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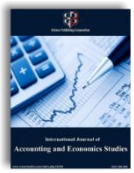

Design and Build A Land Conflict Management Model

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Abstract

Land conflicts in Indonesia persist at a high level due to overlapping claims, inadequate historical documentation, and discrepancies in authority between institutions. This study aims to analyze the governance of conflict resolution by ATR/BPN, map the regulatory-implementation relationship, and design a data-based non-litigation conflict management model. The study was conducted in Jambi Province to examine the case of PT Kaswari Unggul, PT DAS, PT FPIL, PT EWF, and the TORA process in Muaro Jambi. Data were collected through interviews, FGDs, observations, and document reviews; analysis using regulatory mapping, Soft System Methodology, and Analytical Hierarchy Process for strategy prioritization. The results indicate that the root of the main problem lies in poor subject–object verification and limited data integration. The merging of DUKCAPIL data for subjects and RTRW/administrative boundaries for objects accelerates clarification, reduces social friction, and enables settlement options such as enclaves, 20% partnership grants, and benefit-sharing schemes. The proposed model emphasizes five factors: data accuracy, process effectiveness, justice/recognition of rights, community participation, and institutional integration; and involves ATR/BPN, DUKCAPIL, communities/customs, NGOs, and academics. In conclusion, the national standardization of DUKCAPIL-RTRW verification, the establishment of independent mediation units with cross-access to data, and institutional interoperability are crucial to accelerate equitable resolution and reduce the recurrence of conflicts. Cross-provincial trials are suggested to measure the impact on duration, cost, post-agreement compliance, public trust, and sustainability of spatial planning, as well as the effectiveness of ongoing multi-stakeholder coordination.

Keywords: *Land Conflict; Verification of Subjects-Objects of Dispute; Integration of DUKCAPIL-RTRW Data; SSM-AHP Modeling (Non-Litigation).*

1. Introduction

A fair agrarian policy is a fundamental source of national prosperity because land and natural resources constitute the backbone of people's primary needs, including food, housing, energy, and employment. The 1945 Constitution of the Republic of Indonesia provides the constitutional foundation for this principle, particularly through the post-amendment emphasis on economic democracy and social justice, which aim to ensure equitable resource management and public welfare (Sahari, 2022). When land and natural resources are controlled unequally by individuals or groups, structural tensions emerge and often escalate into agrarian conflict. From a theoretical perspective, conflict arises from interdependent relationships over contested resources and manifests through social interaction and behavioral dynamics (Onah et al., 2022). While conflict is dissociative in nature, it also serves a functional role in exposing structural inequality and governance failures (Pitso et al., 2025).

In the Indonesian context, agrarian conflict remains structurally persistent due to plural social conditions, livelihood dependence on land, and weak institutional integration across spatial planning, legality, and social governance. Empirical data show that agrarian conflicts reached 241 cases in 2023, marking an increase compared to previous years (Ahdlat, 2024). Earlier studies also reveal that between 2013 and 2018, agrarian conflicts spanned plantations, forestry, mining, infrastructure, and coastal sectors, affecting more than 1.1 million households and over 7.1 million hectares of land (Mory, 2024). These figures demonstrate that agrarian conflict is not merely a social dispute but a systemic economic and institutional problem. Therefore, effective conflict management requires governance-based strategies such as multi-stakeholder collaboration, participatory mechanisms, legal certainty, and incentive-based regulation to strengthen the legitimacy and sustainability of land governance (Wang et al., 2025).

The problem that has occurred so far in determining the subject is that there is no standard to be used as a reference for the verification of conflict subjects. The same thing also happens in the determination of objects; this situation has further implications in tracing the historical relationship between the subject and the object of conflict. One of the problems that often arises is related to the boundaries of territories that have not been administratively defined in land conflict areas. This boundary conflict results in uncertainty in the validity of the legal documents required to prove the object of the conflict. Various instruments are used to overcome the needs of this problem, for example, the initial limit in the computerization of land offices (KKP), population boundaries, and so on. This gives the urgency of establishing a single standard for the verification and validation of the object of dispute.

Land–agricultural and plantation conflicts in Indonesia frequently generate legal uncertainty regarding the determination of legitimate landholders, particularly in the allocation of agricultural land surrounding plantation areas. Although development assistance and land redistribution are institutionally intended for farmers and residents, opportunistic claims by unauthorized parties remain common, reflecting

weak verification mechanisms and institutional fragmentation. Normatively, the Basic Agrarian Law (Law No. 5 of 1960, Article 10, paragraph 1) explicitly mandates that holders of agricultural land must actively cultivate it themselves and prohibits exploitative practices. This principle is further reinforced by Government Regulation No. 41 of 1964 (amending PP No. 224 of 1961), which prohibits the transfer of agricultural land ownership that results in absentee landholding across sub-district boundaries. However, persistent violations of these provisions indicate a gap between formal regulation and field-level enforcement, which continues to fuel agrarian disputes and weaken the integrity of land governance.

Judicial settlement of land conflicts often faces structural constraints, particularly in disputes between local communities asserting customary land rights and plantation corporations holding formal concessions. Such legal deadlocks not only undermine social justice but also pose risks to national development and community welfare (Javed & Li, 2025). From an institutional perspective, optimizing land conflict resolution requires an integrated governance model supported by accurate, legally valid administrative and spatial data. The integration of population data from the Department of Population and Civil Registration (DUKCAPIL) and spatial boundary data from Regional Spatial Plans (RTRW) offers a strategic mechanism to enhance the accuracy, efficiency, and legal certainty of identifying both the subject and object of land disputes. The legal validity of DUKCAPIL data is guaranteed under Law No. 23 of 2006, as amended by Law No. 24 of 2013, which establishes a single, lifelong Population Identification Number (NIK) for each citizen. This regulatory framework strengthens the institutional capacity for dispute verification and supports a more accountable, data-driven approach to land conflict governance in Indonesia.

The main legal basis that regulates spatial planning in Indonesia is Law Number 26 of 2007 concerning Spatial Planning, which is the main legal basis for spatial planning in Indonesia. This law regulates the preparation of regional spatial plans, space utilization, and space utilization control. Government Regulation Number 15 of 2010 concerning the Implementation of Spatial Planning regulates the preparation of spatial planning, space utilization, and control of technical space utilization. Regional Regulations, at the regional level, spatial planning is regulated more specifically according to the conditions and needs of each region through Regional Regulations (Perda) on Regional Spatial Planning (RTRW).

