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**THE EFFECTIVENESS OF THE IMPLEMENTATION OF LAW NUMBER 41
OF 2009 CONCERNING THE PROTECTION OF SUSTAINABLE FOOD
AGRICULTURAL LAND IN BIMA DISTRICT**

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ABSTRACT

This study aims to determine the effectiveness of the implementation of Law No. 41/2009 on the Protection of Sustainable Food Agricultural Land in Bima Regency, analyze the factors faced by the government in the implementation of the protection of sustainable food agricultural land, and identify efforts to overcome them. This research is an empirical legal research using a statutory approach, a historical approach, and a sociological approach. Sustainable Food Agricultural Land is regulated in Article 1 Paragraph (3) of Law No. 41/2009 on the Protection of Sustainable Food Agricultural Land, which reads “Sustainable Food Agricultural Land is an area of agricultural land that is determined to be protected and developed consistently to produce staple food for national food independence, security, and sovereignty”. The Bima District Government faces various challenges in the implementation of Sustainable Food Agricultural Land Protection (LP2B). Although there is a strong legal basis at the national level, such as Law No. 41/2009, until now, there has been no specific Regional Regulation (Perda) that explicitly regulates LP2B at the local level. The effectiveness of LP2B protection implementation in the Bima District is still relatively low.

Keywords: Effectiveness, Implementation of Law, Protection of Sustainable Food Agricultural Land

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1. INTRODUCTION

Land is one of the important natural resources for the survival of mankind. Human life is largely dependent on land, both for livelihoods, clothing, shelter, food, and other religious needs. The reality in society is that people will always try to defend an inch of their land (Handari, 2012). Another definition of land was put forward by Maria R. Ruwiasuti. Land is "An area of economic potential that can support human groups (it can be forests, rivers, mountains, mineral sources, and agricultural lands) and is lived on as the cultural base of the community concerned (Ruwiasuti in Hamdani & Fauzia, 2024).

Sustainable Food Agricultural Land is an area of agricultural land that is determined to be protected and developed consistently to produce staple food for national food independence, security, and sovereignty. Sustainable Food Agricultural Land is regulated in Article 1 Paragraph (3) of Law No. 41/2009 on the Protection of Sustainable Food Agricultural Land which reads: "Sustainable Food Agricultural Land is an area of agricultural land that is determined to be protected and developed consistently to produce staple food for national food independence, resilience, and sovereignty."

Sustainable Food Agricultural Land is Explained in Article 1 Paragraph (3) of Government Regulation of the Republic of Indonesia Number 1 of 2011 concerning the Determination and Change of Function of Sustainable Food Agricultural Land which reads: "Sustainable Food Agricultural Land is an area of agricultural land that is determined to be protected and developed consistently to produce staple food for national food independence, security and sovereignty."

Paddy Fields are explained in Article 1 Paragraph (1) of Presidential Regulation of the Republic of Indonesia Number 59 of 2019 concerning Control of Paddy Field Conversion, which reads: "Paddy Fields are areas of wet and/or dry agricultural land that are inundated with water periodically and/or continuously planted with rice and/or interspersed with other seasonal crops."

Paddy Fields are explained in Article 1 Paragraph (1) of the Regulation of the Minister of Agrarian Affairs and Spatial Planning/Head of the National Land Agency of

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the Republic of Indonesia Number 2 of 2024 concerning Procedures for Implementing Verification of Paddy Field Data Against Land and Spatial Data, Determination of Protected Paddy Field Maps, and Providing Recommendations for Changes in Land Use on Protected Paddy Fields, which reads: "Rice Fields are areas of wet and/or dry agricultural land that are inundated with water periodically and/or continuously planted with rice and/or interspersed with other seasonal crops."

Agriculture is explained in Article 1 Paragraph (10) of the Regional Regulation of Bima Regency Number 3 of 2024 concerning Protection and Empowerment of Farmers which reads: "Agriculture is the activity of managing biological natural resources with the help of technology, capital, labor, and management to produce agricultural commodities which include food crops, horticulture, and/or plantations in an agroecosystem."

Moreover, food also holds an important and strategic policy in Indonesia based on the influence it has socially, economically, and politically. However, food security, independence, and sovereignty face serious problems because the availability of food agricultural land that is converted to non-agricultural land continues to decrease. This problem requires the State, namely the Government and Regional Governments, to implement policies to protect food agricultural land so that the availability of food agricultural land can be maintained to fulfill the needs of the right to food (Suranta, 2011).

Land conversion according to Law No. 41/2009 on the protection of sustainable food agricultural land, Article 1 Paragraph (15) explains that: "The conversion of sustainable food agricultural land is a change in the function of sustainable food agricultural land into non-sustainable food agricultural land either permanently or temporarily." The conversion of paddy fields itself will certainly have an impact, both good and bad, in the future.

Broadly speaking, this land conversion will certainly disrupt the availability of food for the community. In its own small scope, land conversion can result in farmers losing their jobs. Farmers who were previously able to fulfill their own rice needs now have to

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buy it. In addition, farmers no longer have jobs, which will result in an unstable economy in the area. Land conversion has long been a problem, especially in the Bima District.

