Threats to the sustainability of biodiversity in Indonesia by the utilization of forest areas for national strategic projects: A normative review

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Abstract. Strategic geographical conditions have made Indonesia becomes the country with the second highest level of biodiversity in the world and is in the ranks of 17 mega biodiversity countries. Forest ecosystems are home to a large number of these biodiversity species, and therefore, the existence of forests is the key to their sustainability. Although supported by the availability and potential of massive forest resources, Indonesia is not necessarily exempt from the threat of biodiversity degradation. Indonesia ranks first as the country with the highest number of endangered species in Southeast and South Asia. Habitat degradation and fragmentation are suspected to be the main factors causing the extinction of various species of biodiversity in Indonesia. For this reason, legal protection that ensures the viability of biodiversity species and their habitats is indispensable. Unfortunately, the direction of development policy in Indonesia seems to show a step backwards towards these protection efforts, one of which is through the legalization of forest areas utilization for several development activities designated as National Strategic Projects. This study aims to normatively analyze the impact of the legalization of forest areas utilization for National Strategic Projects. The main findings indicate several legal issues and various potential threats to the sustainability of biodiversity, especially in relation to forest governance.

1. Introduction
Indonesia is home to a large number of flora and fauna species, making it a country with a very high level of biological diversity (biodiversity), both in ecosystem, species and genetic diversity [1]. Unfortunately, Indonesia’s biodiversity continues to be degraded, one of which is caused by the pace of development activities. Currently, the Government of Indonesia is boosting the implementation of national strategic projects which are one of the development priorities. Various facilities are provided for these projects, including by allocating forest areas for their implementation. This study will normatively analyze various laws and regulations related to the legalization of the utilization of forest areas for the implementation of
national strategic projects and how such legalization can impact and even threaten the sustainability of life and habitat of various species of biodiversity in Indonesia.

2. Research method
This research is a normative legal research which uses statute and case study approaches. The data used are primary legal materials obtained from relevant regulations and secondary legal materials obtained from various related literatures. They are then analysed descriptively to reveal the issues as mentioned on this paper.

3. Results and discussion
3.1. Overview of biodiversity in Indonesia
Normatively, the main legal umbrella that regulates biodiversity in Indonesia is the Law of the Republic of Indonesia No. 5 Year 1994 (Law 5/1995 or Biodiversity Law). This law is an instrument of ratification of the United Nations Convention on Biological Diversity (CBD) 1992 [2]. The 1992 CBD requires states parties to either adapt the existing or develop the new national strategies, plans or programs for the conservation and sustainable use of biodiversity. For this purpose, states parties are also required to identify the components of biodiversity to then produce data derived from identification and monitoring activities that are important for the conservation and sustainable use of biodiversity [3].

Unfortunately, to this day, Indonesia does not have comprehensive and integrated data on biodiversity. Genetics expert and Chairman of the Indonesian Biological Consortium (KOBI) Prof. Budi S. Daryono, for example, said that despite being one of the countries with the highest biodiversity levels in the world, data related to biodiversity in Indonesia is still very lacking and incomplete [4]. Prof. Budi also highlighted the absence of national indicators of biodiversity, for example in the form of the Indonesia Biodiversity Index (IBI). In fact, such index is important for measuring national biodiversity trends, this index also contains the value and concept of preserving biodiversity [5].

One of the available data sources that can be the main reference in looking at the condition of biodiversity in Indonesia was released by the Indonesian Institute of Sciences (LIPI) in 2014 through a publication entitled "Kekinian Keanekaragaman Hayati Indonesia" (the Present of Indonesia's Biodiversity) [6]. The data collected in this publication then becomes the basis for the drafting of the Indonesian Biodiversity Strategy and Action Plan (IBSAP) 2015-2020, which is the work of collaboration between the Indonesian National Development Planning Agency (Bappenas), Ministry of Environment and Forestry of the Republic of Indonesia (KLHK RI) and LIPI. It should be noted that, the biodiversity information contained in the LIPI publication only covers about 30% of fauna biodiversity and 50% of flora biodiversity of Indonesia's total biodiversity [7].