Based on the description above, the formulation of the problem in this study is:

1) What are the procedures for resolving land conflicts by the Ministry of ATR/BPN?
2) How is the mapping of regulations and implementation of land conflict management to conflict problems that arise in case resolution based on generic data?
3) How is the conceptual management model for handling land conflicts based on generic data designed?
4) How is the design of a priority strategy for the implementation of a land conflict management model based on generic data?

The objectives of this study:

1) Analyzing the procedures for resolving land conflicts by the Ministry of ATR/BPN
2) Analyze and map regulations and implementation of land conflict management for conflict problems that arise in case resolution based on generic data
3) Develop a conceptual model of land conflict management based on generic data.
4) Designing priority strategies for the implementation of land conflict management models based on generic data.

2. Research Methods

Place and Time of Research

This research was conducted in Jambi province. This research starts from the preparation of proposals, data collection, preparation of data analysis and discussion, and final preparation. This research started from April 2024 to August 2024.

Research Object

1) PT. Kaswari Unggul in East Tanjung Jabung Regency uses population instrument data and village boundaries
2) Conflict Handling and Settlement of TORA (Land Object of Agrarian Reform) at PT. Borneo Karya Cipta in Muaro Jambi Regency uses a regional boundary instrument
3) PT. FPIL in Muaro Jambi Regency uses regional boundary instruments.
4) PT. EWF in Muaro Jambi Regency uses regional boundary instruments

3. Data Collection

This research uses primary data and secondary data. Primary data were obtained from the results of interviews with relevant stakeholders, the results of questionnaires from experts, and direct observations. Secondary data is obtained from documents related to the research object. The matrix of research methods can be seen in Table 1.

Table 1: Research Method Matrix

no	Purpose	Data types	Data source	Data collection methods	Analysis techniques	Output
1	Analyzing the Procedures for Resolving Land Conflicts of the Ministry of ATR/BPN	Primary data and secondary data	Expert Atr/bpn documents, research journals, other government documents	Interviews and document studies	Qualitative descriptive	Existing conditions for handling land conflicts
2	Analyze and map the implementation regulations for the management of land conflict handling, on problems that arise in case resolution.	Primary data and secondary data	Experts, secondary data in the form of related documents, journals, other government documents, and generic data	Interviews and document studies	Qualitative Descriptive Analysis	Regulatory mapping is the basis for designing a management model for handling land conflicts.
3	Developing a conceptual model of land conflict management	Primary data and secondary data	Experts, secondary data in the form of related documents, journals, other government documents, and regional generic data	Interviews, FGDs, questionnaires, observations	SSM	Rich picture and conceptual model of land conflict management
no	Purpose	Data types	Data source	Data collection methods	Analysis techniques	Output

4	Designing a strategy for the implementation of a land conflict management model based on generic data of regional regulations.	Primary data and secondary data	Expert	FGDs, questionnaires, and previous research journals	AHP	Priority policies in the implementation of land conflict management models

4. Research Stages and Analysis Methods

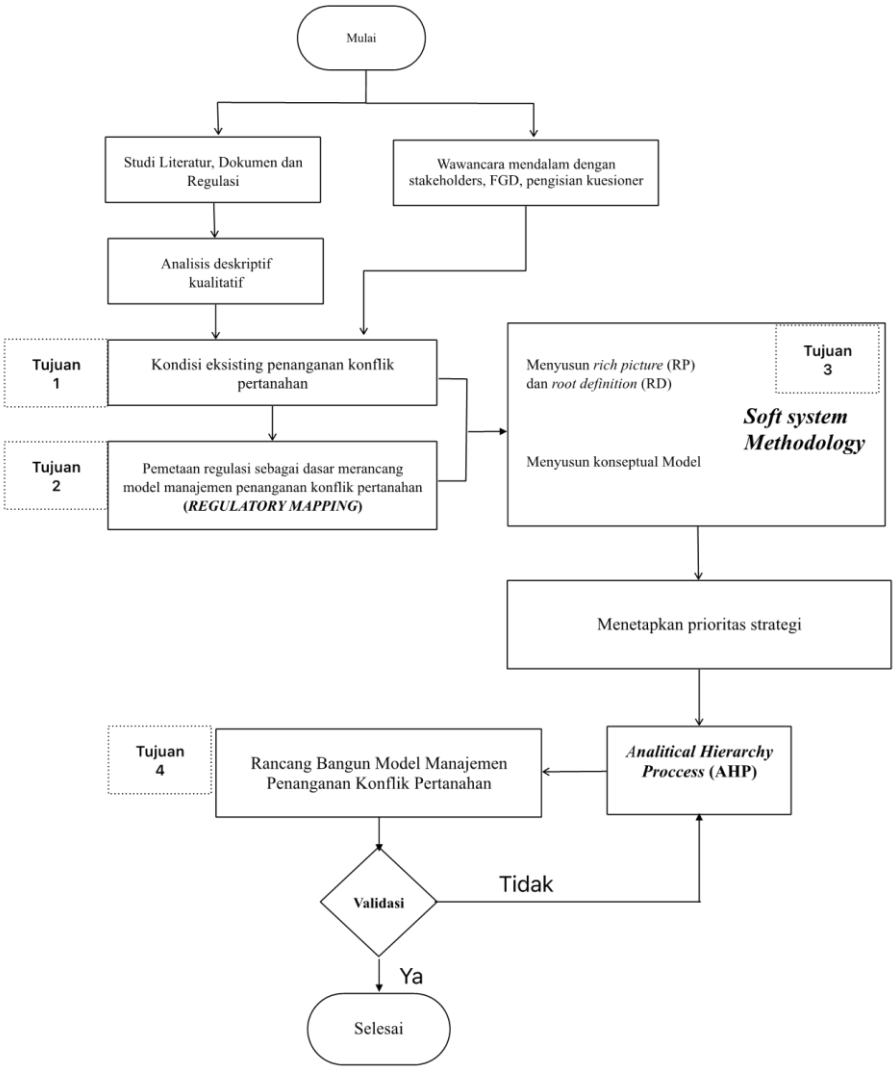

Fig. 1: Stages and Analysis of Research Data.