Based on the results of the author's interview with the head of the Bima Regency agriculture office, Mr. Taufik, S.T., M.T., stated that the Sustainable Agricultural Food Land (LP2B) in 2025 is 32,164.14 Ha. One of the main challenges faced is land conversion, which can hurt food production, and the conversion of agricultural land can significantly reduce food production, which has an impact on regional food security in Bima Regency (Taufik, 2025).

Efforts to protect sustainable food agricultural land, commonly abbreviated as LP2B, have a very significant correlation with the issue of food security, making the issue of LP2B important to be prioritized. The agricultural sector is a leading sector in Indonesia; this sector is able to contribute considerable income to the national economy. However, the most fundamental problem of this agricultural sector is the shrinking of agricultural land due to land conversion.

LP2B (Protection of Sustainable Food Agricultural Land) can be defined as a system and process in planning and establishing, developing, utilizing and fostering, controlling, and supervising food agricultural land and its area in a sustainable manner (Soetoprawiro, 2013). Building food security and self-reliance is an effort to implement the responsibilities and obligations of the State in achieving the State's goals for the welfare of the people and the fulfillment of food as a human right (Kusniati, 2013).

Protection of Sustainable Food Agricultural Land is regulated in Article 1 Paragraph (5) of Law No. 41/2009 on the Protection of Sustainable Food Agricultural Land which reads: "Protection of Sustainable Food Agricultural Land is a system and process in planning and establishing, developing, utilizing and fostering, controlling, and supervising sustainable food agricultural land and its areas."

These provisions for the protection of sustainable food agricultural land will be in place so that certain parcels of land can only be used for appropriate food agricultural activities (Nurmala et al., 2012). Not to mention the potential for conversion of paddy

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fields as a result of the implementation of regional spatial plans, hereinafter referred to as RTRW, by district/city governments that are less favorable to agriculture. The rapid conversion of agricultural land into non-agricultural land can affect various aspects of life, including:

- a. Declining food production that threatens food security;
- b. Loss of farmers' livelihoods and may affect, and
- c. Loss of investment in agricultural infrastructure (irrigation) is very costly.

The above problems occur where many agricultural lands have been converted into settlements or other buildings. This also encourages the author to conduct further studies as outlined in a scientific paper entitled "The Effectiveness of the Implementation of Law Number 41 of 2009 Concerning the Protection of Sustainable Food Agricultural Land in Bima Regency."

2. RESEARCH METHODS

The type of research used in this research is empirical legal research. Empirical legal research is one type of legal research that analyzes and examines the operation of law in society (Muhaimin, 2020). Salim HS and Erlies Septiana Nurbaini describe empirical legal research as "legal research that examines and analyzes the legal behavior of individuals or communities about the law, and the data sources used come from primary data" (HS & Nursyahbani, 2019).

Abdulkadir Muhammad explained that "Empirical legal research does not depart from written positive law (legislation) as secondary data, but from real behavior as primary data obtained from field research locations (field research). This real behavior lives and develops freely in line with the needs of society, some in the form of court decisions or the form of customary habits" (Muhammad, 2004).

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3. DISCUSSION

The effectiveness of the implementation of the Protection of Sustainable Food Agricultural Land (PLP2B) policy in Bima District is determined by the synergy between accurate spatial mapping, institutional strengthening, and cross-sector coordination that is responsive to local dynamics. In the context of a region experiencing high land conversion pressure, such as Bima, the implementation of PLP2B must depart from an in-depth understanding of the agrarian, socio-economic, and development pressures that occur in the field. The available regulatory and administrative instruments are not enough if they are not matched by political commitment, community participation, and adaptive and collaborative governance.

a. Mapping and Determination of LP2B Land

The mapping and determination of Sustainable Food Agricultural Land (LP2B) is the main foundation in the implementation of the Sustainable Food Agricultural Land Protection (PLP2B) policy. In Bima District, this effort has been initiated through collaboration between agencies, particularly Bappeda, the Agriculture Office, and the ATR/BPN Office, with the support of geographic information system (GIS) technology, satellite imagery, and drone-based mapping tools for remote areas.

The rate of agricultural land conversion in Bima Regency is alarming. Based on the Bappeda 2023 report, the conversion rate reached 2.5% per year, with the highest trend occurring in urbanized areas such as Kecamatan Woha, Monta, and Bolo. Demand for land for settlements, public facilities, and non-agricultural economic activities continues to increase in line with population growth and post-pandemic economic activity. This is exacerbated by weak spatial monitoring and inconsistencies between sectoral development plans and agricultural land protection. Therefore, the integration of LP2B data into RTRW and Detailed Spatial Planning (RDTR) documents is an urgent step to avoid overlaps or conflicts between land use zones (Bima, 2024).