To illustrate the level of biodiversity, in terms of species diversity based on IBSAP 2015-2020, Indonesia is home to 720 species of mammals (more than 13% of the 5,416 species of mammals in the world), 1,605 species of birds (about 16% of the total 10,140 species of birds in the world), 385 species of amphibians (about 6% of the 6,433 species of amphibians in the world), 723 species of reptiles (8% of about 9,084 species of reptiles in the world), and 1,248 species of freshwater fish (8.9% of about 14,000 species of freshwater fish). All of these fauna belong to the group of vertebrates [6,7].

While in other groups, which is invertebrates, there are 11 phyla consisting of Acanthocephala, Annelida, Arthropoda, Cestoda, Coelenterata, Echinoderms, Molluscs, Nematodes, Protozoa, Porifera, and Trematodes. However, data on invertebrates in Indonesia are basically very lacking, the very large number of invertebrates is not balanced by the presence of taxonomic researchers expertising this group to research them. IBSAP 2015-2020 only contains data on the Mollusca phylum (5,170 types of aquatic molluscs from 4 identified classes and 2,039 terrestrial molluscs from 2 identified classes) and the Arthropoda phylum, information on other phyla has not been disclosed [6,7].
In addition to being rich in species diversity, the level of endemism of Indonesian fauna is very high, this is mainly due to the unique geology of Indonesia. The endemic vertebrate fauna of Indonesia are estimated to be 270 species of mammals, 386 species of birds, 328 species of reptiles, 204 species of amphibians, and 280 species of fish [6,7].

Then, in terms of the diversity of flora species in Indonesia, up to now there are 1,500 species of algae, 80,000 species of spore plants (such as cryptogams) in the form of fungi, 595 species of lichens, 2,197 species of ferns and 30,000–40,000 species of seed plant flora (around 15.5% of the total number of flora in the world) and many other species, both those that have been and have not been identified. The level of endemism of Indonesian flora is recorded between 40–50% of the total flora species on each island except for the island of Sumatra whose endemism is estimated to be only 23% [6,7].

3.2. Indonesia’s national strategic projects and the utilization of forest areas for its implementation

3.2.1. Normative review of Indonesia’s national strategic projects. The legal instrument that becomes the operational basis of Indonesia’s National strategic Projects (NSP) is Presidential Regulation (PR) of the Republic of Indonesia No. 3 Year 2016 joPR No. 58 Year 2017 joPR No. 56 Year 2018 joPR No. 109 Year 2020 on NSP Acceleration [8]. Henceforth, in this paper, this series of regulations will be referred to as PR on NSP Acceleration.

Article (Art.) 1 No. (1) of PR on NSP Acceleration defines NSP as: a project and/or program implemented by the Government, Regional Government, and/or business entity that has a strategic nature to increase growth and equitable development in the context of improving community welfare and regional development [8].

In the latest development, through the third amendment to the PR, 201 projects and 10 programs have been designated as NSP, the list can be found in the annex of the PR. The projects consist of 12 sectors, namely [8]:

1. Road and bridge sector with 54 projects, including construction of toll roads, addition of existing toll roads and construction of flyovers
2. Port sector with 13 projects, including construction of ports, multipurpose terminals, inland waterways, international hub ports and port development
3. Airport sector with 8 projects, covering construction or development of airports in 8 provinces
4. Rail sector with 15 projects, including construction of rail facilities, double tracks, high speed railways, light rail transit (LRT), logistics trains, Jakarta Mass Rapid Transit (MRT), elevated inner loop lines and implementation of rail-based mass transportation
5. Region sector with 18 projects, including development of industrial estates, integrated industrial estates, underground, and special economic areas
6. Housing sector with 2 projects, including construction of flats in DKI Jakarta Province and construction of national assisted self-help housing
7. Dam and irrigation sector with 57 projects, including construction of dams, construction of irrigation networks for irrigation areas and rehabilitation of irrigation networks for irrigation areas
8. Clean water and sanitation sector with 12 projects, including construction of water supply system (SPAM), raw water supply system, manufacture of raw water facilities and infrastructure as well as construction of the Jakarta Swerage System (JSS)
9. Coastal embankment sector with 1 project, namely the construction of coastal embankments in the Provinces of DKI Jakarta, West Java and Banten.
10. Energy sector with 15 projects, including construction of oil refineries, construction of fuel storage tanks, construction of LPG storage tanks, upgrading of existing refineries/refinery development master plan (RDMP), upgrading of the petrochemical industry, field development (Indonesia Deep
water Development Project (IDDI)), LNG Train 3 resilient project, construction of city gas network, development of gas unification field, construction of gas pipeline transmission, coal gasification, construction of coal to methanol facilities and construction of green fuels

11. Technology sector with 5 projects, including acceleration of national techno parks development, multifunctional satellite projects, development of male unmanned combat aerial vehicles, development of IVO production technology and palm gasoline with Red and White Catalysts integrated with community gardens, and development of the national salt industry

12. Education sector in the form of development of the Indonesian International Islamic University in West Java Province

Meanwhile, the 10 programs included in the NSP consist of [8]: 1) electricity infrastructure development, 2) economic equity, 3) border area development, 4) development of exit toll access roads, 5) development of national tourism strategic areas, 6) development of waste processing installations into electrical energy, 7) construction of smelters, 8) improvement of national food supply (food estate), 9) development of superhubs and 10) acceleration of regional development as stipulated in a presidential regulation regarding the acceleration of regional economic development.

Despite its strategic status, NSP policies have drawn criticism and are considered problematic, including in the normative matter. This policy is primarily considered to be contradictory to the principles of sustainable development. In regulative matter, the main issue that is most highlighted regarding the NSP policy is the flexibility of the spatial planning regime that is created in order to implement it.

Art. 19 of PR on NSP Acceleration stipulates that in the case where the location of the NSP is not in accordance with the Regional Spatial Plan, the Detailed Regional Spatial Plan, or the Zoning Plan for the Coastal and Small Islands, and it is technically impossible for the NSP to be moved from the planned location, a spatial adjustments can be made [8]. This provision was later strengthened by Law No. 11 Year 2020 on Job Creation (Job Creation) which amended the Law No. 26 Year 2007 on Spatial Planning (Spatial Planning Law) by including ‘changes to strategic national policies’ as one of the reasons for reviewing the spatial planning more than once in 5 years as regulated in Art. 20 Par. (5) of Spatial Planning Law [9].

Furthermore, Art. 34A of the instrument also stipulates that, if there is a change in strategic national which has not been included in the spatial plan and/or zoning plan, the space utilization can still be implemented after obtaining recommendations for the suitability of spatial utilization from the central government [9]. This legitimation of changes in spatial utilization without going through participatory stages and without being followed by strategic environmental studies shows an effort to weaken the spatial planning instruments in order to accommodate NSP implementation [10].

In fact, it should be understood that, spatial planning is one of the instruments for preventing pollution and/or environmental damage [11], the impairment of such instrument will bring difficulty to the efforts of preventing that pollution and/or damage from upstream. According to Sujadi(2018), the dynamics of NSP infrastructure development will cause changes in the values and interests that are placed in the initial process of preparing the spatial plan. It will also cause the ecological disharmony and sociological disturbances [12].