The data analysis methods used in this study are descriptive, qualitative, and quantitative. Qualitative descriptive analysis was used to analyze existing conditions, conceptual frameworks for conflict management, and management policies using regulatory mapping (REGMAP) and soft system method (SSM). Quantitative descriptive analysis was used to analyze priority strategies using AHP and design a management model for handling land conflicts.

5. Results and Discussion

Land conflicts in Jambi Province in the last five years have shown a recurring pattern related to community claims to land controlled by companies, especially land with the status of Right to Use (HGU). The case of PT. Kaswari Unggul is the most striking example, where the community, through SPI assistance, claims part of the HGU area and proposes it as a Priority Location for Agrarian Reform (LPRA). This shows the disconnect between legal rights and social legitimacy over land.

Most conflicts arise from overlapping claims between the public and the company, mainly due to the weak initial documentation of ownership. In the case of PT. DAS representatives from nine villages rejected the extension of the HGU and demanded the return of ±3,000 hectares of land. These tensions show how the legal system is often not flexible enough to accommodate the aspirations of communities based on a history of land tenure.

It is not uncommon for conflicts to develop due to the company's non-compliance with social obligations, such as partnerships. An example is the demands of the Sinar Mulya Farmers Group to PT. FPIL to realize the distribution of the partnership land of ±130 Ha. This type of conflict reflects the need to oversee the implementation of government policies on corporate partnerships with the surrounding community.

6. Status of Conflict Resolution

Some major conflicts have been resolved through an agreement approach. In the case of PT. Kaswari Unggul, the September 13, 2023, meeting resulted in an enclave commitment of ±111.05 Ha from the area claimed by the community. This decision paves the way for the continuation of the HGU process after spatial adjustments have been made.

Konflik PT. DAS shows a settlement format that combines the continuation of the company's rights with social compensation: The HGU renewal certificate is issued because the company agrees to facilitate the construction of a benefit-sharing model community garden that reduces the demand for land return by ±3,000 hectares.

The FPIL case in Sumber Jaya Village ended through litigation. The conflict management team decided to proceed with the legal settlement as per the minutes of the meeting, and the process resulted in a permanent criminal verdict showing that some conflicts require judicial certainty when mediation is not enough. Meanwhile, the case of FPIL with Pematang Bedaro Hamlet was successfully resolved through deliberation: the October 10, 2023, meeting agreed to fulfill the company's obligations to the community of 20% outside the core plantation in the form of grants, in line with the provisions of Government Regulation No. 26/2021.

Not all cases that have been decided are automatically resolved in the field. The dispute between PT. Kumpeh Karya Lestari (KKL) and Tarikan Village have received a complete decision from the District Court, High Court, and Supreme Court, but its status is still awaiting execution, highlighting the gap between legal decisions and administrative/physical implementation in the field.

Table 2: Status of Conflict Resolution

Category	Sum	Information
Done	7+	Including PT. Kaswari Unggul, PT. DAS, PT. FPIL (2 cases), PT. KKL, PT. BSU, PT. MJSL
Still in the process of handling	5+	Including PT. PHL, PT. Ricky Kurniawan, PT. LEAF, PT. APN, HGU Nona Aisyah
Litigation (Legal Pathway)	3	PT. FPIL (Sumber Jaya Village), PT. KKL, PT. APN
Non-Litigation (Deliberation)	≥6	PT. Kaswari Unggul, PT. DAS, PT. FPIL (Pematang Bedaro Hamlet), PT. MJSL, PT. BSU, PT. PHL

7. Solution Instruments Used

In efforts to resolve land conflicts in Jambi Province, a variety of administrative and spatial instruments are employed to verify both the subjects and objects of disputes. One of the primary instruments is population data, which clarifies the status of cultivators or claimants for specific parcels of land. This tool plays a crucial role in validating claims, as illustrated in the cases of PT. Kaswari Unggul and PT. Puri Hijau Lestari, where the identification of claimants determined the sustainability of the settlement process. Beyond legal verification, accurate population data also reduces transaction costs and economic inefficiencies by preventing redundant disputes and ensuring smoother land use planning.

Village boundary maps constitute another essential instrument. Unclear administrative boundaries often lead to overlapping land claims and tenure disputes. Through these maps, BPN and local governments can geographically identify disputed areas and assess whether the land falls within corporate concessions, residential zones, or customary community areas. From an institutional perspective, these maps enhance governance capacity by providing standardized reference points for decision-making, reducing ambiguity, and supporting equitable land allocation.

In more complex conflicts, such as land redistribution or former customary land cases, spatial maps are vital for assessing conformity with the regional spatial plan (RTRW). This ensures that the allocation or granting of rights aligns not only with formal legal frameworks but also with functional land use, preventing the misallocation of conservation areas, settlements, or non-cultivation zones. Historical land documents, such as eigendom, girik, and letter C, serve as additional instruments, allowing BPN to validate past claims by cross-referencing certificates, registration maps, and field measurements. These processes strengthen institutional accountability and prevent economic losses from duplicate claims or invalid certificates.

Finally, in non-litigation settlements, minutes of deliberations, peace agreements, and official meeting records provide the legal foundation for resolving disputes without court involvement. These documents enable BPN to implement follow-up actions such as enclave processing, land redistribution, or HGU extensions. By integrating data-driven verification, spatial analysis, and documented agreements, this approach not only enhances legal certainty but also strengthens institutional efficiency and promotes economic stability in land governance.

8. Risk Factors and Vulnerabilities

Land conflicts in Jambi Province do not occur in isolation but are rooted in structural and administrative risk factors. A key factor is the disorganized administration of land on the part of both rights holders and institutions responsible for granting rights. Issues such as the issuance of double certificates for a single plot, unsynchronized village boundary data, and incomplete historical documentation of land rights create recurring disputes. Strengthening institutional capacity to manage land records systematically is therefore crucial, as it not only reduces conflicts but also safeguards economic efficiency by preventing costly legal disputes and misallocation of land resources.

Another significant risk arises from land acquisition processes carried out without deliberative mechanisms or fair compensation. In many instances, companies or government agencies have taken over community land with unclear or unpaid compensation. Such practices generate perceptions of injustice and can escalate into prolonged social conflicts, particularly in areas with large former plantations. From an economic and governance perspective, transparent and participatory land acquisition mechanisms are essential to protect community livelihoods, maintain investor confidence, and enhance institutional legitimacy.