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To improve data accuracy and legitimacy, the Bima District Government should now develop a community-based participatory mapping approach, involving farmer groups, village heads, and local community leaders in the field verification process (A. Y. Putri et al., 2024). This initiative not only strengthens spatial validity but also fosters a sense of social ownership of the PLP2B policy. In practice, local farmers provide factual information on land boundaries, usage history, and irrigation access, which is often missing from conventional satellite imagery-based mapping. In addition, this approach has the potential to reduce agrarian conflicts because it strengthens the social legitimacy of the mapping results.

In its development, LP2B mapping in Bima also began to accommodate ecological dimensions and long-term food security. Aspects such as soil fertility, water availability, disaster frequency, and agricultural infrastructure connectivity are used as criteria in the classification of priority land for protection. This step is by the direction of the Ministry of Agriculture, which emphasizes the importance of ecosystem carrying capacity in LP2B conservation (Mulyani et al., 2020). For example, land with access to technical irrigation is prioritized because its productivity is more stable than rainfed land. This strategy aims to ensure that LP2B is not only administratively protected but also truly capable of sustaining regional food security in the long term.

However, implementation in the field still faces various technical and social challenges. One of them is the limited number of human resources at the sub-district and village levels who understand GIS-based mapping techniques, so the verification process still relies on external consultants or partner universities. In addition, there is still resistance from some communities who believe that LP2B status will hinder the possibility of selling or converting their land to the non-agricultural sector. In this context, public education and incentives for farmers who maintain their agricultural land are important to maintain the sustainability of the policy.

The limited regional budget also affected the quality and scope of LP2B mapping. Not all sub-districts in Bima District have been prioritized in the

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comprehensive mapping process. Areas with high agrarian conflict or uncertified land status are often left behind in the mapping process. To overcome this, the local government needs to expand cooperation with donor agencies, NGOs, and universities in developing geospatial information systems that are cheap, open, and easily accessible across sectors. The implementation of digital platforms based on open data can also encourage transparency and public participation in monitoring land protection.

Given these dynamics, institutional strengthening, regular data updates, and integration across information systems are key to improving the effectiveness of LP2B mapping and determination in the Bima District. The local government needs to ensure that LP2B data is not only used for planning documents, but also as the basis for strategic decision-making, such as issuing development permits and evaluating the performance of regional apparatus. Thus, the implementation of LP2B can be a real instrument in maintaining food sustainability, the environment, and the welfare of farmers in Bima.

b. Improved Institutional Capacity and Cross-sector Coordination

The implementation of Sustainable Food Agricultural Land Protection (PLP2B) in Bima District has shown normative progress, but still faces substantive challenges at the institutional level and cross-sector coordination. The local government has indeed established a cross-sectoral task force involving the Agriculture Office, Environment Office, ATR/BPN, and sub-district governments. However, according to the NTB Regional Research Council 2023 report, this task force has not functioned optimally due to the absence of integrated standard operating procedures (SOPs) and the lack of a sustainable formal coordination platform. This has a direct impact on data incoherence, overlapping policies, and weak monitoring of land conversion.

One of the major challenges in implementing PLP2B is the unavailability of a land and land use information system that is interconnected between agencies. Monitoring of land use change is still done manually and sporadically, causing a lag

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in policy response. In response to this, Bappeda Bima District in 2024 began developing a digital platform based on a spatial dashboard as part of the smart agriculture initiative. This dashboard integrates LP2B data, land legal status, and satellite imagery related to land conversion regularly, in collaboration with Mataram University and a funding program from GIZ. This technology is expected to be the foundation for evidence-based policy making.

Furthermore, the success of PLP2B is greatly influenced by the technical and coordinative capacity of the Regional Apparatus Organization (OPD). The Department of Agriculture, as the lead institution, has organized training programs for extension workers and farmers on sustainable agricultural practices, adopting agroecological and precision farming approaches (Nurhayati, 2022). However, the limited number of extension workers and the low digital literacy of farmers are real obstacles in the field. On the other hand, the Environmental Agency strives to keep LP2B protection in line with the climate change mitigation agenda, especially in restraining the rate of soil degradation and deforestation of buffer zones.

However, there is a gap between the program design at the district level and its implementation at the sub-district and village levels. Village heads and sub-district heads, although strategically positioned to reach out to communities, lack the legal authority and technical support to intervene in land conversion, which is often private. In Komnas HAM's 2023 report, it was found that land conflicts in the southern coastal area of Bima are increasing, along with a surge in non-agricultural investments such as ponds and tourism, without any real protection for productive rice fields around the zone.

The involvement of non-state actors such as NGOs and local communities has so far been sporadic. NGOs such as Yayasan Tanah Air Kita and Forum Petani Mandiri have conducted education and advocacy on land protection, but have not been integrated into local policies. To strengthen this collaboration, a network governance approach is a strategic solution, which is a governance model that connects

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government, communities, academics, and the private sector in a collaborative ecosystem (Heryanto & Nugraha, 2024). Formal MoUs, participatory budget support, and involvement in regional planning forums need to be systematically developed.

