and the confidence among investors to invest in environmental projects in Indonesia.

Ultimately, the utilization of legal framework to foster innovation through both of these laws, can foster the development of environmental projects. This is because an adequate legal framework can significantly enhance the legal culture, and ultimately creating a more conducive atmosphere for innovation and creation (Putra & Disemadi, 2022).

Throughout these in-between of these processes, the government needs to hold socializations involving many communities and academic institutions to make sure that the public is fully aware of the regulation that's going to be passed, as an important part of the National Legislation Program (Prolegnas). Implementation and Monitoring begins once the regulations are in place. A dedicated regulatory authority is established to oversee the program. Government officials, businesses, and environmental assessors receive capacity building to effectively implement the regulations. Continuous monitoring of project progress and compliance ensures incentives are utilized as intended. This phase of regulatory inspection must also consist of constant communications and input gathering from the public, including communities that aren't involved in environmental projects but nonetheless affected by them. When it comes to Evaluation and Adaptation, periodic reviews assess the effectiveness of the incentive program. This evaluation considers environmental outcomes, economic impact, and social equity. Based on the evaluation results, adjustments are made to the regulations to ensure the program remains relevant and effective over time. Analysis regarding the data and on-field findings must be peer-reviewed by environmental experts in collaboration with relevant ministries.

D. CONCLUSION

Findings of the analysis conclude that there's a lack of manifestation of the will of the constitution, in the context of environmental sustainability. This legal urgency raises the stake of environmental projects as possible solutions, which can also involve the government, relevant local communities, and the private sector. Instead of relying on local governments to take this matter in their own hand, a nation-wide legal support through a revision of the Investment Law can provide a much efficient legal framework to help push the SDGs agendas, which also need to be implemented in a nation-wide scale. Limitation of this research comes from the purely normative analysis, which might be better supported by future qualitative research, particularly the ones that can analyze the coefficients between incentives for environmental projects and environmental sustainability.

E. REFERENCES

Ahmed, S., Alam, Z., & Afzal, M. K. (2015). Laws, Regulations, Formalities and Facilities/Incentives on Investment: A Case of Bangladesh. *The USV Annals of Economics and Public Administration*, *15*(2(22)), 222–232.

Andreoni, V., & Miola, A. (2015). Climate change and supply-chain vulnerability. *International Journal of Emergency Services*, *4*(1), 6–26. https://doi.org/10.1108/IJES-09-2014-0012

Archibugi, D., Filippetti, A., & Frenz, M. (2020). Investment in innovation for European recovery: A public policy priority. *Science and Public Policy*, *47*(1), 92–102. https://doi.org/10.1093/scipol/scz049

Benuf, K., & Azhar, M. (2020). Metodologi Penelitian Hukum sebagai Instrumen Mengurai Permasalahan Hukum Kontemporer. *Gema Keadilan*, *7*(1), 20–33. https://doi.org/doi.org/10.14710/gk.7.1.20-33

Bialek, S., & Weichenrieder, A. J. (2021). Do Stringent Environmental Policies Deter FDI? M&A versus Greenfield. *Environmental and Resource Economics*, *80*(3), 603–636. https://doi.org/10.1007/s10640-021-00600-x

Chowdhury, M. M. I., Rahman, S. M., Abubakar, I. R., Aina, Y. A., Hasan, M. A., & Khondaker, A. N. (2021). A review of policies and initiatives for climate change mitigation and environmental sustainability in Bangladesh. *Environment, Development and Sustainability*, *23*(2), 1133–1161. https://doi.org/10.1007/s10668-020-00627-y

Cima, E. (2022). The right to a healthy environment: Reconceptualizing human rights in the face of climate change. *Review of European, Comparative and International Environmental Law*, *31*(1), 38–49. https://doi.org/10.1111/reel.12430

Civero, G., Rusciano, V., Scarpato, D., & Simeone, M. (2021). Food: Not Only Safety, but Also Sustainability. The Emerging Trend of New Social Consumers. *Sustainability*, *13*(23), 1–15. https://doi.org/10.3390/su132312967

Dechezleprêtre, A., Martin, R., & Bassi, S. (2019). Climate change policy, innovation and growth. In *Handbook on Green Growth* (pp. 217–239). https://doi.org/10.4337/9781788110686.00018

Disemadi, H. S. (2022). Lenses of Legal Research: A Descriptive Essay on Legal Research Methodologies. *Journal of Judicial Review*, *24*(2), 289–304. https://doi.org/10.37253/jjr.v24i2.7280

Eskiev, M., Akhmieva, R., & Jandarova, L. (2023). Carbon farming as a new climate change management tool in Russia. *BIO Web of Conferences*, *76*, 1–8. https://doi.org/10.1051/bioconf/20237602003