A third contributing factor is land neglect. Many HGU lands are unused or poorly maintained by the responsible companies, leading surrounding communities to occupy and manage them in practice. When companies later attempt to extend rights over these lands, conflicts often arise due to established community control. Common conflict modes include the seizure of former HGUs, disputes over plot boundaries, overlapping tenure claims, misimplementation of court rulings, and inconsistency between land procurement and spatial planning regulations. The vulnerability of these conflicts increases in the absence of established communication forums between communities, government, and companies. Dialogue-based prevention mechanisms, coupled with regular audits and institutional oversight, are therefore essential to reduce tensions, ensure equitable land management, and support sustainable economic development.

9. Map of Regulation and Implementation of Land Conflicts in Indonesia

This regulatory integration map was prepared as an instrument to understand the relationship between various regulations that apply in the context of land conflict resolution in Indonesia. The complexity of land conflicts demands the presence of a legal framework that not only touches on formal legal aspects but is also able to bridge the social, spatial, and administrative governance dimensions.
In practice, the settlement of land conflicts cannot rely on a single law. The process of identification, verification, mediation, and land redistribution requires synergy between complementary legal apparatuses. Therefore, this map summarizes how each regulation plays a role in each stage of handling land conflicts.

10. Design and Build A Conceptual Model for Land Conflict Management

This study employs the Soft System Methodology (SSM) to design a conceptual model for land conflict management. Data collection was conducted using a questionnaire approach with in-depth questions directed to experts on land conflicts. This was followed by a Focus Group Discussion (FGD) conducted as a single, focused group involving both facilitators and participants. This approach aligns with the concept outlined by Nyumba et al. (2018), where FGDs are used to explore participants' views and experiences interactively. The discussion involved 30 representatives from various stakeholders directly engaged in land conflict resolution, as well as academic experts. The choice of a single-focus FGD was intended to concentrate the discussion on issues specifically relevant to land conflict management, ensuring that participants could optimally contribute insights based on their experience and roles. Soft System Methodology (SSM), developed by Peter Checkland (1981), provides a systemic approach for addressing complex, unstructured problems involving multiple human perspectives. Unlike hard systems methods, which are typically applied to technical problems with clearly defined objectives and linear solutions, SSM is suited to contexts where problems are not universally agreed upon, goals are relative, and stakeholders hold diverse views and values. This makes SSM particularly appropriate for designing models in land conflict management, where social, legal, and institutional dimensions intersect and must be considered holistically.

11. Main Causes of land Conflicts

To identify problematic situations, a questionnaire survey was conducted with a number of experts from various backgrounds, including government officials, academics, community leaders, company representatives, and non-governmental organizations. One of the important aspects revealed from the survey is the main cause of land conflicts in Indonesia. The analysis was carried out using a Likert scale of 1 to 5, where a score of 1 means "Strongly Disagree" and a score of 5 means "Strongly Agree". The average results show a high tendency towards expert agreement on the statements that cause land conflicts. Table 3 presents the opinion of the experts.

Table 3: Main Causes of Land Conflicts

Yes	Category	Statement	Average Likert Score (1–5)
1	Social	Population growth increases land needs and triggers conflict	4.8
2	Social	Inequality of land ownership and control	4.9
3	Social	Urbanization triggers competition and conflict over land	4.5
4	Social	Weak understanding of land law in society	4.6
5	Economics	Rising land values trigger a fight for ownership	4.7
6	Economics	Infrastructure development (toll roads, airports, etc.) causes conflict	4.5
7	Economics	Large investments often ignore the rights of local/indigenous peoples	4.6
8	Culture	Differences between customary law and state law	4.7
9	Culture	Neglect of customary rights of indigenous peoples	4.8
10	Territory	Unclear spatial status	4.6
11	Territory	Overlapping concessions between companies and communities	4.7

Land conflict is a complex and multidimensional phenomenon. Based on the results of data collection from experts and stakeholders, it was found that the causes of conflict can be classified into four main categories: social, economic, cultural, and regional factors. Each category has a significant contribution to the emergence and protracted conflict on the ground.
Social factors are widely recognized as a key underlying cause of land conflicts. Rapid population growth has increased the demand for land for housing, agriculture, and public infrastructure. When land allocation and management are not conducted fairly, this heightened demand can lead to disputes. Additionally, disparities in land ownership contribute to social tensions and perceptions of injustice. A small proportion of the population controlling large areas of land, while the majority struggles to access sufficient land for their basic needs, often fuels resistance and creates conditions conducive to both horizontal and vertical conflicts.
Urbanization also plays a major role in sparking land disputes. Expansion of cities frequently occurs without adequately considering the rights and livelihoods of long-term residents. This can create a clash between development objectives and the sustainability of local community life, generating friction and potential disputes. Moreover, limited public understanding of land laws often traps communities in legally vulnerable situations. Lack of knowledge regarding land legalization procedures, property boundaries, and spatial planning regulations exposes residents to manipulation, abuse of authority, and legal conflicts.
From an economic standpoint, rising land values are a primary driver of conflicts. Land that was previously undervalued can quickly attract attention due to changes in spatial planning or infrastructure projects, prompting land grabs by individuals, groups, or corporations. Large-scale developments, such as toll roads, ports, and industrial zones, often provoke disputes, especially when affected communities are excluded from consultation or participation. The influx of investments from private or state actors frequently disregards the presence of indigenous peoples or smallholders, and forced displacement without clear compensation or relocation plans generates tensions that are difficult to resolve.

12. Regulation and Institution of Handling Land Conflicts

1) Weaknesses of Current Regulations

Experts from various backgrounds agree that existing regulations are inadequate in responding to the complexity of land conflicts in Indonesia. Although the Basic Agrarian Law (UUPA) No. 5 of 1960 has become the main basis in the national agrarian system, its implementation is considered not adaptive to the dynamics of the field. The inconsistency between the normative goals of the UUPA that prioritize social justice and the reality of practices that actually sharpen inequality reveals a substantial gap in the national land law system.

