



# Environmental Challenges, Biodiversity, And Gender Rights In Odisha

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**Abstract:** Environmental and climatic disruption has been apparent with alarming incidences reported from across the globe. It is important to develop strategies to prevent and mitigate the massive devastations caused in recent years including in incidences like the recurrent Amazon Forest fires or the bushfires in Australia. Due to the temperature rise, India has been facing natural disasters including flash floods, tsunamis on the one hand, and issues of drought, unseasonal crop damage, and so on. Added to that is the lack of adequate and 'safe' drinking water, along with the discussions regarding the role of citizens in conserving and preserving biodiversity for reversing this global disparaging trend. This paper takes a look at the entire gamut of issues and challenges from a gender perspective by analysing the existing Biological Diversity Act, 2002 that focuses on the preservation of biological diversity in the country and provides a mechanism for equitable sharing of benefits arising out of the use of traditional biological resources and knowledge. Drawing on the literature, the paper discusses the scope of the Act that mandates mechanisms to respect, protect, and the rights, especially concerning the freedom of end-users which includes women. Additionally, it will touch upon the Amended Biological Diversity Act, of 2023 and the implementation plan as provisioned.

**Keywords:** Environmental Challenges, Gender Rights, Biological Diversity Act-2002, Biodiversity, Land, Water and Forest, secure land rights

## I.INTRODUCTION

Climate change is a pressing issue globally as it has a broad impact on the environment and biodiversity. Rising temperatures, extreme weather conditions, leading to melting ice caps, and rising sea levels are just a few consequences of climate change that are affecting ecosystems worldwide. Environmental and climatic disruption has been apparent across the globe with alarming incidences reported from across the globe. The conversations are important to develop strategies to prevent and mitigate the massive devastations caused in recent years including in incidences like the recurrent Amazon Forest fires or the bushfires in Australia. In response to these challenges, nations worldwide have implemented strategies to mitigate environmental disruption and adapt to the changing climate.

One of the crucial global strategies to address climate change is the Paris Agreement, which aims to limit global temperature rise to well below 2 degrees Celsius above pre-industrial levels. This agreement has galvanized international efforts to reduce greenhouse gas emissions, transition to renewable energy sources, and develop sustainable infrastructure.

Another key global initiative is the United Nations Sustainable Development Goals (SDGs), which include 17 goals and 169 targets including climate action, sustainable cities, and responsible consumption and production of resources. SDGs are the roadmap for countries to integrate environmental sustainability into their policies and practices. Simultaneously, it is important to recognize that biodiversity is critical in maintaining ecological balance and resilience to environmental change. The destruction of biodiversity, driven by factors such as development leading to habitat destruction, increased pollution, and climate change,

is a significant threat to global ecosystems. Efforts to protect and restore biodiversity are therefore essential for safeguarding the health of the planet and all its inhabitants.

India has been proactive in its engagement in climate action and environmental conservation. Acting on its commitment to increasing its renewable energy capacity, the country has been actively focusing on building innovative technological initiatives like encouraging the use of solar energy and has even launched initiatives to enhance afforestation and wildlife conservation. India has also been a signatory to international agreements such as the Convention on Biological Diversity, signifying its commitment to the preservation of global biodiversity. This has been an important step in working with the global community to address environmental and climatic

## **II. BIODIVERSITY AND ITS CONNECTION WITH WOMEN- THE THEORETICAL CONNECT**

Although, in politics and economics, the connection between property and social class is widely recognised, the relationship between property rights and gender dynamics remains largely unexplored. Although feminist discourses vary in their perspective, each emphasises distinct factors as fundamental causes of women's oppression. As far as the application of Feminism Theories is concerned, four major theories could be appropriate to explore the discourse of land and property rights as far as women are concerned. This paper leans heavily on the Eco Feminism theory that stems from its social movement roots and embodies both activism and scholarly critique. By combining feminism and environmentalism, ecofeminism suggests that the subjugation of women and the exploitation of nature stem from patriarchal and capitalist structures. Thus, any approach to addressing one issue must consider its implications for the other; achieving gender equality should not harm the environment, nor should environmental progress come at the expense of women. As an alternative, Eco Feminism also advocates for a shift in values towards prioritising care and cooperation over domination, asserting that this paradigm shift can benefit society and the environment.