Fischer, M., Foord, D., Frecè, J., Hillebrand, K., Kissling-Näf, I., Meili, R., Peskova, M., Risi, D., Schmidpeter, R., & Stucki, T. (2023). The Concept of Sustainable Development. In M. Fischer, D. Foord, J. Frecè, K. Hillebrand, I. Kissling-Näf, R. Meili, M. Peskova, D. Risi, R. Schmidpeter, & T. Stucki (Eds.), *Sustainable Business: Managing the Challenges of the 21st Century* (pp. 17–27). Springer International Publishing. https://doi.org/10.1007/978-3-031-25397-3_2

Gaur, A. S., Fitiwi, D. Z., & Curtis, J. (2021). Heat pumps and our low-carbon future: A comprehensive review. *Energy Research & Social Science*, *71*, 1–18.

https://doi.org/https://doi.org/10.1016/j.erss.2020.101764

Ha, H., & Dhakal, T. N. (2013). Governance Approaches to Mitigation of and Adaptation to Climate Change in Asia: An Introduction. In *Governance Approaches to Mitigation of and Adaptation to Climate Change in Asia* (pp. 1–10). https://doi.org/10.1057/9781137325211_1

Hales, R., & Birdthistle, N. (2022). The Sustainable Development Goals – SDG#13 Climate Action. In N. Birdthistle & R. Hales (Eds.), *Attaining the 2030 Sustainable Development Goal of Climate Action* (pp. 1–9). Emerald Publishing Limited. https://doi.org/10.1108/978-1-80382-693-620221001

Hartley, K. (2018). Environmental resilience and intergovernmental collaboration in the Pearl River Delta. *International Journal of Water Resources Development*, *34*(4), 525–546. https://doi.org/10.1080/07900627.2017.1382334

Hutter, B. M. (2017). Chapter 1: Risk, resilience and inequality: current dilemmas in environmental regulation. In *Risk, Resilience, Inequality and Environmental Law* (pp. 3–26). Edward Elgar Publishing. https://doi.org/10.4337/9781785363801.00007

Hyde, C. (2022). Grubs up: Multiple enactments of insects as food in Aotearoa/New Zealand. *New Zealand Sociology*, *37*(2), 94–106.

Kariuki, T., Omumbo, J., Ciugu, K., & Marincola, E. (2023). The interconnected global emergencies of climate change, food security and health: a call to action by the Science for Africa Foundation. *Open Research Africa*, *6*(1), 1–19. https://doi.org/10.12688/openresafrica.13566.1

Kedhaton, A. S., & Arif, N. (2023). Distribution and Analysis of Responses to Extreme Weather Phenomena through Twitter. *International Journal of Disaster Management*, *6*(2), 237–250. https://doi.org/10.24815/ijdm.v6i2.32251

Kolstad, E. W., Sofienlund, O. N., Kvamsås, H., Stiller-Reeve, M. A., Neby, S., Paasche, Ø., Pontoppidan, M., Sobolowski, S. P., Haarstad, H., Oseland, S. E., Omdahl, L., & Waage, S. (2019). Trials, Errors, and Improvements in Coproduction of Climate Services. *Bulletin of the American Meteorological Society*, *100*(8), 1419–1428. https://doi.org/https://doi.org/10.1175/BAMS-D-18-0201.1

Kotzé, L. J., & Adelman, S. (2023). Environmental Law and the Unsustainability of Sustainable Development: A Tale of Disenchantment and of Hope. *Law and Critique*, *34*(2), 227–248. https://doi.org/10.1007/s10978-022-09323-4

Kräussl, R., Oladiran, T., & Stefanova, D. (2024). A review on ESG investing: Investors' expectations, beliefs and perceptions. *Journal of Economic Surveys*, *38*(2), 476–502. https://doi.org/10.1111/joes.12599

Leichenko, R., & Silva, J. A. (2014). Climate change and poverty: Vulnerability, impacts, and alleviation strategies. *Wiley Interdisciplinary Reviews: Climate Change*, *5*(4), 539–556. https://doi.org/10.1002/wcc.287

Muzaki, A., Pratiwi, R., & Az Zahro, S. R. (2021). Pengendalian Kebakaran Hutan melalui Penguatan Peran Polisi Kehutanan untuk Mewujudkan Sustainable Development Goals. *LITRA: Jurnal Hukum Lingkungan, Tata Ruang, Dan Agraria*, *1*(1), 22–44. https://doi.org/10.23920/litra.v1i1.579

Olayide, O. E., Alabi, T. R., Oyedepo, J., & Okechukwu, R. (2024). Assessing rainfall and extreme weather variability for climate resilient agricultural production systems in Nigeria. *Research Square*, *Preprint*, 1–31. https://doi.org/10.21203/rs.3.rs-3808332/v1

Onoh, U. C., Ogunade, J., Owoeye, E., Awakessien, S., & Asomah, J. K. (2024). Impact of Climate Change on Biodiversity and Ecosystems Services. *International Journal of Geography and Environmental Management (IJGEM)*, *10*(1), 77–93. https://doi.org/10.56201/ijgem.v10.no1.2024.pg77.93

Paaske, D. M. (2021). Impact of Climate Change, Intergenerational Justice, and Human Rights on SDGs. In W. Leal Filho, A. Marisa Azul, L. Brandli, A. Lange Salvia, P. Gökçin Özuyar, & T. Wall (Eds.), *Reduced Inequalities* (pp. 473–481). Springer International Publishing. https://doi.org/10.1007/978-3-319-95882-8_109

Puja Pangestu, F., Shelvia Rahmadianti, N., Tanzila Hardiyanti, N., & Yusida, E. (2021). Ekonomi Pancasila Sebagai Pedoman Dalam Tujuan Pembangunan Berkelanjutan SDGs (Sustainable Development Goals) 2030. In *Prosiding Seminar Nasional Ekonomi Pembangunan* (Vol. 1, Issue 3).