In addition, national trends show that the success of PLP2B is strongly influenced by the political will of regional heads and the consistency of spatial planning. A study by the Ministry of ATR/BPN (2023) shows that only 29% of districts/cities in Indonesia have established LP2B local regulations that are synchronized with the RTRW. Bima District currently does not have a stand-alone LP2B local regulation, but is only regulated in a limited way in the RPJMD and RTRW documents. The absence of this local regulation causes the legal position of LP2B protection to be weak when dealing with investment interests that have greater political-economic power (Nasional, 2021).

Therefore, the effectiveness of PLP2B implementation in Bima District in the future needs to be directed at three main things: (1) strengthening regulations through the establishment of LP2B local regulations that are harmonious with the RTRW and Law No. 41/2009; (2) developing a digital-based land information system that can be accessed by the public and across sectors; and (3) strengthening institutions through fixed coordination mechanisms, involving non-state actors, and increasing the technical capacity of village officials. These three strategies will provide a solid foundation for LP2B preservation and long-term food security in Bima District, especially in the face of climate change challenges and global economic pressures.

c. Strengthening Public Participation and Participatory Supervision

The active involvement of the community in the policy of protecting Sustainable Food Agricultural Land (LP2B) is an important prerequisite for the creation of inclusive and sustainable land governance. Community participation is not only a normative aspect of policy democratization but also a practical instrument in ensuring the effectiveness of implementation (Kusuma, T., & Lestari, 2023). In the context of Bima Regency, the involvement of farmer groups, local NGOs, and community leaders

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has a strategic role in forming a participatory monitoring network that is not only reactive to violations but also proactive in maintaining commitment to sustainability (Hidayati & Sulaiman, 2023).

Farmer groups, as the main actors in the local agricultural ecosystem, have social and epistemic authority in identifying threats to agricultural land. Local knowledge possessed by farmers based on cross-generational farming experience is useful in providing substantive input to the formulation and evaluation of LP2B protection policies. Conversely, local NGOs act as a liaison between the community and local government, bridging the aspirations of citizens and supporting community capacity building in understanding policy dynamics. The presence of NGOs strengthens participatory structures through training, policy dialogue facilitation, and assistance in the agrarian advocacy process (Prabowo & dkk, 2022).

Community leaders also play an important symbolic and operational role. Their social legitimacy can be used to strengthen policy acceptance by citizens and build bridges of trust between the government and the community. When people feel involved in decision-making, the level of compliance with policies increases significantly. A sense of ownership of the LP2B policy has proven to be an important determinant in strengthening social monitoring of land conversion practices that violate the LP2B policy.

Furthermore, public involvement in participatory oversight has a direct impact on increasing compliance with land protection regulations. There is a positive relationship between participation in the budget planning process and increased effectiveness of performance monitoring (Rohmadiani et al., 2023). In the LP2B framework, a similar logic can be applied: community-based monitoring enables early detection of indications of illegal conversion, as well as creating social pressure on actors who potentially violate regulations. This strategy requires systematic support in the form of training, open reporting mechanisms, and incentives for reporting communities (Nugroho, 2017).

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Local governments need to design a comprehensive and adaptive LP2B policy, education, and socialization strategy. Sustainable education not only targets normative understanding of the policy, but also strengthens the ecological and economic literacy of the community on the importance of maintaining the ecological function of agricultural land. Jayanti highlighted the importance of open meetings and public discussions in building a policy narrative that is widely accepted by citizens. This strategy needs to reach out to young farmers and farm women, groups that are often marginalized from the decision-making process.

Policy socialization should also adopt a digital approach in response to the changing communication patterns of the community. In this case, the use of digital technologies such as GIS-based applications, local social media, and online reporting systems can expand the reach of information and accelerate the collection of feedback from the field. Initiatives such as digital forums for farming communities or public dashboards for real-time LP2B monitoring can support the principles of transparency and accountability (Djarmiko et al., 2019).

Overall, strengthening public participation and participatory monitoring in the protection of LP2B in Bima District should be seen as a long-term strategy in developing equitable and sustainable agrarian governance. A collaborative approach involving all levels of society, supported by an adaptive communication system and responsive regulatory tools, will be an important foundation in maintaining the existence of agricultural land from the increasing threat of conversion (Sinuraya, 2021).

d. Integration of Technology in Monitoring and Evaluation

The integration of technology in the monitoring and evaluation system is an increasingly inevitable strategic pillar in order to strengthen the effectiveness of the implementation of Law No. 41/2009 on the Protection of Sustainable Food Agricultural Land (PLP2B). In the context of Bima District, digital transformation has begun to play an important role in addressing the complex challenges faced in

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conserving agricultural land, including conversion pressures, data fragmentation, and institutional capacity limitations. Technology-based approaches such as Geographic Information Systems (GIS), drones, high-resolution satellite imagery, and interactive spatial dashboards have enabled the monitoring process to not only be conducted more efficiently, but also predictively and adaptively. These technologies contribute to the transition of decision-making from a reactive to a proactive, evidence-based approach, where land use dynamics can be assessed and responded to promptly (Fhonna Y., Zulfan, Z., Aqmal, J., Abadi, S., 2023).