The close association between women and the environment is deeply ingrained in various perceptions. Within feminism, there exists a multitude of perspectives, on this relationship. Ecofeminism, as a theoretical framework encompasses diverse thoughts and practices, reflecting the complexity of women's interconnectedness with the environment.

In light of these overlapping and challenging theoretical perspectives, the current study attempts to expound the importance of tribal women's involvement and their participation preservation, conservation, and protection of Land, Natural Resources, and Biodiversity.

From the context of Eco Feminism, it is important to explore the connection and importance of the Biological Diversity Act 2002, to understand the provisions where women's participation is mandated and how it's benefiting, as ensured, at the ground zero level. It also aims to understand the outcome of women's participation in implementing the Biological Diversity Act (2002) in Tribal Populated Districts of Odisha.

It is also useful to explore how the Biological Diversity Act 2002 has delegated the Rights of safeguarding the protecting biodiversity which includes Land, Water, and Forest resources similar to the Rights mandated to the community, especially women, in the Forest Rights Act, 2006, by ensuring their participation in the Forest Rights Committees in their villages.

## **III. Methodology**

This was an empirical assessment of the land rights and women's empowerment in tribal districts of Odisha. A mixed method of both quantitative and qualitative data collection was employed to gather data from primary and secondary sources. A structured interview schedule with both open-ended and open-ended questions was administered to 250 women having land titles in their names. The respondents were from six villages in Tikabali and G. Udayagiri blocks of Kandhamal and four villages in Karanjia and Jasipur blocks of Mayurbhanj districts. For gathering qualitative data participatory methods like FGDs, IDIs, and Case studies were collected. The data collected from primary sources were then analysed based on the knowledge and information gathered by the authors from the existing literature on Biological Diversity Act 2002, Biological Diversity (Amendment) Bill 2021 and the Biological Diversity (Amendment) Act 2023, and land rights to address the research questions.

## **IV. Research setting**

Out of the total population (41,974,218) of Odisha, 22.85% (census 2011) is tribal. Mayurbhanj and Kandhamal are tribal-populated districts in the state. Out of the total population of the Mayurbhanj district, 58.72% (census 2011) is tribal and 53.58% (census 2011) of the population in the Kandhamal district is tribal. The government through its land allocation programme has identified homesteadless households and provided land titles to them. In this exercise, the revenue department has issued such titles the names of both

husband and wife as joint titles. Similarly, the FRA mandates that the claims recognized are in joint names with the names of family members recorded as dependents. In this context, claims recognized in Mayurbhanj district are lower than Kandhamal district. Two tribal-dominated blocks from each district were taken for the study.

## V. Limitations of the study

The availability of data on women's land ownership itself is a limitation as government records do not capture gender desegregated data. The COVID-19 pandemic had serious implications for land ownership issues. The study has not explored in depth the Biological Diversity Act 2002, its implementation status, and its direct linkages to various aspects of land rights and women empowerment as the primary data collected is limited to touching the surface of the critical issue. Further, there is limited research on the intersection of Biological Diversity, land rights, and women empowerment among the tribal population in Odisha leading to a dearth of secondary data. The research has therefore predominantly relied on the government reports and primary data related to knowledge and attitude about biodiversity and the Biodiversity Act, 2002, collected from the women respondents who have *Patta* or land titles in their names.

## VI. About Biological Diversity Act 2002, and its significant provisions

Biodiversity encompasses the array of life forms on Earth and human activities pose challenges to biodiversity, including habitat loss, ecological degradation, and species extinction threats. Concerns arise regarding bio-piracy, unauthorized exploitation of biological resources, and indigenous knowledge. Addressing these issues, the United Nations Convention on Biological Diversity (CBD) 1992 recognizes national sovereignty over biological resources. It acknowledges the role of local communities in conservation, offering equitable benefit sharing. India ratified the CBD in 1994, adopting its protocols: the Cartagena Protocol of biosafety (2003) and the Nagoya Protocol on access and benefit sharing (2014). Aligning with CBD commitments, India enacted the Biological Diversity Act, of 2002, regulating access to biological resources and traditional knowledge. The Act establishes a three-tier regulation system and mandates benefit sharing with biodiversity conservers

Biodiversity, as defined, encompasses the variety of living organisms sourced from all realms and the ecological systems they constitute. This includes the diversity within species, between species, and across ecosystems. Biological resources refer to plants, animals, microorganisms, or their components, including genetic material and by-products, which hold actual or potential utility or value. However, it excludes human genetic material and value-added products.