Putra, M. D. R., & Disemadi, H. S. (2022). Counterfeit Culture dalam Perkembangan UMKM: Suatu Kajian Kekayaan Intelektual. *KRTHA BHAYANGKARA*, *16*(2), 297–314. https://doi.org/10.31599/krtha.v16i2.1151

Race, D., Gentle, P., & Mathew, S. (2023). Living on the margins: Climate change impacts and adaptation by remote communities living in the Pacific Islands, the Himalaya and desert Australia. *Climate Risk Management*, *40*, 1–7. https://doi.org/https://doi.org/10.1016/j.crm.2023.100503

Sakharina, I. K., Patittingi, F., Halim, H., Napang, M., Sumardi, J., Inggit, A. B., & Hendrapati, M. (2022). Sinking or not? An Indonesian Approach to Prevent the Rise of Sea Levels Due to Global Warming. In E. Y. J. Lee (Ed.), *ASEAN International Law* (pp. 649–665). Springer Nature Singapore. https://doi.org/10.1007/978-981-16-3195-5_36

Sarathchandra, D., & Haltinner, K. (2023). Climate Change Skeptics' Environmental Concerns and Support for Clean Energy Policy: A Case Study of the US Pacific Northwest. In *Climate* (Vol. 11, Issue 11, pp. 1–13). https://doi.org/10.3390/cli11110221

Scholz, I. (2023). Reflecting on the Right to Development from the perspective of global environmental change and the 2030 Agenda for Sustainable Development. In *»Entwicklung« als Paradigma* (pp. 77–98). https://doi.org/10.1515/9783839462454-005

Shaffril, H. A. M., Krauss, S. E., & Samsuddin, S. F. (2018). A systematic review on Asian's farmers' adaptation practices towards climate change. *Science of The Total Environment*, *644*, 683–695. https://doi.org/https://doi.org/10.1016/j.scitotenv.2018.06.349

Smita, & Chaudhuri, A. S. (2019). Impact-Assessment Motives of Eco2 Sustainable Cities. In V. R. Sharma & Chandrakanta (Eds.), *Making Cities Resilient* (pp. 227–234). Springer International Publishing. https://doi.org/10.1007/978-3-319-94932-1_16

Tan, D. (2021). Metode Penelitian Hukum: Mengupas dan Mengulas Metodologi Dalam Menyelenggarakan Penelitian Hukum. *NUSANTARA: Jurnal Ilmu Pengetahuan Sosial*, *8*(8), 2463–2478. http://jurnal.um-tapsel.ac.id/index.php/nusantara/index

Trigkas, M., Andreopoulou, Z., Papadopoulos, I., & Kitsouli, A. (2016). Building an evaluation model for public funding towards SMEs for R&D and environmental oriented projects. *International Journal of Globalisation and Small Business*, *8*(3), 207–238. https://doi.org/10.1504/IJGSB.2016.080376

von Rintelen, K., Arida, E., & Häuser, C. (2017). A review of biodiversity-related issues and challenges in megadiverse Indonesia and other Southeast Asian countries. *Research Ideas and Outcomes*, *3*, 1–16. https://doi.org/10.3897/rio.3.e20860

Yakin, S. K. (2017). Analisis Mengenai Dampak Lingkungan (AMDAL) sebagai Instrumen Pencegahan Pencemaran dan Perusakan LIngkungan. *Badamai Law Journal*, *2*(1), 113–132. https://doi.org/10.32801/damai.v2i1.3393

Zhan, J. X. (2021). GVC transformation and a new investment landscape in the 2020s: Driving forces, directions, and a forward-looking research and policy agenda. *Journal of International Business Policy*, *4*(2), 206–220. https://doi.org/10.1057/s42214-020-00088-0

Zhang, K. Q., & Chen, H. H. (2017). Environmental performance and financing decisions impact on sustainable financial development of Chinese environmental protection enterprises. *Sustainability (Switzerland)*, *9*(12), 1–14. https://doi.org/10.3390/su9122260

Zvingule, L., Kalnins, S. N., Blumberga, D., Gusca, J., Bogdanova, M., & Muizniece, I. (2013). Improved Project Management via Advancement in Evaluation Methodology of Regional Cooperation Environmental Projects. *Environmental and Climate Technologies*, *11*(2013), 57–67. https://doi.org/doi:10.2478/rtuect-2013-0008

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COMPETING INTEREST

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