Furthermore, experts highlight the fact that many sectoral regulations (such as the Forestry Law, Plantation Law, Environmental Law, and Ministerial Regulations from various agencies) actually create overlap and conflict of authority. When one plot of land is governed by two or more different and asynchronous regulations, a legal vacuum arises that is often exploited by interested parties. For example, land that is recognized as customary land by the community may be administratively included in the state forest area controlled by the Ministry of Environment and Forestry (KLHK).

This criticism not only comes from academics, but also from technical officials at ATR/BPN who are aware of the limitations of their institutions in handling conflicts involving forest areas, plantation concessions, and indigenous peoples. They acknowledged that the applicable regulations often do not provide room for movement to solve problems comprehensively, especially when there is a conflict of interest between institutions. Therefore, according to experts, comprehensive regulatory reform is a national urgency to ensure that the law can be a resolution instrument, not a source of new conflicts.

2) Lack of Harmonization Between Institutions

This view emerges strongly from land law practitioners and academics who consider that disharmony between state institutions is the main obstacle in resolving land conflicts. One obvious example is the mismatch between data and maps between ATR/BPN and the Ministry of Environment and Forestry, which often leads to double claims on one plot of land. In certain cases, land that has been certified by BPN can be classified as a forest area according to forestry maps. This inconsistency not only confuses the public but also causes government agencies to blame each other.

Experts explain that each institution has a different legal basis, approach, and work targets. The Ministry of Environment and Forestry, for example, tends to be conservative towards forest areas, while the ATR/BPN emphasizes administrative legality. When these two approaches are not brought together in a synchronized policy framework, any conflict involving forests or regional boundaries becomes difficult to resolve peacefully. As a result, people who are in the middle of this vortex become victims (expelled, criminalized, or living in legal uncertainty).

The proposal that emerged from several experts was the need to establish a cross-sectoral coordinating institution with a strong mandate to resolve land conflicts comprehensively. This institution must have full access to data from all ministries/agencies, as well as the authority to decide and mediate claims. Without such coordinated measures, existing regulations will continue to be a tool of justification for sectoral institutions to defend their territory, not a tool to resolve conflicts.

3) Lack of Formal Recognition of Indigenous Rights

Experts from NGOs, indigenous leaders, and some academics state that the neglect of indigenous peoples' existence and customary rights is one of the most significant roots of land conflicts. Indigenous peoples, who for centuries have lived and managed land collectively through the customary law system, now lack adequate legal protection in the national agrarian system. They do not have formal state-recognized certificates, whereas socially, they have strong historical and cultural legitimacy.

Although the Constitutional Court in the Constitutional Court Decision No. 35/PUU-X/2012 has stated that customary forests are not part of state forests, the implementation of this decision has not been carried out systematically. In practice, the government still designates customary territories as production or conservation forest areas, which are then granted concession rights to companies. This triggers conflicts that are not only legal, but also cultural and political, because they concern the identity, sustainability of life, and the self-esteem of indigenous communities.

Experts emphasize that formal recognition of the rights of indigenous peoples is not just a matter of administrative legality, but also a form of recognition of the diversity of the legal system that lives in Indonesia. The state needs to revise the land registration system to accommodate a system of collective ownership based on indigenous communities, and not solely individuals. Without this recognition, conflicts will continue to recur in resource-rich but legally impoverished regions.

4) Lack of Non-Litigation Mechanism

Many experts highlight that the approach to resolving land conflicts has relied too much on litigation mechanisms or court channels. The judicial process is considered not only lengthy and expensive, but also often not on the side of small communities that do not have adequate access to the law. Reliance on the justice system has also led to a backlog of cases in district courts and the Supreme Court, most of which end up without substantial solutions.

In the view of experts, conflict resolution should place dialogue, mediation, and facilitation as the main steps. Unfortunately, alternative mechanisms such as mediation do not yet have a strong institutional foothold. At the local level, there are no neutral facilitators specifically trained to deal with land conflicts. Meanwhile, at the center, the policy of non-litigation settlement is still an appeal without clear incentives and sanctions. Experts propose that the government establish a land conflict mediation unit in each province that works independently but is connected to the ATR/BPN. This unit needs to be provided with legal and socio-cultural mediation training and authorized to access land data across sectors. Thus, conflict resolution can be carried out early, before escalation escalates to litigation paths that worsen relations between the parties.

13. Strategy for The Implementation of The Land Conflict Management Model

Land conflicts are one of the most complex and protracted forms of agrarian disputes in Indonesia. These characteristics of the conflict reflect not only the difference in claims to physical space but also the struggle between legal legitimacy, communal rights, and development interests. In various studies and practices, it has been found that litigation or formal settlement through legal institutions is not always an effective means of responding to the dynamics of land conflicts, especially in areas steeped in historical, social, and customary values.

As more collaborative conflict resolution approaches evolve, the need for a non-litigation, data-based, and socially inclusive land conflict management model is becoming more urgent. This model must not only be able to resolve disputes fairly but also prevent future conflict recurrence, strengthen socio-state legitimacy, and build spatially equitable land governance.

In that context, the Analytical Hierarchy Process (AHP) approach is used as the right method to design strategies for the implementation of land conflict management models. AHP facilitates complex decision-making through a hierarchical structure and the weighting of

