International Journal of Environmental Sciences
ISSN: 2229-7359
Vol. 11 No. 3, 2025
https://theaspd.com/index.php

The Potential Of Commodities Bank To Strengthen The Local Economy In West Sumatera

David Malik[1], Shinji Takada[2], Tsugiyuki Masunaga[3], Dony Novaliendry[4*]
[1] *Universitas Baiturrahmah, Padang, Indonesia*
[2] *Kobe University, Kobe, Japan*
[3] *Shimane University, Matsue, Japan*
[4] *Universitas Negeri Padang, Padang, Indonesia*
[*] *Corresponding author: Dony Novaliendry, dony.novaliendry@ft.unp.ac.id*

Abstract: *The economic vulnerability of gambir farmers in West Sumatra, Indonesia, stems from their reliance on middlemen and the absence of financial mechanisms to support sustainable agricultural practices. This study proposes the establishment of a commodities bank that recognizes gambir as collateral, aiming to empower farmers and strengthen the local economy. Grounded in Human and Social Capital Theory and supplemented by Institutional Theory, this research integrates quantitative and qualitative data from key stakeholders, including farmers, middlemen, and local government officials. Findings reveal that a commodities bank mitigates price instability, enhances farmers' bargaining power, and fosters sustainable agricultural practices. This innovative financial model bridges gaps in existing research by linking social trust and local governance with rural economic development. The study concludes by emphasizing the scalability of this model across other agricultural commodities, offering a framework to boost economic sustainability in developing regions. Policymakers are urged to prioritize localized financial solutions and institutional support to empower farming communities and reduce economic disparities.*
Keywords: *Commodities Bank, Gambir, Sustainable Agriculture, Human Capital, Civic Capital, Institutional Theory, Local Economy, Rural Financing.*

INTRODUCTION

Gambir (Uncaria gambir) is a cornerstone of West Sumatra's agricultural economy and a significant export commodity for Indonesia (Malik et al., 2020). In 2018, gambir exports reached 18,000 tons, valued at USD 55 million, with India importing over 94% of the total. Its primary constituents, catechins (7–33%) and tannins (20–50%), make it indispensable to industries such as pharmaceuticals, textiles, cosmetics, and food. Despite its economic potential, gambir farmers face persistent challenges, including fluctuating prices, high production costs, and reliance on middlemen for financial support (BBC News Indonesia, 2021) (Magnani, 2014). These structural barriers limit their ability to achieve sustainable livelihoods and hinder the region's economic resilience.

The COVID-19 pandemic further exacerbated these vulnerabilities, disrupting export activities and causing significant declines in market prices. Farmers' reliance on middlemen, who often provide financial assistance on unfavorable terms, perpetuates a cycle of dependency and reduces their ability to invest in higher-quality production (Maruichi & Abe, 2019) (Mumford, 2016). Additionally, the lack of effective farmer cooperatives and financial mechanisms means that most farmers produce low-quality gambir, limiting their market competitiveness and income stability (Dhalimi A, 2006) (Musdja et al., 2018).This study addresses these challenges by proposing a commodities bank that recognizes gambir as collateral. Inspired by the Italian Bank Credito Emiliano, which successfully uses Parmigiano Reggiano cheese as collateral, this gambir commodities bank aims to stabilize prices, enhance farmers' bargaining power, and reduce their dependence on middlemen (Evalia et al., 2012) (Ristanti & Handoyo, 2017). By leveraging gambir's durable and unique qualities, this innovative financial model provides a pathway toward agricultural sustainability and economic empowerment for farmers (Fauza, 2014) (Fukuyama, 2000).Existing studies primarily focus on the market dynamics of gambir production but often neglect the socio-economic and governance factors critical to sustainable development (Lee et al., 2021) (Mahyuddin et al., 2024). This research integrates Human and Social Capital Theory, emphasizing knowledge transfer and community trust, and Institutional Theory, highlighting the role of local governance (Heriyanto, 2016) (Humas, 2015) (Kahn, 1980). By bridging these frameworks, the study contributes a novel approach to rural financing and development, offering actionable insights for policymakers and stakeholders committed to fostering resilient agricultural economies.