India enacted the Biological Diversity Act in 2002 to conserve biological resources, promote sustainable management, and facilitate the fair and equitable sharing of benefits derived from their use and associated knowledge with the local communities.

The Act mandates prior approval from the National Biodiversity Authority for a) obtaining any biological resource found in India for research or commercial use by individuals or organizations, whether based in India or abroad, b) Transferring research findings related to any biological resources from India and c) asserting intellectual property rights over inventions resulting from research conducted on biological resources obtained from India.

The Act envisaged a three-tiered structure to oversee the access to biological resources.

- The National Biodiversity Authority (NBA)
- The State Biodiversity Boards (SBBs)
- The Biodiversity Management Committees (BMCs), at the local community level

The Act allocates special funds and a distinct budget to these authorities to conduct research projects related to the country's biological natural resources. They are responsible for overseeing the utilisation of biological resources, ensuring their sustainable use, managing financial investments and returns, and appropriately disposing of capital.

The Act gives authority to the Central Government in consultation with the NBA to identify endangered species and impose regulations on their collection, rehabilitation, and conservation. It also empowers designated institutions as repositories for various categories of biological resources. All offenses under the act are classified as cognisable and non-bailable. Any dispute concerning benefit sharing or orders issued by the National Biodiversity Authority or a State Biodiversity Board under this Act shall be brought before the Green Tribunal (NGT). The Act exempts Indian biological resources that are commonly traded as commodities. However, this exemption applies solely to cases where these resources are utilized strictly as commodities and for no other purposes.

Furthermore, traditional uses of Indian biological resources and the associated knowledge are excluded from the Act's provisions. Additionally, when these resources are employed in collaborative research endeavours between Indian and foreign institutions, subject to approval from the central government, they are exempted. The Act also provides exemptions for the utilisation of biological resources by cultivators, such as farmers, livestock keepers, and beekeepers, as well as by traditional healers like *vaid*s and *hakim*s.

### **6.1 Structure and Function of the National Biodiversity Authority (NBA)**

The NBA was established by the Central Government in 2003 in Chennai, Tamil Nadu for implementation of the Biological Diversity Act (2002). The NBA serves as a statutory body carrying out facilitative, regulatory, and advisory functions for the Government of India on the conservation and sustainable utilisation of biological resources. The NBA comprises a Chairperson, an ex-officio member representing ministries such as Tribal Affairs, Environment, and Forests, as well as non-official members with specialised knowledge. Its functions include fostering an enabling environment for biodiversity conservation, advising the government on regulatory matters, facilitating fair benefit sharing, opposing illegal intellectual property rights claims about Indian biological resources, and advising state governments on the selection and management of biodiversity heritage sites

### **6.2 Structure and Function of the State Biodiversity Board (SBB)**

The SBBs are established by the State Governments under Section 22 of the Biological Diversity Act 2002. Each SBB comprises a chairperson, up to five ex officio members representing relevant State Government departments, and up to five experts in biodiversity conservation, sustainable resource use, and fair benefit sharing.

SBBs advise the State Government on conservation, sustainable use, and equitable benefit sharing, adhering to Central Government guidelines. They also regulate requests for commercial utilisation or bio-survey and bio-utilisation of biological resources by granting approvals or taking necessary actions. All SBB members are appointed by their respective State Governments.

### **6.3 Structure and Function of the Biodiversity Management Committee (BMC)**

Section 42 of the Biological Diversity Act stipulates that every local body must establish a Biodiversity Management Committee (BMC) within its jurisdiction to promote the conservation, sustainable utilization, and documentation of biological diversity. This includes preserving habitats, conserving landraces, folk varieties, cultivars, domesticated animal stocks and breeds, and microorganisms, and documenting knowledge related to biological diversity.

The BMC is composed of a Chairperson and up to six members nominated by the local body, **with at least one-third being women** and 18% representation from Scheduled Castes/Scheduled Tribes. The Chairperson is elected from among the committee members in a meeting chaired by the local body's Chairperson who holds a casting vote in case of a tie during election. The BMC's primary role is to compile the People's Biodiversity Register through consultation with the local communities, containing comprehensive information on local biological resources, their uses, and associated knowledge.