3.2.2. Legalization of forest areas utilization for national strategic projects. The provisions regarding the legalization of forest areas utilization for NSP implementation can basically be found in a number of laws and regulations. PR on NSP Acceleration itself contains several provisions regarding the Borrow-to-Use Forest Areas Permit (recognized as IPPKH in Indonesian) as one of the licensing documents required in the implementation of NSP [8]. As the legal umbrella and the main operational basis for forest governance in Indonesia, Law No. 41 Year 1999 jo Government Regulation in Lieu of Law (Perppu) No. 1 Year 2004 jo
Law No. 19 Year 2004 Job Creation Law (to be referred to as the Forestry Law), through the provisions of Article 38, provides space for the allocation of forest areas for development purposes outside of forestry activities through the ‘use of forest areas’ mechanism (hereinafter abbreviated as UFA) which can be carried out in production forest areas and protected forest areas. UFA is carried out without changing the function of the forest areas and is only intended for the purpose of unavoidable strategic development [13], which interpretively includes NSP.

The legalization of UFA to accommodate NSP was then also strengthened by derivative rules of the Job Creation Law, including Government Regulation (GR) No. 23 Year 2021 on Forestry Management (GR 23/2021), and GR No. 42 Year 2021 on the Ease for NSP (GR 42/2021). However, at the normative level, there are a number of problems related to UFA for NSP realization which are contained in these legal instruments, such as conflict of norms and legal uncertainty. Despite the existence of a legal basis for the implementation of NSP in the forest areas, it is important to discuss the regulatory issues that occur in order to understand how UFA works especially in relation to NSP implementation, in a more comprehensive manner.

3.2.2.1. Conflict of norms related to the utilization of forest areas for NSP. The norms in the Forestry Law basically designated that the utilization of forests in any form should be aimed to achieve the welfare of entire community in an equitable manner, and by using means that ensure the sustainability of the forests. In relation to the legalization of UFA both in production and protected forest areas, it is necessary to understand that Forestry Law creates strict limits on forest utilization, especially in protected forests which can only be allocated for area utilization, environmental services, and collection of non-timber forest products [13]. This restriction is important in order to ensure that the main functions of the related forest are maintained.

It is true that Forestry Law itself provides space for the implementation of development interests outside of forestry activities through Article 38. However, it is necessary to understand that UFA for development purposes is carried out without causing a change to the main function of forest areas. The interests of development outside of forestry within the forest areas are determined selectively, and activities that can cause serious damage and loss of the function of the forest in question are strictly prohibited by the Forestry Law [13]. From these provisions, it can be clearly seen how the norms for forest use by prioritizing its sustainability have been built quite firmly by the Forestry Law before its revision under the Job Creation Law regime.

Unfortunately, various other related regulations are found contradictory to the norms in Forestry Law. Such contradiction is shown by Art. 94 Par. (1) of GR 23/2021 which stipulates that UFA is conducted based on the UFA Approval. The problems regarding this provision then emerge because in Paragraph (2), it is determined that the UFA Approval is as well valid as an approval for the utilization of woods and the import as well as the use of equipment. This provision is then also reaffirmed in Article 102 the GR [14]. The validity of the UFA Approval as an approval for wood utilization means that trees in the forest areas where development activities take place including in the PSN area, can legally and freely be felled.

There are at least 2 things that need to be observed from this provision. First, this provision contradicts the norms contained in Forestry Law, particularly regarding protected forest areas, which do not provide room for such logging and only allow the collection of non-timber forest products within protected forest areas. Second, this provision also contradicts the norms of Forestry Law which strictly only allows UFA without changing the main function of the forest. The major question that then arises is how the main function of the forest areas, especially protected forests with the main function as the protection of life support systems to regulate water systems, prevent flooding, control erosion, prevent seawater intrusion, and maintain soil fertility, can be maintained with the felling of trees occurring within the forests with legitimacy by aforementioned provisions of Art. 94 Par (2) and Art. 102 of GR 23/2021.
Other provisions of GR 23/2021 which are also contrary to the norms of Forestry Law regarding UFA are identified in Art. 94 Par. (4), (6) and (8) which stipulate that UFA Approval may be granted to provinces with insufficient forest areas by fulfilling the obligations to pay compensation. What make it worse then is the fact that NSP activities are exempted from this obligation [14]. Thus, the implementation of NSP in provincial forest area, either it has or has not exceeded the limit of adequacy, can continue to run without any obligations.