METHOD

This study employs a mixed-methods approach to investigate the feasibility and impact of a commodities bank that recognizes gambir as collateral. The research combines qualitative and quantitative methods to provide a comprehensive analysis of the socio-economic and institutional factors affecting gambir farmers in West Sumatra.

Study Sites

The study was conducted in Mahat, Lima Puluh Kota Regency (hereafter LPKR), a key gambir production area in West Sumatra, chosen for its substantial contribution to gambir production and its long-standing history with Uncaria gambir cultivation (Kasim et al., 2015). Mahat is located 189 km from the provincial capital, Padang, and lies at an altitude of 550–750 meters above sea level, with annual rainfall ranging from 1,800 to 3,700 mm, making it ideal for gambir plantations. Geographically, LPKR spans approximately 18,000 hectares between latitudes 001′32.6″ S and 0°10′35.4″N and longitudes 100°15′50.7″E and 100°50′51.9″E, further emphasizing its strategic importance for this study (see Figure 1).

Data Collection

Data were collected through surveys, in-depth interviews, observations, field notes, and focus group discussions. Quantitative data were gathered from 56 (fifty-six) gambir farmers, 14 (fourteen) plantation owners, and 9 (nine) stakeholders, including middlemen and local government officials. Structured and unstructured interviews were conducted to explore the socio-economic dynamics, farmers' behavior, and the challenges they face. Focus group discussions further validated insights through cross-verification among different groups of stakeholders (see Table 1).

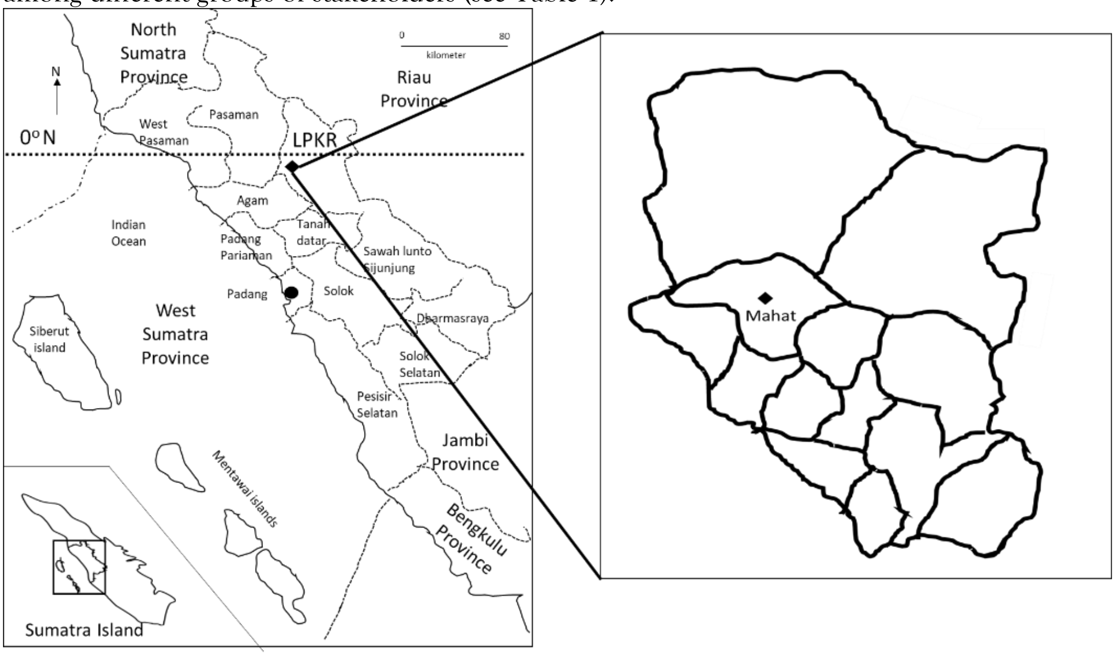

Figure 1. Study sites: Mahat – LPKR

Table 1. List of Respondents and informants

No	Respondent		Number of respondents	Experience (year)
A.	*Uncaria gambir* plantation owner		14	± 40
	Producer/*gambir* farmer		56	> 20
B.	Informants Name	Age	Occupation	Education
1.	Syahrul	67	*Uncaria Gambir* plantation owner	Elementary school
2	Jon	44	Farmer	Elementary school
3.	Ardi	59	Former local cooperative	Junior high school
4.	Hengki	37	Farmer and local middleman (local *gambir*)	Junior high school
5.	Anto	52	Local middleman and trader (pure *gambir*)	Senior high school
6.	Yuri	48	Pure *gambir* Trader (Padang)	Bachelor degree
7.	Son	57	Local middleman (local *gambir*)	Senior high school
8.	Anonymous	32	Staff at the Mahat Village office	Bachelor degree
9.	Anonymous	55	Staff at the horticulture and plantation department in LPKR	Bachelor degree