### **6.4 People's Biodiversity Registers (PBRs)**

The People's Biodiversity Registers emphasize participatory documentation of local biodiversity and traditional knowledge and practices. These registers encompass detailed information on the availability and understanding of local biological resources, including their medicinal or other uses, along with any associated traditional knowledge. Recognised as crucial legal documents, PBRs play a significant role in determining the rights of local communities over biological resources and their associated traditional knowledge. Additionally, the BMC advises on matters referred by the State Biodiversity Board or Authority for approval and maintains data on local *vaid*s and other practitioners utilising biological resources. The Authority is responsible for specifying the format and particulars of the PBRs and providing guidance and technical assistance to the BMCs.

The BMCs are tasked with maintaining and validating the PBRs, as well as keeping a record of access to biological resources and traditional knowledge granted, collection fees imposed, and details of benefits and their distribution.

## **VII. Biodiversity Heritage Sites**

Under Section 37 of the Biological Diversity Act, 2002, the State Government, in consultation with local bodies, may designate areas of biodiversity significance as Biodiversity Heritage Sites. These sites are well-defined areas comprising unique, ecologically fragile ecosystems, including terrestrial, coastal, inland waters, and marine environments, renowned for their rich biodiversity. They may feature diverse components such as wild and domesticated species, high endemism, rare and threatened species, keystone species, evolutionary significant species, ancestral species of domestic varieties, fossil beds, and cultural or aesthetic

values, either historically associated with human presence or inherently valuable for cultural diversity preservation.

### **6.5 Biological Diversity (Amendment) Bill 2021**

The Biological Diversity Act, of 2002, proposed to be amended by a Bill to streamline compliance obligations for domestic enterprises. Users of documented traditional knowledge and practitioners of AYUSH systems will be relieved from the obligation to share benefits with local communities. Research and biodiversity endeavors will no longer fall under the mandate of benefit-sharing stipulations. Benefit-sharing arrangements will be determined based on agreements between the user and the local management committee, represented by the National Authority. The Bill seeks to eliminate the criminalisation of all violations under the Act.

The Biological Diversity (Amendment) Bill 2021 was introduced to promote Indian medicinal systems, expedite research processes, and attract foreign investment while aligning with the Nagoya Protocol. The Bill was passed in 2023 and India now has the Biological Diversity (Amendment) Act 2023.

### **VII. Status of implementation of Biological Diversity (Amendment) Act 2023 in Odisha**

The National Green Tribunal, among other directives, issued an order on August 9<sup>th</sup>, 2019, mandating the establishment of Biodiversity Management Committees (BMCs) and the completion of People's Biodiversity Registers (PBRs) in all states by January 31<sup>st</sup>, 2020.

Following the provisions of the Biodiversity Act of 2002, the Board, established in 2009, has been diligently working to enforce the legal requirements outlined in the Biological Diversity Act of 2002 and its accompanying Rules of 2004 within the state.

The primary goal of the Odisha Biodiversity Board is to enforce the Biodiversity Act, which aims to conserve biodiversity, ensure sustainable utilisation of its elements, and promote fair and equitable distribution of benefits derived from biological resources and associated traditional knowledge. Among its various responsibilities, the State Biodiversity Board in Odisha is tasked with facilitating the formation of Biodiversity Management Committees (BMCs) and the compilation of People's Biodiversity Registers (PBRs) at the district, and gram panchayat level, as well as across all Urban Local Bodies in the State.

The progress regarding the constitution of Biodiversity Management Committees (BMCs) and the preparation of People's Biodiversity Registers (PBRs) in Odisha by November 30, 2020, was reported to the National Green Tribunal in December 2020. The progress regarding the constitution of Biodiversity Management Committees (BMCs) and the preparation of People's Biodiversity Registers (PBRs) in Odisha by November 30, 2020, was reported to the National Green Tribunal in December 2020.