preferences from various parties. This approach is particularly appropriate because land conflicts always involve many intersecting actors, dimensions, and goals. In addition, AHP provides space to systematically measure the interconnected role of data, value, and strategies.
Determining the strategy for implementing a non-litigation land conflict resolution model based on DUKCAPIL and RTRW data
The primary aim of this model is to facilitate peaceful, participatory, and data-driven land conflict resolution without relying on formal legal channels, which are often slow and fail to address the social roots of disputes.
A non-litigation conflict management model relies on the reinforcement of five essential factors that form its foundation. The first critical factor is data accuracy and validity (FA1). Land conflicts often involve overlapping claims, undocumented rights, or disputes involving multiple parties. In this context, generic data such as population records from DUKCAPIL and spatial allocation data from RTRW serve as objective references to verify both claimants and the land in question. When these data sources are cross-checked across sectors, administrative errors and manipulation of claims can be prevented from the outset.
The second factor is the effectiveness of the non-litigation process (FA2), which reflects the capacity of peaceful mechanisms, such as mediation and deliberation, to resolve conflicts quickly, efficiently, and in a manner acceptable to all parties. Effective non-litigation processes offer a viable alternative to lengthy and costly court procedures. Here, generic data facilitates faster issue clarification, aids mediators in understanding the conflict, and simplifies cross-sectoral document verification.
The third factor, social justice and recognition of rights (FA3), is particularly important in a multicultural context like Indonesia. Indigenous communities, smallholders, and residents often lack formal documentation for the land they have historically occupied. Socially and historically, these groups may be rightful owners under customary law or long-term possession. By combining generic data with local records and active citizen participation, the model allows for fairer recognition of rights, making conflict resolution not only legally valid but also socially and morally just.
Active community participation (FA4) is the fourth factor determining the success of the model. Without community involvement in data mapping, mediation, and validation, the process risks losing legitimacy. Citizen input helps prevent biases inherent in formal institutional data. Communities often hold informal records, such as claim maps, oral histories, or testimonies of customary witnesses, which can complement institutional data. This model encourages collaboration between formal and community-generated data to ensure accuracy and legitimacy.
The fifth factor is institutional integration (FA5), which reflects the ability of institutions such as ATR/BPN, local governments, traditional authorities, and civil society organizations to collaborate within an integrated system. Currently, actors operate in silos, causing overlapping authority and inconsistent data. Institutional integration ensures that generic data is effectively utilized and that decisions reached through deliberation are recognized across sectors.
These five factors are interconnected and mutually reinforcing. Accurate data supports social justice; process effectiveness builds public trust; and institutional integration fosters consistency and coordination. By strengthening all five simultaneously, a generic data-driven non-litigation model can function as an inclusive, efficient, and sustainable mechanism for land conflict resolution. Table 4 provides an overview of the factors influencing the main strategies for optimizing generic data in land conflict management.

Table 4: Level 1 (Factor)

Code	Factor	Explanation	Relevance to DUKCAPIL-RTRW
FA1	Data Accuracy and Validity	The extent to which population (DUKCAPIL) and spatial (RTRW) data are used to verify claims	Critical to avoid overlapping claims
FA2	Effectiveness of the Non-Litigation Process	Speed, efficiency, and success of mediation or deliberation	Avoid escalation to legal channels
FA3	Social Justice and Recognition of Rights	Are indigenous peoples, peasants, and vulnerable groups recognized and accommodated?	Local data is often overlooked in formal judgments.
FA4	Active Community Participation	Community involvement in all stages of conflict resolution	Ensuring that field data is aligned with the aspirations of residents
FA5	Institutional Integration	Ability to integrate the roles of BPN, local governments, local leaders, and communities	Bringing formal data and social narratives together

The success of implementing the land conflict management model is highly dependent on the roles of the actors involved. The first actor is ATR/BPN (AK1), which has formal authority in providing spatial data such as HGU, thematic land maps, and RTRW maps. ATR/BPN also plays a role in the legalization process and issuance of certificates. In this model, ATR/BPN is expected to be more open and collaborative in granting data access and willing to coordinate across sectors and scales with local actors. This openness is not only important from an institutional perspective but also has economic implications, as timely and accurate data reduce transaction costs and conflict risks.
The second actor is DUKCAPIL (AK2), which plays a key role in authenticating legal subjects in land conflicts. DUKCAPIL data is used to verify the identities of landowners, heirs, and cultivators, including the validity of family relationships. In practice, many conflicts arise due to identity forgery, double claims by heirs, or unclear resident status. DUKCAPIL's involvement in verification facilitates mediation, prevents inheritance disputes, and strengthens the legitimacy of non-litigation decisions. Institutionally, this role supports legal certainty, which forms the foundation for economic stability and investment in the land sector.
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Indigenous peoples, farmers, and local leaders (AK3) are the third actors who maintain data on direct experiences and land tenure history. They are not only parties to the conflict but also custodians of historical narratives that are often more accurate than administrative data. Their involvement in this model is not only as decision-makers but as active partners in the processes of verification, validation, and agreement formulation. The active participation of this group also underpins social justice in conflict resolution while supporting local economic sustainability through clear recognition of property rights.
The fourth actors are NGOs and civil society organizations (AK4), who play important roles as facilitators, independent monitors, and advocates for the rights of vulnerable communities. NGOs bridge formal actors and the community, educate citizens about their rights, and ensure that mediation processes are unbiased toward power holders. The extensive experience of NGOs in agrarian advocacy also strengthens the position of indigenous peoples or farmers in the face of dominance by state institutions or corporations. From both institutional and economic perspectives, this role enhances accountability and transparency, thereby reducing conflict risks and creating a more stable investment environment.

Academics and land researchers (AK5) are the fifth actors who provide the knowledge base and scientific methodology in formulating solutions. They contribute to the design of spatial data systems, conflict map analysis, and the development of evidence-based mediation models. The role of academics is crucial in ensuring that approaches are not only pragmatic but also replicable, evaluable, and scalable into public policy. The relationships among these actors should be built on a framework of collaboration rather than competition. When their roles are harmoniously executed, land conflict resolution can proceed inclusively, purposefully, and effectively, while also delivering positive economic impacts and strengthening institutional capacity in land resource management. Table 5 briefly presents the actors that play a role in the implementation strategy of the land conflict management model.

Table 5: Level 2 (Actor)

Code	Actor	Role
AK1	ATR/BPN	Official spatial data providers (HGU, Thematic Maps, RTRW)
AK2	DUKCAPIL	Source of validity of legal subjects and inheritance of ownership
AK3	Indigenous Peoples, Local Leaders	Owners of experience and history of conflict
AK4	NGOs and Agrarian Organizations	Guardian of the mediation process and advocate of justice
AK5	Academics and Land Researchers	Data processors, builders of evidence-based alternative models

A generic data-driven non-litigation land conflict management model is designed to address long-term strategic needs, not merely resolve cases individually. The first strategic goal is to verify claims using DUKCAPIL and RTRW (TU1) data. Many land conflicts arise from overlapping or unvalidated claims, both in terms of subjects (who claims) and objects (land claimed). Population data from DUKCAPIL confirms the legitimacy of claimants, while spatial maps (RTRW) clarify the legal status and functional designation of land. Accurate verification not only prevents new disputes but also reduces transaction costs and economic inefficiencies by providing legal certainty, which is essential for investment and land-based development.