DATA ANALYSIS
A side-by-side comparison approach was used to integrate qualitative and quantitative data. Quantitative data were analyzed using descriptive and correlation statistics, focusing on relationships between gambir prices, farmers' behavior, and production quality (Sidik & Apriani, 2020). Qualitative data were coded and thematically analyzed to capture insights into the role of human capital, civic trust, and local governance in shaping agricultural practices (Yeni et al., 2017). Triangulation was applied to enhance the reliability of findings by cross-referencing data from surveys, interviews, and focus group discussions. This methodological framework provides a holistic perspective on the challenges and opportunities for establishing a gambir commodities bank (Creswell, 2013) (Novaliendry et al., 2023).
This methodological framework allowed the study to explore not only the economic aspects of gambir production but also the broader social and institutional dimensions, providing a holistic perspective on the challenges and opportunities for establishing a commodities bank (Novaliendry et al., 2023).

RESULTS AND DISCUSSION
Table 2 provides an overview of the quantitative data gathered through surveys. It highlights key variables related to gambir farmers' socio-economic challenges. For example, 85% of respondents reported dependence on middlemen for financial support, indicating a significant reliance on intermediaries. Additionally, the table shows that only 25% of farmers produce high-quality gambir (pure gambir), with most opting for lower-quality products due to cost constraints. The distrust in cooperatives is also stark, with 90% of respondents expressing dissatisfaction, reflecting a critical barrier to collaborative solutions.
Table 2. Summarizes survey results.

Variable	Number of	Percentage	Average Value (If

	Respondents	(%)	Applicable)
Dependence on middlemen	56	85%	N/A
Gambir production per season	56	-	1,200 kg
Gambir price fluctuations	56	78%	N/A
Pure gambir production	14	25%	300 kg
Distrust in cooperatives	56	90%	N/A

Table 3 summarizes insights from in-depth interviews, observations, and focus group discussions (FGDs). It categorizes the findings into themes, such as dependence on middlemen, production quality, trust in cooperatives, and the role of local government. For instance, middlemen's financial assistance often comes with unfavorable conditions, creating economic pressure on farmers. The lack of transparency in cooperatives further exacerbates farmers' challenges, as they feel exploited rather than supported. Additionally, the FGDs revealed that farmers expect more active regulatory support from local governments to stabilize prices and reduce dependency on intermediaries.

Table 3. Summarizes interview and focus group discussion findings.

Category	Sub-category	Key Findings	Data Source
Dependence on middlemen	Economic factors	Middlemen provide loans but with unfavorable terms.	Interviews with farmers (n=20)
Gambir production quality	Main obstacles	High production costs lead farmers to focus on lower-quality gambir (asalan).	Focus group discussions (n=10)
Trust in cooperatives	Lack of transparency	Farmers believe cooperatives take advantage of them rather than provide support.	Observations and interviews (n=8)
Role of local government	Regulatory support	Farmers expect local governments to provide policies that stabilize gambir prices.	Interviews with local officials

Table 4 presents the results of descriptive statistics and correlation analysis. It illustrates relationships between key variables, such as production costs, production volume, and dependence on middlemen. For example, the mean production cost is IDR 3,500,000 per season, with a moderate positive correlation (0.65) between production costs and gambir price. Dependence on middlemen shows a strong negative correlation (-0.70) with farmers' ability to achieve stable pricing, emphasizing the detrimental impact of financial dependency. These statistical findings underline the economic barriers faced by gambir farmers.

Table 4. Descriptive statistics and correlation analysis results.