The role of GIS is very prominent in the development of LP2B spatial information systems that are able to integrate various types of data, both geospatial and socio-economic attributes, into an integrated analytical framework. Through GIS, local governments are able to map actual land cover, identify priority protection areas, and detect land conversion trends based on historical data and future projections. In practice in Bima District, this technology has supported the development of thematic maps such as conversion vulnerability maps, land productivity potential maps, and layered protection zoning maps based on land suitability classes (Laka, 2017). Furthermore, when GIS is combined with longitudinal data, the results are not only descriptive but also analytical and predictive, allowing policy interventions to be directed with greater precision (Marsuhandi, 2020).

In addition to GIS, the use of drones and satellite imagery has opened up a new horizon in field surveillance that is real-time, accurate, and cost-efficient compared to conventional manual surveys. Drones equipped with multispectral sensors and high-resolution cameras can provide detailed information on vegetation health, soil moisture levels, and early detection of symptoms of crop stress or damage from pests and diseases. This data is particularly important in the context of Bima, which is vulnerable to climate variability and ecosystem degradation due to land use change (Nina, 2023). Meanwhile, high-resolution satellite imagery from both commercial and open-source platforms, such as Sentinel and Landsat, enables monitoring of landscape

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dynamics over a wider spatial coverage and periodically. Their integration results in data triangulation that strengthens the validity of information on the ground, as well as accelerates the verification process and administrative response to suspected violations or illegal conversions (Siregar & Sugianto, 2024).

In line with these developments, the next significant innovation is the development of a spatially-based monitoring dashboard that consolidates all data from GIS, drones, and satellites into one interactive platform. This dashboard not only serves as a visualization tool for decision-makers, but also as an effective policy communication instrument to the public. In the dashboard, land conversion trends, zoning compliance status, and land use sustainability indicators can be displayed in real-time, enabling a more open and accountable evaluation process. The Bima District Government is currently in the early stages of developing this system through collaboration with technical agencies and spatial application developer partners, geared not only for internal monitoring, but also for strengthening transparency and community participation in community-based monitoring (Heryanto & Nugraha, 2024).

However, the success of this technology integration is not only determined by the sophistication of the tools but also by the existence of a supportive institutional ecosystem. This is where collaborative research and the development of longitudinal analysis as an integral part of the monitoring system are important. Local governments need to establish close partnerships with universities, research institutions, and non-governmental organizations to build a long-term database system that can capture the dynamics of land use change over time. This longitudinal data is the foundation for evaluating the effectiveness of policies that have been implemented, identifying patterns or anomalies that occur, and formulating strategies that are more adaptive to the challenges of systemic and recurring land conversion.

In the long term, such longitudinal analysis also serves as an institutional learning tool that enables continuous reflection and policy improvement. For example,

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by examining conversion trends over the past decade, local governments can identify the times and locations most vulnerable to conversion pressures, as well as map the main actors involved in these dynamics. The results can be used to develop sharper policy scenarios, including adjustments to technical regulations, strengthening administrative sanctions, or increasing monitoring capacity in hotspots (R. Prasada & Priyanto, 2020). Furthermore, the spatial and longitudinal data system also enables cross-district benchmarking, so that Bima can learn from the good practices of other regions that have managed to significantly reduce conversion rates (Suroso, 2022).

Thus, the integration of technology in the PLP2B monitoring and evaluation system not only strengthens the technical dimension of supervision but also enriches strategic and institutional capacity in facing the increasingly complex threat of land conversion. In an era where data is the foundation of decision-making, Bima District has a great opportunity to take advantage of this digitalization momentum to build a more resilient, participatory, and evidence-based land protection system. Adaptive regulatory support, synergistic inter-agency collaboration, as well as investment in digital literacy and strengthening human resource capacity, will be key to the success of this transformation going forward.

e. Schemes of Incentives, Disincentives, and Financial Support for LP2B Protection in Bima District

Protection of Sustainable Food Agricultural Land (LP2B) cannot only rely on coercive regulatory and administrative approaches, but must also integrate comprehensive economic and institutional strategies. In the context of Bima District, the challenge of land conversion is increasingly complex due to the pressure of infrastructure development, housing needs, and the dynamics of an increasingly lucrative land market. Therefore, the application of incentive and disincentive schemes is very important as a policy instrument that is not only reactive, but also able to proactively shape the behavior of farmers and other stakeholders to be oriented towards the preservation of agricultural land.

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Incentives, both fiscal and non-fiscal, have become a key strategy in various agrarian and agricultural policies in many countries, including Indonesia. In this case, the Bima District government can adopt a similar approach, providing fiscal incentives such as reduction or exemption of land and building tax for productive agricultural land, subsidies for fertilizers and superior seeds, as well as grant support or direct cash assistance for the purchase of modern agricultural tools and machinery. Such policies not only serve as compensation for the low financial returns from the agricultural sector but also as a form of positive incentive that can increase the competitiveness of local farming businesses (Juanda, 2021).