The second strategic goal is to strengthen public trust in the peace mechanism (TU2). Trust is a critical factor in effective mediation. When the public perceives the process as fair, transparent, and evidence-based, compliance with the outcomes increases. Conversely, processes dominated solely by formal actors without citizen participation risk rejection or contestation of agreements. By grounding dialogue in reliable data and empowering neutral facilitators, this model enhances social legitimacy, which in turn stabilizes economic interactions and reinforces institutional credibility in land governance.

Another strategic goal is data-integration (TU3)-based institutional reform. Currently, land governance remains fragmented across institutions: ATR/BPN, DUKCAPIL, regional governments, and sectoral ministries maintain separate databases that are not always synchronized. Integrating generic data serves as the entry point for more collaborative institutional reform. This reform goes beyond information systems, encompassing work procedures, actor roles, and the division of authority in decision-making. Economically, integrated institutions reduce duplication and inefficiencies, enabling more effective allocation of resources and support for land-related investments.

The implementation of this model supports the national agenda on agrarian reform and spatial planning. A data-driven, efficient, and inclusive conflict resolution system equips the country to address ownership inequalities, recognize customary rights, and manage strategic projects that impact citizens' living spaces. Aligning with sustainable development principles, the model ensures intergenerational justice while respecting constitutional rights. By integrating verification, trust-building, and institutional reform, these strategic objectives create a framework for fair, transparent, and sustainable land governance. Beyond technical conflict resolution, this model functions as a tool for social transformation and institutional strengthening, with clear economic and governance benefits. A summary of strategic objectives as presented in Table 6.

Table 6: Level 3. (Strategic Objectives)

Code	Purpose
TU1	Verify claims based on DUKCAPIL and RTRW.
TU2	Strengthening public trust in the peace mechanism
TU3	Data-driven institutional reform

In its implementation, this model provides three scenarios of non-litigation strategies as an adaptive approach to conflict dynamics in different regions. The first scenario is the Customary or Community Forum (SC1). This model prioritizes local wisdom as a basis for settlement, especially for areas with the dominance of indigenous peoples or local communities that are not fully recorded in the formal system. Customary forums have a deliberation mechanism, a local story-based proof system, and social institutions that are recognized by the community. Although not entirely legal or formal, customary forum decisions are often more obeyed by the community. By strengthening the documentation of the deliberations, this forum can be recognized as part of a peaceful solution within the national legal framework.

The second scenario is the Spatially-Based Participatory Model (SC2). In this approach, the community, together with land institutions such as ATR/BPN carry out the process of overlaying claim maps, RTRW, and HGU. This process takes place collaboratively, and the result is not only in the form of social agreements but also conflict mapping that can be used as an official reference. This model has proven effective in some regions, such as West Sumatra and Central Kalimantan, especially in the recognition of customary territories or participatory agrarian reform.

The third scenario is the Institutional Hybrid Model (SC3), which is a combination of formal and informal approaches. In this model, all actors are actively involved: governments, NGOs, indigenous leaders, and academics. This process is carried out in systematic stages: starting from clarification of DUKCAPIL data, spatial overlay, social verification, and mediation or deliberation decisions. This approach is suitable for complex conflicts involving many parties and overlapping legal, customary, and historical claims. Although longer, the results tend to be more stable and sustainable.

These three scenarios are flexible and can be applied according to the local context, institutional capacity, and the character of the conflict. There is no one-size-fits-all approach. It is precisely this flexibility that allows the non-litigation process to develop in accordance with local values, regional political dynamics, and available data. The most important thing is to make generic data an objective tool that strengthens the dialogue process and builds trust between parties.

This whole scenario shows that the resolution of land conflicts does not have to reach the green table. With a systematic, data-driven, and participatory approach, peaceful settlements can be realized at the grassroots, with the support and recognition of the formal system. This model is the answer to the country's need to build adaptive, inclusive, and resilient agrarian justice. Table 7 presents a summary of the scenarios of a land conflict management model with generic data optimization.

Table 7: Level 4 (Scenario)

Code	Skenario	Description
SC1	Indigenous or Community Forums	Customary deliberation-based settlement mechanism, with proof based on community documents
SC2	Spatially-Based Participatory Model	A collaborative process between the community and BPN to reconstruct land claims using RTRW-HGU overlays
SC3	Institutional Hybrid Model (Multi-Actor)	A combination of formal actors (BPN, DUKCAPIL) and non-formal actors (traditional leaders, NGOs) with a conflict mapping system

Figure 7 is a hierarchy diagram of the strategy of the land conflict management model by optimizing generic data. This model represents the hierarchical and systematic structure of the implementation strategy of non-litigation land conflict resolution based on the optimization of generic data, especially population data from DUKCAPIL and spatial planning from RTRW. This hierarchy forms 4 main levels: Factors, Actors, and Strategy Objectives, which are vertically and functionally related to each other.

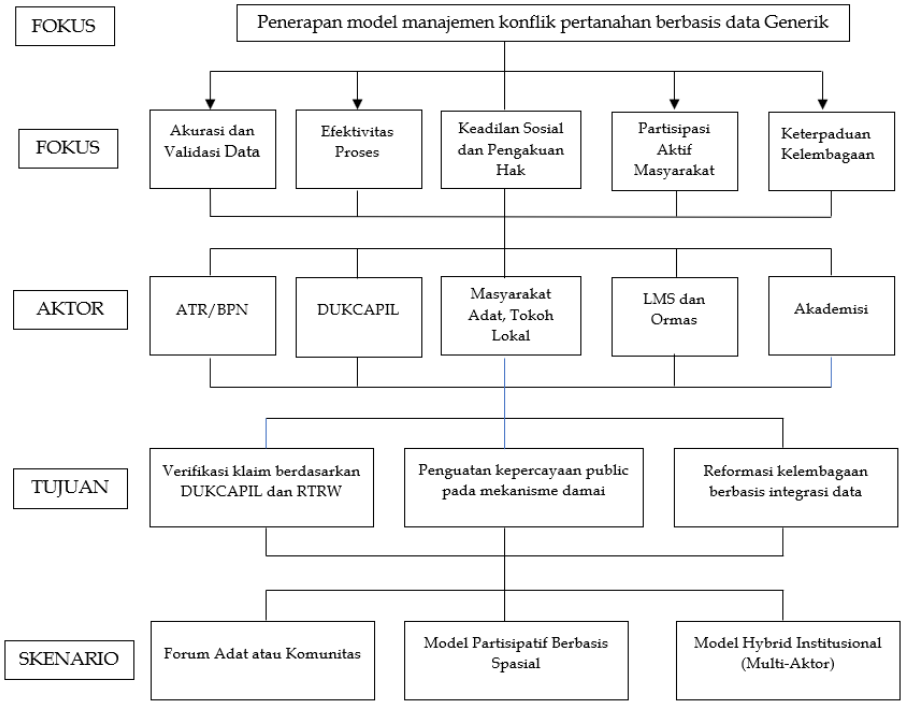

Fig. 7: Hierarchy of Strategies for Land Conflict Management Models.