Variable	Mean	Median	Standard Deviation	Correlation with Gambir Price
Production cost	IDR 3,500,000	IDR 3,200,000	IDR 500,000	0.65
Gambir production (kg)	1,200	1,100	300	-0.50
Dependence on middlemen (score)	4.2	4.0	0.8	-0.70

Table 5 integrates the quantitative and qualitative findings, offering a holistic perspective on the research themes. For example, quantitative data shows that 85% of farmers are financially dependent on middlemen, while qualitative insights reveal that this dependency stems from middlemen imposing unfavorable loan conditions. Similarly, the high proportion of farmers producing low-quality gambir (asalan) is linked to the lack of access to funds for improving production quality, as identified in FGDs and interviews. The distrust in cooperatives, highlighted by both quantitative (90% distrust) and qualitative data (perceived non-transparency), points to the need for institutional reform. Overall, this synthesis emphasizes the importance of alternative financial mechanisms, like a commodities bank, to address these interconnected challenges.

Table 5. Synthesis of qualitative and quantitative findings.

Theme	Quantitative Findings	Qualitative Findings	Conclusion
Dependence on middlemen	85% of farmers rely on middlemen for loans.	Middlemen often impose unfavorable conditions on farmers.	Alternative funding sources like a commodities bank are needed.
Gambir production	78% of farmers produce lower-quality gambir (asalan) due to high costs.	Farmers lack access to funds to improve production quality.	Financial support can improve production quality.
Trust in cooperatives	90% of farmers distrust local cooperatives.	Cooperatives are perceived as non-transparent and exploitative.	Transparency and cooperative reform are necessary.

Active Role of Local Government

The findings reveal the critical role of local governance in addressing the challenges faced by gambir farmers. While national-level policies often fail to account for the unique needs of local communities, decentralized governance offers a viable pathway for implementing targeted solutions. The proposed gambir commodities bank exemplifies this approach by aligning local financial mechanisms with the specific needs of gambir farmers, thus reducing dependence on middlemen. Institutional Theory reinforces the importance of local governance in implementing policies that reduce farmer dependence on middlemen and create a more equitable financial system.

Moreover, Local governments must prioritize agricultural sustainability by recognizing farmers as valuable assets who serve as the foundation of the local economy. With this paradigm, according to Magnani, local governments will focus on building human and civic capital in their regions (Magnani, 2014). Local governments can integrate with village headmen (Wali Nagari), making it easier to address problems directly with farmers. However, both local governments and farmers believe that agricultural problems stem from the central government. While this may be true for some reasons, the active role of local governments in solving agricultural problems in their regions is still passive as they wait for aid or funding from the central government.

In the gambir case, local governments can cooperate with institutions to address the core problem of gambir farmers' dependence on middlemen. Local governments can work with the People's Lending Bank (Bank Pengkreditan Rakyat) to receive gambir as collateral, cutting farmers' dependence on middlemen. Local governments can also set a standard for gambir that can be used as collateral. Additionally, local governments can invite or collaborate with universities in their region to research the possibility of improving the quality of gambir plantations. Instead of blaming the central government, local governments can take several steps to contribute to boosting the local economy.

Enchancing Farmer Independence and Bargaining Power

The study highlights that a commodities bank can significantly enhance farmers' independence and bargaining power by providing direct access to financial resources. This security enables farmers to shift from low-quality gambir (asalan) to high-quality gambir (murni), fostering market competitiveness and income stability. While local middlemen often suppress prices for mixed or lower-quality gambir, the introduction of a commodities bank encourages farmers to invest in improving their production practices. Over time, this transition could reduce price volatility and create long-term economic resilience. According to our findings, farmers often modify the local gambir to increase its weight and quality. As a result, local middlemen tend to suppress the price of local gambir, particularly gambir that has been mixed with other ingredients. This makes local gambir more vulnerable to price fluctuations compared to pure gambir, which remains relatively stable. Farmers are reluctant to sell their products at low prices and would rather delay the sale. As a result, farmers have more bargaining power than buyers. Farmers are hesitant to produce pure gambir due to the lengthy production process, higher cost, and lower production volume. With three farmers, they can only produce up to 12 kg per day, while they can produce up to 25 kg of local gambir daily. However, if farmers decide to shift to producing pure gambir, it will significantly impact the income and quality of gambir in the future. The limited gambir production will affect the supply of LPKR gambir to the market, resulting in a higher gambir price in the long run.