Furthermore, GR 23/2021 even provides space for UFA outside of forestry activities carried out without a forestry permit. Article 95 of the GR stipulates that the UFA Approval for activities without a permit can be issued after administrative sanctions have been fulfilled [14]. This provision clearly demonstrates the granting of legitimacy to illegal activities that ignore forest and environmental protection norms.

### 3.2.2.2. Legal uncertainty in the utilization of forest areas for NSP.

In addition to creating a conflict of norms, UFA also experience legal uncertainty. First, in GR 23/2021, UFA is defined as: *the utilization of part of the forest areas for development purposes outside of forestry activities without changing the function and designation of the forest areas* [14]. By using the phrase 'without changing the function and designation', it means that the changes of designation and the changes of function of forest areas mechanisms cannot be applied in the allocation of forest areas for related development purposes, including for NSP. However, later in Chapter IV GR 23/2021 which specifically regulates UFA, the phrase related to not changing the forest designation is no longer regulated, only the phrase 'without changing the main function' is included. This has the potential to cause confusion for parties who want to implement NSP with the UFA mechanism.

Legal uncertainty is also indicated by the different arrangements regarding UFA legalization instruments. GR 23/2021 presents a new legal instrument in the form of a UFA 'approval' [14], legal uncertainty then arises because, both the PR on NSP Acceleration and the Job Creation Law which amend the Forestry Law still use and maintain the provisions regarding the Borrowing-to-Use Forest Areas Permit (IPPKH) as a forestry licensing instrument in the implementation of NSP [8,13].

GR 23/2021 indeed revokes the GR No. 105 Year 2015 on the Second Amendment to GR No. 24 Year 2010 on UFA which contains various provisions regarding IPPKH, but GR 23/2021 does not explicitly state the abolition of this instrument to be replaced by the UFA Approval instrument.

The same thing also happened to the principle approval for the Exchange of Forest Areas (recognized as TMKH in Indonesian) which was previously an alternative instrument for legalizing the implementation of development interests outside forestry activities in forest areas regulated by GR No. 104 Year 2015 on Procedures for Changes in the Designation and Function of Forest Areas. Although regulates the application of IPPKH and TMKH technical approvals that already exist or are in the process of submitting applications, GR 23/2021 needs to confirm the position of the UFA Agreement which is now the main instrument in the legalization of UFA for related development activities, including NSP, to both instruments aforementioned. In addition, synchronization between regulations governing these instruments is also required.

### 3.3. Emerging threats to the sustainability of biodiversity due to the utilization of forest areas for NSP.

Based on data from the IUCN Red List, Indonesia ranks first in South and Southeast Asia and fourth in the world as the country with the highest number of species of biodiversity in threatened conditions, namely 1,988 species originating from major taxonomic group [15]. Citing a review by the CBD Secretariat, habitat degradation and fragmentation, landscape change, overexploitation, pollution, climate change, alien species, forest and land fires, as well as the economic and political crises that occurred are suspected to be the main factors causing the extinction of various species of biodiversity in Indonesia. Lowland
forest, which is the most diverse area of biodiversity, is the most threatened forest due to land conversion, shifting of agricultural land, poor forest management, infrastructure development, mining, fire and various illegal activities [16].

Regarding habitat degradation and fragmentation as the main cause of the continued threat of biodiversity species in Indonesia, it is necessary to look at the phenomenon of deforestation as their main driver. The results of a study by Forest Watch Indonesia (FWI) noted that Indonesia had at least lost more than 23 million hectares of natural forest during 2000-2017. The rate of deforestation in the 2000-2009 period reached 1.4 million ha/year, which then decreased to 1.1 million ha/year in the 2009-2013 period, and again increased to 1.4 million years in the 2013-2014 period. In the 2013-2017 period, the area of natural forest deforestation in Indonesia reached 5.7 million ha [17,18].