The Odisha Biodiversity Board submitted a status report to the National Green Tribunal up to September 21, 2020. According to the report, 98 percent of the task has been completed, with 7090 BMCs constituted out of a total of 7256 local bodies at all levels, including Districts, Block, Gram Panchayats, and Urban Local Bodies. This achievement was made possible with technical and administrative support from the Panchayati Raj & Drinking Water Department, Government of Odisha. Through collaborative efforts with BMC members and other experts, the Board facilitated the preparation of 2264 Dynamic People's Biodiversity Registers (PBRs), accounting for 31 percent of the State's total, by September 21, 2020, with the preparation of the remaining registers underway. The report attributes the non-constitution of the remaining 20 percent to the challenges posed by the COVID-19 pandemic, which hindered the organisation of community-level activities.

By the end of November 2020, the status report presented by the Odisha Biodiversity Board asserted the formation of 7256 BMCs, encompassing all local bodies, achieving a 100 percent success rate in establishing Biodiversity Management Committees (BMCs) across all levels, including Districts, Blocks, Gram Panchayats, and Urban Local Bodies. This endeavour was accomplished through ongoing technical and administrative assistance from The Panchayati Raj & Drinking Water Department, the Housing and Urban Development Department, and the Forest & Environment Department of the Government of Odisha.

### **VIII. Result and discussion**

#### **8.1. Profile of women with land titles**

Inhabitants of the country feel rooted when they have land ownership. Communities flourish and identities are created over generations. It is a well-known fact that the tribal population has always been dependent on forest resources and cultivating forest land over generations. Laws were enacted much later by the Britishers and land that belonged to all became government property alienating the tribal population in their land. Instances such as non-tribal men marrying tribal women to grab their land led to the community's decision not to give any land rights to women acted as a detriment to the status of women among the tribal population. The common belief that tribal women are empowered as they go to market and are visible outside their houses is a misnomer as visibility is not equal to empowerment. Keera Allendorf, argues that land rights broadly defined can be understood as a variety of legitimate claims to land and the benefits and products produced

on that land (e.g. Schlager and Ostrom 1992; Meinzen-Dick et al. 1997; Mearns 1999). It is crucial to note that land rights enable access to a range of several other rights. Social legitimacy is another important aspect of rights, along with strict legality and effective control (Mearns 1999).

The present study dives into the knowledge, attitudes, and practices of tribal women who have land titles in their names. It also strives to gain an understanding of whether the practices are empowering for the women who have land titles. In Kandhamal, all the respondents had IFR titles. This means the women have their names in the family titles jointly with their husband and children. In the Mayurbhanj district, the respondents included women who have inherited land from their families.

## **IX. Women's knowledge, attitudes towards the land, water, forest, biodiversity, securing land rights, and community practices that connect environment biodiversity and gender rights**

### **9.1. Findings**

#### **9.1.a Knowledge of women regarding biodiversity**

In the tribal populated districts of Kandhamal, the respondents from both the research blocks of U.Udayagiri and Tikabali were asked about their knowledge of various issues related to land, water, forest, biodiversity, and securing land rights. It was clear that all the respondents (100%) were aware of secure land rights because they were part of the interventions that were initiated by various NGOs like Landesa, CARE, Swati, Pradata, etc. They could also share the fact that the conservation of biodiversity is critical to life as tribal culture teaches them to worship and respect biodiversity and worship nature. During group discussions, the women also shared about the interdependent aspect of the life cycle process. All the respondents also shared that water is vital for life on this planet and without the microbes, the land will be infertile. This is taught to them from their interaction with forest and nature through generations.

In the Mayurbhanj district, similar findings were noted from the respondents of the study villages in Karanjia and Jasipur Blocks. These villages were largely covered through interventions with Federations like Sampoorna and Swyamsiddha, promoted by Pradan who worked with the tribal populated communities on Natural Resource Management and land rights. During group discussion, women also shared that organic farming practices help keep the soil healthy while the use of fertilisers affects the quality of land and water which also affects the survival of animals.

#### **9.1.b Attitude of women regarding biodiversity**

The majority of the women who were in both the Kandhamal and Mayurbhanj districts said that secure land rights are important and women need to have their names in the *Pattas/* Land Titles. They also shared that in the case of Community Rights on Forest, it is important (as part of FRA, 2006) as it gives the community the right to conserve and protect the forest which their community has been dependent on for generations.