The Role of Human and Civic Capital

The findings emphasize the critical role of knowledge transfer (human capital) and trust (civic capital) in motivating farmers to adopt sustainable practices. When gambir prices ranged between IDR 50,000 and IDR 100,000 per kilogram, younger generations were more likely to engage in gambir farming, perceiving it as a profitable livelihood. However, the gap in trust between farmers and cooperatives remains a significant barrier, highlighting the need for institutional reforms to rebuild civic capital and ensure the success of the proposed bank. The findings align with Human and Social Capital Theory, as knowledge transfer (human capital) and trust (civic capital) were found to play pivotal roles in motivating farmers to adopt sustainable practices and reduce dependence on middlemen.

This research then considers the possibility of impacts from the regulations on both human and civic capital. We used qualitative data about human capital because we needed information on how the plantation and production skills were passed down from generation to generation. According to Magnani (2014), human capital is the accumulation of knowledge, which includes how knowledge is inherited in the case of gambir production. However, human capital has two impacts: agricultural sustainability and the birth of skilled workers. Secondly, the expansion of knowledge by the farmer itself. To measure this, we observed farmer behaviour when gambir was priced at 50,000 to 100,000 IDR (3.29 – 6.60 USD) per kilogram between 2015 and 2019. There is a direct relationship between farmer behaviour and the price of gambir, such as young people becoming farmers and entrepreneurs. As a result, this stimulated other farmers to be free from dependency on middlemen. The indirect effect of this situation creates agricultural sustainability and changes farmers' point of view about gambir plantation and production, who see it as profitable in the future. As a result, it has attracted more young people to become involved in gambir plantations and production (Magnani, 2014).

Civic capital refers to shared beliefs within a society (Fukuyama, 2000) (Magnani, 2014), which can be influenced by the society's heterogeneity or homogeneity. However, in this study, the analysis of gambir production is based on the local ideology (Kahn, 1980). Civic or social capital is derived from formal channels such as organizations, schools, and cooperatives, as well as informal channels like lapau-shops, mosques, and markets. These channels serve as the means by which farmers exchange information and affect the values and beliefs of the local government and other farmers.

Lessons from the Italian Model

The Italian Bank Credito Emiliano, which accepts Parmigiano Reggiano cheese as collateral, serves as a compelling model for the gambir commodities bank. This study finds that similar principles—such as maintaining product quality, establishing pricing standards, and fostering trust among stakeholders—can be effectively adapted to the context of gambir production in West Sumatra. By integrating these principles, the gambir commodities bank has the potential to address long-standing issues of price instability and dependency.

The Italian Bank Credito Emiliano has successfully implemented the concept of using Parmesan Cheese as collateral, which has positively impacted the financial security among cheese producers (Magnani, 2014) (Dewi et al,, 2018). Due to the nature of the harvest, gambir shares similar properties with other financial assets, such as Parmesan Cheese. This finding is the central point that we argue as a natural and executable solution to the problem of price fluctuations and capital access.

This commodities bank can be established within the existing legal framework of micro-lending banks (Jannah et al., 2023) (Dewi et al,, 2018). Private sector entities can build these banks with low starting capital, known as BPR (Bank Pengkreditan Rakyat/People's Lending Bank). They are protected by appropriate regulations and provide saving and lending services to the public, with land or vehicle ownership as collateral. Allowing gambir as collateral would be a first in Indonesia and perhaps the world.The existence of this bank can mitigate various risks endured by farmers under challenging market conditions. According to information from farmers, many of them were forced to work alone during the COVID-19 pandemic as their work partners preferred to find other jobs, such as carpentry, rice farming, raising goats or cows, and other types of farming. Therefore, if the local government wants to maintain the supply and price of gambir, a particular bank for gambir commodities is needed.

Broader Implications and Scalability

One of the most significant challenges facing Indonesian agriculture today is the lack of investment and support in human and civic capital. According to the Minister of Public Works and Public Housing (PUPR), there is an abundance of arable land in Indonesia that is equipped with irrigation and roads, yet there are few willing workers to cultivate it. Despite the government's claim of opening up over 43,400 hectares of new agricultural land in several provinces to establish food estates, experts are concerned about the future of agriculture in Indonesia due to the decreasing number of young people interested in pursuing farming as a career. This trend raises concerns that Indonesia may become dependent on imports, potentially triggering an agricultural crisis.