The presence of NSP as a development priority for the Government of Indonesia, which then gains legitimacy for utilizing forest areas in its realization, has the potential to worsen the deforestation, which results in degradation and fragmentation of the habitats of biodiversity species. The validity of UFA Approval as an approval for the utilization of wood is also a serious threat to biodiversity, especially when it comes to protected forest areas which function as protection of life support systems. Cutting down trees in the context of timber utilization means that there are more opportunities for deforestation and the reduction of biodiversity habitats.

Furthermore, UFA legalization with various facilities such as granting UFA Approval to provinces with insufficient forest areas and for development activities including NSP which is carried out without a forestry sector permits, is a form of abandonment towards the existence and sustainability of various species of biodiversity.

4. Conclusion

The presence of NSP as a manifestation of development aimed at encouraging economic growth has become a new scourge for the preservation of biodiversity in Indonesia. The legalization of forest areas utilization for NSP implementation through various regulations that normatively contain many problems due to the conflicting norms and legal uncertainty that happen, opens up opportunities for deforestation which ultimately threatens the sustainability of biodiversity species and their habitats.

References
[1] Siboro T D 2019 Manfaat Keanekaragaman Hayati terhadap Lingkungan. J. Ilm. Simantek 3 1–4
[2] Law of the Republic of Indonesia No. 5 Year 1994 On the Rattification of the United Nations Convention on Biological Diversity (CBD) 2012
[3] United Nations Convention 1992 On Biological Diversity (CBD)
[4] Ika 2020 Data Keanekaragaman Hayati Indonesia Belum Banyak Terungkap
[5] Ika 2020 Indonesia Belum Miliki Indeks Biodiversitas Nasional
[6] Indonesian Institute of Sciences (LIPI) 2014 Kekinian Keanekaragaman Hayati Indonesia
[7] Wahyuningsih D 2016 Jakarta: National Development Planning Agency of the Republic of Indonesia (Bappenas RI)
[8] Presidential Regulation of the Republic of Indonesia (PR) No. 3 Year 2016 joPR No. 58 Year 2017 joPR No. 56 Year 2018 jo PR No. 109 Year 2020 On the Acceleration of National Strategic Projects
[9] Law of the Republic of Indonesia No. 26 year 2007 On Spatial Planningjo Law of the Republic of Indonesia No. 11 Year 2020 on Job Creation Law
[10] Eryan A, Shafira D and Wongkar E E L T 2020 Analisis Hukum Pembangunan Food Estate di Hutan Lindung
[11] Law of the Republic of Indonesia No. 32 Year 2009 On the Protection and Management of the
Environment jo Law of the Republic of Indonesia No. 11 Year 2020 on Job Creation Law

[12] Sujadi S 2018 Kajian tentang Pembangunan Proyek strategis Nasional (PSN) Dan Keadilan Sosial (Perspektif Hukum Pancasila) J. Huk. Lingkung. 4 1–24

[13] Law of the Republic of Indonesia No. 41 Year 1999 jo Government Regulation in Lieu of Law of the Republic of Indonesia No. 1 Year 2004 jo Law of the Republic of Indonesia No. 19 Year 2004 on Forestry jo Law of the Republic of Indonesia No. 11 Year 2020 on Job Creation Law

[14] Government Regulation of the Republic of Indonesia No. 23 Year 2021 On Forestry Management

[15] International Union Conservation of Nature (IUCN) 2021 Number of Threatened Species in Each Major Group by Country

[16] Secretariat of the Convention On Biological Diversity (SCBD) n.d. Indonesia Main Details

[17] Forest Watch Indonesia (FWI) 2019 Angka Deforestasi Sebagai “Alarm” Memburuknya Hutan Indonesia. Lembar Fakta Forest Watch Indonesia

[18] Forest Watch Indonesia (FWI) 2020 Siaran Pers - 75 Tahun Merdeka, Hutan Indonesia Hilang Lebih Dari 75 Kali Luas Provinsi Yogyakarta