Appropriately designed fiscal incentives based on farmers' real needs can significantly increase productivity and reduce the potential for land conversion (Heryanto A., 2024). In the regional policy framework, this approach can be strengthened through the allocation of regional budgets for training and mentoring programs for farmers in the use of precision agricultural technology, the use of organic fertilizers, and environmentally friendly cultivation techniques. Thus, fiscal incentives are not just an economic instrument, but also a tangible manifestation of the state's partiality towards agricultural sustainability and local food security.

In addition to fiscal aspects, the provision of non-fiscal incentives is equally important. Access to modern agricultural technology, technical assistance, continuous counseling, and strengthening market networks are key elements in strengthening farmers' adaptive capacity amidst the pressures of climate change and commodity price volatility. Such non-fiscal incentives are often more effective in the long run as they increase farmers' agricultural literacy, innovation power, and confidence to stay in the agricultural sector. The availability of adequate information and training enables farmers to understand market dynamics, implement environmentally friendly agricultural practices, and establish partnerships with businesses and financial institutions (Fauzi, 2016).

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The implementation of non-fiscal incentives also needs to take into account social and institutional dimensions. For example, programs to strengthen farmer groups, agricultural cooperatives, and farmer-to-farmer communication forums can be a vehicle for sharing knowledge, strengthening farmers' bargaining position in the market, and accelerating technology adoption. In the context of Bima Regency, this strategy is in line with the social characteristics of the community that still uphold the value of gotong royong and kinship. Therefore, non-fiscal incentives should be designed with a participatory and community-based approach to have high legitimacy and usability in the field.

However, the existence of incentives alone is not sufficient to ensure the effectiveness of LP2B protection policies. It is also necessary to apply administrative disincentives and legal sanctions for violations of land conversion. These disincentives serve as law enforcement instruments that provide a deterrent effect and encourage compliance with regulations, particularly Law No. 41/2009. Sanctions can be in the form of administrative fines, license cancellation, and criminal proceedings for parties who deliberately convert agricultural land without a permit or violate zoning provisions (Laksana & Ruslan, 2023).

Strict and consistent administrative disincentives can prevent speculative practices on agricultural land, especially in regions that are experiencing rapid economic growth. Unfortunately, implementation in the field still often faces obstacles. In the case of Bima District, a report by the NTB Regional Research Council noted that weak supervision and low law enforcement capacity have been significant obstacles to the implementation of land protection. Many violations are not dealt with firmly, creating a bad precedent and encouraging repeat offenses.

To overcome this problem, it is necessary to strengthen synergies between agencies, such as the Agriculture Office, Environment Office, National Land Agency (ATR/BPN), and sub-district to village governments. The integration of technology-based monitoring information systems, such as the use of Geographic Information

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Systems (GIS) and drones for land monitoring, can improve monitoring efficiency and accuracy. In addition, there is a need for a citizen reporting mechanism that allows citizens to directly monitor and report indications of land conversion. This will expand the scope of monitoring and create public participation in the preservation of agricultural land.

In addition to incentives and disincentives, the provision of risk protection schemes through agricultural insurance is a strategic element in strengthening farm sustainability. Agricultural insurance acts as a socio-economic safety net that protects farmers from losses due to the risk of natural disasters, crop failure, or pest attacks. In the context of LP2B, the presence of insurance can increase farmers' confidence to continue managing the land, because they are no longer fully dependent on crop yields as the only source of income (Kristiani & Hidayati, 2021). Insurance programs that are tailored to local characteristics and complemented by intensive socialization can strengthen farmers' resilience while strengthening their commitment to sustainable agricultural practices (Syafitri & Susetyo, 2022).

However, the level of farmer participation in the insurance program is still relatively low. This is due to a lack of knowledge about the benefits of insurance, difficulties in registration and claim procedures, and low trust in insurance institutions. Therefore, local governments need to work together with insurance companies, banks, and extension agencies to develop schemes that are accessible, transparent, and relevant to the needs of smallholders. This strategy also needs to be complemented with a financial literacy approach at the village level so that farmers have a comprehensive understanding of the importance of risk mitigation in their farming businesses.

Another important support scheme in strengthening the LP2B system is green microfinance, which is low- or no-interest financing directed at supporting sustainable agricultural practices. This scheme can be provided through cooperation with microfinance institutions, agricultural cooperatives, and regional banks. Access to

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green microfinance allows farmers to obtain working capital for the purchase of modern agricultural equipment, processing of farm products, and investment in diversification of agricultural commodities. The biggest obstacle to the adoption of sustainable agricultural innovations is limited access to finance. Therefore, the government's role in encouraging agricultural financial inclusion is vital (A. Prasada & Priyanto, 2020).

In Bima District, structural challenges such as farmer poverty, dependence on chemical fertilizers, and limited market access make green microfinance an urgent need. This scheme needs to be designed holistically and integrated with technical training, farmer institutional strengthening, and marketing incentives for environmentally friendly products. As noted by Nuryanti, this strategy can empower small-scale farmers and create an agricultural ecosystem that is inclusive, resilient, and adaptive to the challenges of climate change and global economic volatility (Kehutanan, 2022).