All respondents were women who have names in the land titles and have been part of a process of securing their land rights. As part of the response during group discussions, they expressed, in both Kandhamal and Mayurbhanj districts, that the change in weather and the subsequent impact on their livelihoods through heavy rains or extreme heat leading to crop loss is of concern. These conditions contribute to the imbalance in biodiversity which is critical to life. Further, they expressed that they think that natural resources should be conserved and protected for the next generation. They also said that they think the Land, Water, and Forest resources are interconnected and hence need to be conserved.

#### **9.1.c Community practices related to biodiversity**

In Kandhamal, the respondents shared that they are not aware of the Biodiversity Act 2002, and biodiversity Committees are not constituted at their Gram Panchayat level. They also said that they are not aware of Biodiversity Registers created through community participation initiatives in their Gram Panchayat. In Mayurbhanj, the respondents were not aware of either the Biodiversity Act 2002 or the community initiative on creating the Biodiversity Register. This also means that the Odisha Biodiversity Board has a partial database of the various plant and animal species. There is a scope for collecting and collating a complete database using both the Biodiversity Register and the existing technological platform developed to capture the database.

## **X. Conclusion and recommendation**

The Biological Diversity Act, of 2002 was conceived to align with India's commitment to the United Nations Convention on Biological Diversity (CBD) of 1992. This international agreement acknowledges the sovereign rights of nations in utilising their biological resources. The Forest Rights Act (FRA) 2006 was enacted to give user rights to tribal and other traditional forest dwellers and thus, address the historical injustice that they faced due to colonialism. Both the Acts mandate the local communities to own up to the natural resources that they have depended on for generations, they give a clear direction on the importance of women's involvement in conservation of resources. This is ensured by prescriptions like mandating that not less than one-third of members of the Biodiversity Management Committee should be women and not

less than 18 % should belong to Scheduled Castes/Scheduled Tribes. The FRA 2006 mandates that Forest Rights Committee (FRC), should consist of 10-15 members elected at the Gram Sabha comprising two-thirds from tribal communities of which one-third of the members must be women.

It is a fact that women are the nurturers of civilisations and they are connected to making decisions regarding the conservation and preservation of resources to ensure their availability for future generations. They are the beholders of traditional knowledge and practices which they pass on through indigenous stories and songs known as folklores, folksongs, and folk art. Traditional knowledge is typical to local communities using local biodiversity and traditional practices. The value of comprehensive information on the availability and knowledge of local biological resources, their medicinal or any other use, and any further traditional knowledge associated with them will be defined by the Biodiversity Register which would serve as a key legal documentation as per the Biodiversity Act 2002.

The Biodiversity Act and the Forest Rights Act, both perform as powerful instruments of empowerment of the local communities especially to ensure that any development that the country plans and undertakes has to take into account the voices of women which will directly benefit the climate concerns. The involvement of women in the process of resource utilisation will ensure that resources are conserved and protected for sustainable development.

In the absence of comprehensive databases of information captured in the vital Biodiversity Registers, it would be challenging to have a policy response to various issues faced by the local communities.

The Government has amended the Biodiversity Act 2002 and the Biodiversity (Amendment) Act, 2023 has been enacted. As per media reports the government claims that the Amendment aims to provide benefits to the tribal and local communities by simplifying processes, it also wants to promote Ayush and Ayurveda. While the government proposes simplifying the compliance burden, it claims it will create a conducive environment for research and investment.

The amendment will help simplify the patent application process, widen the scope of access, and benefit sharing with local communities, which is the main thing, and the conservation of biological resources. It aims at encouraging the cultivation of medicinal plants and removing the compliance burden on Indian companies, decriminalising the offenses to reduce the fear among stakeholders for effective compliance.

After the amendment, various critiques have been published in the media citing that the amendment has taken away the rights conferred to the local communities in the Biodiversity Act 2002.

Currently, for the implementation of the Biodiversity (Amendment) Act, of 2023 an Action Plan is being developed. As per sources from the State Biodiversity Board, a series of consultations has been initiated and after the regional consultations are over, the National Action Plan will be finalised. Further, the States will work on the development of the State Action Plan for implementation of the Biological Act (Amendment) 2023. It will be important to follow the process and understand how it empowers the communities, especially women in the coming years.

This is all the more important as the global community is working together to address environmental and climatic disruption through international agreements, sustainable development goals, and conservation efforts. It is therefore vital for various nations, including India, to uphold these commitments and contribute to the preservation of the planet's environment and biodiversity with a fair and just legal instrument.

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