The proposed model offers broader implications for rural economies reliant on agricultural commodities. By prioritizing localized financial mechanisms and fostering collaboration among stakeholders, the gambir commodities bank provides a replicable framework for other commodities facing similar challenges. This approach not only strengthens local economies but also contributes to the global discourse on sustainable agricultural practices and financial innovations.

CONCLUSION

This study underscores the significant challenges faced by gambir farmers in West Sumatra, including dependence on middlemen, price instability, and high production costs, which limit their economic potential and sustainability. The proposed gambir commodities bank offers a practical solution to address these challenges by enhancing financial independence, improving production quality, and stabilizing incomes. Grounded in Human and Social Capital Theory and Institutional Theory, the findings highlight the importance of knowledge transfer, community trust, and local governance in fostering agricultural sustainability and resilience.

To implement this solution effectively, policymakers and local governments should prioritize establishing the commodities bank alongside support mechanisms, such as quality standards, cooperative reforms, and farmer training programs. Collaboration among universities, private entities, and local governments will be essential for developing innovative strategies for the gambir industry. The success of this initiative should be evaluated continuously, with insights used to scale similar models for other agricultural commodities. By adopting this approach, the gambir commodities bank can serve as a transformative step toward sustainable rural development and economic empowerment.

REFERENCES

1. BBC News Indonesia. (2021, August 23). Eks Mensos Juliari Batubara divonis 12 tahun, korban terpaksa memasak bansos tak layak. *BBC News Indonesia*. https://www.bbc.com/indonesia/indonesia-58301733
2. Creswell, J. W. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE Publications, Incorporated.\
3. Dewi, I., Sofya, R., & Sriwahyuni, T. (2018). PENGEMBANGAN MEDIA PEMBELAJARAN MULTIMEDIA INTERAKTIF MENGGUNAKAN ADOBE FLASH CS3 PADA MATAKULIAH MEDIA PEMBELAJARAN EKONOMI YANG MENERAPKAN METODE PROJECT BASED LEARNING. Jurnal Teknologi Informasi Dan Pendidikan, 11(2), 72-79. https://doi.org/10.24036/tip.v11i2.145
4. Dhalimi, A. (2006). *Permasalahan Gambir (Uncaria gambir L.) di Sumatera Barat dan Alternatif Pemecahannya*. *5*.