By considering the complexity of the issues and challenges of LP2B implementation in the regions, it can be concluded that successful protection of agricultural land cannot rely solely on legal instruments and spatial planning. A systemic approach is needed that combines economic incentives, administrative disincentives, risk protection through insurance, and inclusion-based financial support. This policy must also be supported by strong institutional capacity, a participatory monitoring system, and consistent political commitment at all levels of government.

Thus, LP2B protection policies in Bima District can be an integral part of a broader sustainable development strategy. It not only ensures food availability and environmental sustainability but also encourages the socio-economic transformation of farmers towards productive, sustainable, and prosperous farming patterns. In this context, the protection of agricultural land is not merely a sectoral issue but a strategic agenda that requires synergy across sectors, disciplines, and actors.

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f. Education, Training, and Evaluation as Pillars of LP2B Implementation in Bima District

Education and training in sustainable agriculture is a strategic instrument that is inseparable from the implementation framework of Law No. 41/2009 on the Protection of Sustainable Food Agricultural Land (PLP2B) (M. D. Putri, 2022). In the context of regions such as Bima District that are facing increasing land conversion pressure due to the expansion of residential areas and infrastructure development, increasing the capacity of agricultural human resources is an essential step in ensuring policy success. Education not only aims to transfer technical skills, but also to shape farmers' ecological awareness and long-term commitment in maintaining the function of agricultural land as a pillar of local food security.

From a sustainable development perspective, contextually designed training, based on local needs and adaptive to environmental dynamics, can be a catalyst in the transformation of agricultural practices. Farmers exposed to quality education will have a deeper understanding of conservation principles, the use of organic fertilizers, efficient water management, and the application of climate change adaptation techniques (Indonesia, 2012). This is crucial given that climate change is increasingly affecting agricultural production cycles, which, if not properly addressed, could exacerbate the vulnerability of smallholders. Djatmiko's research underlines that LP2B policy implementation will be more effective if accompanied by intensive training programs and participatory communication (Djatkiko et al., 2019). Without adequate understanding, the PLP2B policy will only function administratively without changing the behavior of key actors in the field.

Regular ongoing training also serves as a medium for strengthening social cohesion among farmers. Trained farmer communities tend to form learning networks, share best practices, and encourage collective innovation in sustainable agriculture (Irawan, 2016). In the context of Bima Regency, this community-based approach is very relevant, considering that the strength of social solidarity in rural areas is still

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relatively high and can be optimized as social capital for development. The involvement of farmers in community-based training forums can increase ecological awareness and form a collective understanding of the importance of maintaining agricultural land from the threat of conversion (A. Putri & Wibisono, 2022). Furthermore, Chrismawati and Pramono also emphasized that training involving local figures has a more significant impact in building trust and acceptance of the policy (Chrismawati & Pramono, 2021).

In addition to strengthening non-formal education through community training and field extension, the integration of formal education is also an important part of the PLP2B policy's long-term strategy. The curriculum in agricultural education institutions, both at the vocational secondary and tertiary levels, needs to be adjusted to reflect the values of sustainability, conservation of natural resources, and the importance of regional food security. Young people who are equipped with ecological insights from an early age will become important actors in the sustainability of agriculture and natural resource management. On the other hand, non-formal education acts as a bridge between theory and practice, where extension institutions can deliver technical information in a language and approach that is easily understood by farmers.

Synergies between formal and non-formal education are crucial to broaden the reach of policies and increase their effectiveness in the field. A collaborative approach involving educational institutions, agricultural extension workers, farmer organizations, and community leaders can enrich training materials and increase knowledge absorption among farmers. As noted by Chrismawati and Pramono, collaborative approaches in capacity development have a double impact, not only on strengthening technical skills but also on shaping values and attitudes that support land sustainability.

However, the success of education and training as a policy instrument requires the support of a systematic, comprehensive, and evidence-based evaluation system. Performance evaluation and regular reporting are integral components of the modern

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public policy cycle (Hayatul Laila & Ermawati, 2022). Without a structured monitoring mechanism, LP2B implementation will be difficult to measure and prone to administrative bias. Therefore, performance indicators are needed that are able to capture both output (e.g., number of trainings, land area protected, farmer participation) and outcome (e.g., increase in farmer income, land productivity, and success in preventing land conversion) dimensions.

Outcome-based indicators are an important step to ensure that evaluations do not stop at measuring quantity, but also touch on the quality and sustainability of policy interventions (Prabowo & dkk, 2022) A good evaluation will provide space for reflection, adaptation of strategies, and continuous policy improvement. In the context of the Bima District, LP2B evaluation should be conducted in a participatory manner, involving local government, farmer groups, academics, and civil society organizations. This multi-stakeholder approach not only enriches the evaluation analysis but also strengthens the legitimacy of the policy in the eyes of the public.