The highest level is the "Factor," which is the foundational element influencing the entire system. The five main factors are: data, effectiveness, fairness, participation, and institutions. These factors are key determinants that must first be strengthened to create a conducive climate for land-conflict resolution. Without data accuracy, the system is fundamentally flawed from the outset. Without effectiveness and justice, public trust erodes. Without institutional participation and integration, conflicts may easily recur. This hierarchical approach mirrors global best practices: for instance, community land-governance programs in Africa emphasize that institutional recognition of customary tenure backed by reliable data and governance frameworks is essential for long-term tenure security (Ndugwa & Omusula, 2025).

At the second level are the "Actors," those who directly implement the principles and values defined at the factor level. In your model, these include ATR/BPN, DUKCAPIL, the community, NGOs, and academics, each representing horizontal nodes of power with different mandates, data sources, and socio-political capacities. ATR/BPN and DUKCAPIL provide administrative authority and formal data; communities carry historical legitimacy; NGOs oversee inclusivity and justice; academics contribute evidence-based analysis. The interaction among actors forms a vital bridge between abstract principles (factors) and concrete actions (goals and scenarios). This mirrors participatory governance architectures elsewhere: for example, frameworks using participatory GIS (PGIS) for customary-land conflict resolution have been successfully implemented in Sub-Saharan Africa, where collaboration between communities, technical experts, and state institutions has helped reconcile informal customary claims with formal cadastral systems (Marondedze et al., 2024).

The third level is "Strategic Objectives," representing three major achievements of model implementation: data-driven claims verification, strengthening public trust, and institutional reform. These objectives are not merely technical indicators of success but reflect a deeper transformation of agrarian governance toward social justice and institutional efficiency. In global land-governance reforms, for example, under the programs documented by the Rights and Resources Initiative (RRI), similar goals have paved the way for clearer recognition of community-held lands, formalization of tenure rights, and improved livelihoods (Syaban & Appiah-Oppoku, 2024). Thus, the model aims not just to resolve existing conflicts, but to prevent new ones and transform land relations into just, stable, and inclusive systems.

Finally, at the base is the "Scenario," which represents the contextually adaptive derivatives of the values, actors, and objectives. The three scenarios, customary or community forums, spatial participatory models, and institutional hybrid models, are flexible execution paths depending on local contexts. Each scenario uses common tools: validated data, community participation, and institutional cohesion. This adaptive, context-sensitive design is informed by successful global examples: participatory mapping initiatives in countries like Benin, Sierra Leone, and Cameroon have shown that hybrid models combining community knowledge, NGO facilitation, and formal recognition can yield durable land governance outcomes even in heterogeneous tenure contexts (Lindner et al., 2023).

This hierarchical structure illustrates that land-conflict resolution is not the work of a single institution, a top-down approach, or a purely technocratic process. Rather, it is a socially complex system that must be approached holistically and gradually. As shown by international practices, reinforcing foundational factors (data, fairness, institutions) improves actor performance; integrating actors facilitates the achievement of strategic goals; and goals can only produce meaningful change if the selected scenario can be executed with flexibility.

Thus, this model becomes not just a technical instrument, but a strategic, evidence-based framework connecting agrarian policy, human rights, information systems, and mediation practices into one sustainable, inclusive, and globally informed conflict-resolution ecosystem.

14. Conclusion

This study confirms that land conflicts characterized by overlapping claims, weak historical administration, disharmonization of data and authority between institutions, and the lack of non-litigation mechanisms are still recurring and high-risk, as illustrated in various cases in Jambi Province (e.g., PT. Kaswari Unggul, PT. DAS, PT. FPIL). The integration of population data (DUKCAPIL) and spatial planning (RTRW) has proven to be crucial to verify the subject and object of dispute, accelerate clarification, and become the basis for peaceful decisions, such as enclaves, benefit sharing, and 20% partnership grants that are in line with regulations. This approach simultaneously closes the gap in claims manipulation, reduces social tensions, and bridges the gap between formal legality and social legitimacy. With the framework of the Soft System Methodology (SSM) and the formulation of priorities through the AHP, the research designed a non-litigation conflict management model based on five key factors (data accuracy, process effectiveness, social justice/recognition of rights, community participation, and institutional integration), involving core actors (ATR/BPN, DUKCAPIL, communities/indigenous leaders, NGOs, academics), and setting three strategic objectives (data-based claim verification, strengthening public trust, and institutional reform through data integration). Three customary/community forum implementation scenarios, a spatial-based participatory model (RTRW-HGU-claim overlay), and a multi-actor hybrid model provide an adaptive execution path to the local context, while reducing the probability of conflict recurrence.

In practical terms, this study recommends: (1) national standardization of subject-object verification based on DUKCAPIL-RTRW and historical documentation; (2) the establishment of an independent mediation unit at the provincial level with cross-data access and socio-legal facilitation capacity; (3) inter-agency data interoperability (ATR/BPN, DUKCAPIL, KLHK, local governments) along with periodic land audits; (4) strengthening the recognition of customary rights and citizen participation in mapping and agreement formulation; (5) Acceleration of the execution of court decisions only for cases that have failed to be mediated. The limitations of the Jambi-focused regional coverage study and the number of selected cases opened up a cross-provincial controlled trial space to measure the impact of the model (duration of settlement, cost, post-agreement compliance, and public trust) so that it could be mainstreamed into agrarian reform policies and national spatial planning.

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