5. Dony Novaliendry, Asrul Huda, LatifahAnnisa, Resti Rahmi Khairati Costa, Yudhistira, & Fivia Eliza. (2023). The Effectiveness of Web-Based Mobile Learning for Mobile Subjects on Computers and Basic Networks in Vocational High Schools. International Journal of Interactive Mobile Technologies (iJIM), 17(09), pp. 20–30. https://doi.org/10.3991/ijim.v17i09.39337
6. Jannah, P., Fajrillah, A., & Nurtrisha, W. (2023). Enterprise Architecture as a Smart Village Development Strategy with a Focus on Economic Services Using TOGAF 9.2 (Case Study: Advanced Village in Jambi Region). Jurnal Teknologi Informasi Dan Pendidikan, 17(1), 29-45. https://doi.org/10.24036/jtip.v17i1.75
7. Evalia, N. A., Sa'id, E. G., & Suryana, R. N. (2012). STRATEGI PENGEMBANGAN AGROINDUSTRI DAN PENINGKATAN NILAI TAMBAH GAMBIR DI KABUPATEN LIMA PULUH KOTA SUMATERA BARAT. *Jurnal Manajemen & Agribisnis*, *9*(3), 173–182. https://doi.org/10.17358/jma.9.3.173-182
8. Fauza, H. (2014). Gambier: Indonesia Leading Commodities in The Past. *International Journal on Advanced Science, Engineering and Information Technology*, *4*(6), 455. https://doi.org/10.18517/ijaseit.4.6.463
9. Fukuyama, F. (2000). *The Great Disruption: Human Nature and the Reconstitution of Social Order* (1st edition). Free Press.
10. Heriyanto. (2016, November 15). *Minat Generasi Muda pada Pertanian Terus Menurun | SurveyMETER*. https://www.surveymeter.org/id/read/366/minat-generasi-muda-pada-pertanian-terus-menurun
11. HUMAS LIPI. (2015, May 10). *Minat Bertani Generasi Muda Menurun, Indonesia Terancam Krisis Petani*. http://lipi.go.id/berita/single/Minat-Bertani-Generasi-Muda-Menurun-Indonesia-Terancam-Krisis-Petani/10836
12. Kahn, J. S. (1980). *Minangkabau Social Formations: Indonesian Peasants and the World-Economy*. Cambridge University Press. https://doi.org/10.1017/CBO9780511557552
13. Kasim, A., Asben, A., & Mutiar, S. (2015). Kajian kualitas gambir dan hubungannya dengan karakteristik kulit tersamak. *Majalah Kulit, Karet, dan Plastik*, *31*(1), 55. https://doi.org/10.20543/mkkp.v31i1.220
14. Lee, B.-J., Kim, T. W., Suh, J., & Yap, O. F. (2021). Local government performance and democratic consolidation: Explaining ordinance proposal in Busan Metropolitan Council. *Asia & the Pacific Policy Studies*, *8*(1), 15–41. https://doi.org/10.1002/app5.319
15. Magnani, M. (2014). *Creating economic growth: Lessons for Europe*. Palgrave Macmillan.
16. Malik, D., Afner, S. O. G., Fukuda, A., Masunaga, T., & Aflizar. (2020). Socio economical evaluation of Uncaria gambir cultivation systems in West Sumatra, Indonesia. *Tropics*, *29*(3), 77–87. https://doi.org/10.3759/tropics.MS19-15
17. Maruichi, D., & Abe, M. (2019). Corruption and the business environment in Vietnam: Implications from an empirical study. *Asia & the Pacific Policy Studies*, *6*(2), 222–245. https://doi.org/10.1002/app5.275
18. Mumford, K. J. (2016). Prosperity, Sustainability and the Measurement of Wealth. *Asia & the Pacific Policy Studies*, *3*(2), 226–234. https://doi.org/10.1002/app5.132
19. Musdja, M. Y., Elvita, L., & Rahayu, N. (2018). Effects of Gambir (Uncaria gambir Roxb) Catechins on Burn Wound Healing in Male Rats: *Proceedings of BROMO Conference*, 261–271. https://doi.org/10.5220/0008361002610271
20. Nenny Mahyuddin, Rani Sofiya, Andi Agusniati, Yuliani Nurani, Dony Novaliendry, & Elida. (2024). Development of Board Game Media on Air Theme for Children Aged 5-6 Years . International Journal of Interactive Mobile Technologies (iJIM), 18(08), pp. 4–13. https://doi.org/10.3991/ijim.v18i08.46135
21. Novaliendry, D., Ahyanuardi, Basri, I. Y., Ardi, N., Hakim, N. U., Pratama, M. F. P., & Mahyudin, N. (2023). The Development of Professional Competency Certification Assessment Model for Junior Mobile Programmers. *International Journal of Interactive Mobile Technologies*, *17*(8), 181–196. https://doi.org/10.3991/ijim.v17i08.39213
22. Ristanti, Y. D., & Handoyo, E. (2017). UNDANG-UNDANG OTONOMI DAERAH DAN PEMBANGUNAN EKONOMI DAERAH. *Jurnal RAK (Riset Akuntansi Keuangan)*, *2*(1), 115–122. https://doi.org/10.31002/rak.v2i2.220
23. Sidik, M., & Apriani, S. (2020). PROSPEK PENGEMBANGAN GETAH GAMBIR (Uncaria gambir) SEBAGAI KOMODITI EKSPOR DI DESA TOMAN KECAMATAN BABAT TOMAN KABUPATEN MUSI BANYUASIN. *Societa: Jurnal Ilmu-Ilmu Agribisnis*, *8*(2), 142–151. https://doi.org/10.32502/jsct.v8i2.2349
24. Yeni, G., Syamsu, K., Mardliyati, E., & Muchtar, H. (2017). Penentuan Teknologi Proses Pembuatan Gambir Murni dan Katekin Terstandar dari Gambir Asalan. *Jurnal Litbang Industri*, *7*(1), 1. https://doi.org/10.24960/jli.v7i1.2846.1-10