Openness in reporting policy implementation is also a key factor in building public accountability. The LP2B annual report should not be viewed as a mere administrative obligation, but rather as a strategic instrument for public communication, advocacy, and community participation. Transparency in reporting allows the community to evaluate the progress of policy implementation, identify problems that occur, and provide input based on real experience (Mazmanian & Sabatier, 1983). Information disclosure in agrarian and land policies is essential to prevent irregular practices, strengthen social control, and increase the legitimacy of government (Rizki & Agustina, 2023).

In order to strengthen the accuracy of evaluation and the effectiveness of decision-making, independent audits of LP2B policy implementation should be made part of routine and professional governance mechanisms. Audits are not only a tool for administrative oversight, but also serve as a critical reflection on policy implementation. Policies conducted by independent parties and academics can provide

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more objective, data-based input and encourage structural improvements in policy (Hidayati & Sulaiman, 2023). A thorough audit enables detailed mapping of gaps between policy objectives and outcomes, and provides evidence-based recommendations for improving the quality of PLP2B governance.

Furthermore, audits are also a means to evaluate budget allocations, program efficiency, and policy affordability for vulnerable groups such as smallholders and women farmers. Local governments need to place policy audits as part of a policy learning cycle, where each implementation process will be followed by a reflective process that enriches knowledge and strengthens institutional capacity. In this context, audits are not only about financial accountability, but also social and ecological accountability to the public as the legitimate owners of agrarian resources (DeClerck et al., 2021).

Thus, the success of PLP2B policy implementation is not solely determined by existing regulations, but is further determined by the quality of human resources, the effectiveness of the training system, the transparency of reporting, and the strength of the evaluation system built (Kharrazi et al., 2024). Investments in farmer education and training are non-negotiable foundations, as credible monitoring and auditing systems are key tools to ensure that policies are in line with sustainability goals and values.

In conclusion, farmer education and training and systematic performance evaluation, and reporting are two key pillars in supporting the effective implementation of Law 41/2009 in Bima District. They form a complementary policy strategy: education and training provide capacity and awareness to key actors, while evaluation and auditing ensure that policy implementation is on track, transparent, and accountable. In the face of increasing land conversion challenges, cross-sector collaboration between local government, educational institutions, farmer organizations, and civil society is key to ensuring that agricultural land protection is real and sustainable in Bima District (Napitupulu & Muhyidin, 2021).

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So that if viewed from the theory according to Soejono Soekanto, several things affect the effectiveness of a rule, namely:

1) The rule itself (Law)

Law functions for justice, certainty, and expediency. In the practice of law implementation in the field there are times when there is a conflict between legal certainty and justice, when viewed from the discussion of the implementation of sustainable food agricultural land protection in Bima district, the function of the law itself has not been involved which can realize a certainty to regulate the implementation of sustainable food agricultural land protection in Bima district.

2) Law Enforcement

From the existence of law enforcement, the personality of law enforcement itself is very easy to play an important role, if the rules are good, but if the quality of officers is not good, it is very vulnerable to a strong tendency among the public to interpret the law as an officer or law enforcement. This means that the law is very similar to the real behavior of officers or law enforcement. In fact, in the exercise of authority, many problems arise, such as the number of permit applications that pass without fulfilling the stages of examination by the committee, which is an attitude and behavior that is seen as exceeding authority and is considered to undermine the authority and dignity of law enforcement itself.

3) Facilities and Infrastructure

According to Soejono Soekanto that law enforcers cannot work properly if they are not equipped with vehicles or proportional communication tools. Therefore, facilities or infrastructure are very important in one of the steps taken in the conversion that occurs in order to prevent the impacts that will occur, but in each sub-district that is under development in the Bima sub-district area, there are still many who have not paid attention to supporting facilities and infrastructure. Even though it is very important in achieving the target of public interest and

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facilitating the role of law enforcement in harmonizing the role itself, so that there are no new problems that arise in the future.

4) Society

Law enforcement always comes from the community itself, which aims to achieve peace in society. Every community should have legal awareness. The problems that arise in the implementation of the protection of sustainable food agricultural land in Bima district are evidence and facts that law enforcement is at a very low level. If there is definite regulation or legal certainty, there will be a degree of legal compliance, so that there will be indicators of the functioning of the law concerned.

5) Culture

Culture has values that underlie the laws that apply, values which are abstract conceptions of what is considered good and what is considered bad.

The explanation above, researcher concludes that the theory of effectiveness has a very close relationship with this research, because it is the main thing in the implementation of the protection of sustainable food agricultural land in Bima district as a measure of the effectiveness of law enforcement.

4. CLOSING

The effectiveness of the implementation of Sustainable Food Agricultural Land (LP2B) protection in Bima District is still low. Monitoring and evaluation activities have not run optimally, and spatial data integration for land monitoring is inadequate. In addition, the absence of an incentive system that supports farmers in maintaining their agricultural land is a challenge. Institutional fragmentation and weak community involvement in maintaining and monitoring the existence of sustainable agricultural land are also obstacles. Without concrete policy reforms and synergistic institutional strengthening, LP2B protection in Bima District will be difficult to implement effectively, especially in the face of increasing pressure from land conversion.

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